

FORMATIVE ASSESSMENT IN INSTRUCTION AS PERCEIVED BY TEACHERS  
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FORMATIVE ASSESSMENT IN INSTRUCTION AS PERCEIVED BY TEACHERS

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## ABSTRACT

The purpose of this study was to determine the perceptions of elementary-level teachers who utilize formative assessment scores to make curricular and pedagogical adjustments for students who perform poorly on those assessments. The research question for this study was, “Do intermediate elementary-level teachers who use formative assessments use the data to adjust teaching?” This study presents data collected from 3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> grade teachers about their perceptions of their impact on student performance, the efficacy of formative assessments, and administrator support.

The literature reports that formative assessment can be used to obtain information about students throughout the school year in relation to the curriculum addressed at a particular time. The literature goes on to suggest that the formative assessment process is a cycle that takes place in the classroom and is part of the natural progression of teaching.

For this descriptive study, teachers across one midwestern state voluntarily completed a survey of teacher perceptions and use of formative assessments. Under the auspices of the state’s testing agency, the author sent an initial invitation to participate to 5,900 teachers who use the formative assessment program. Once data collection was complete, the survey items were grouped using factor analysis and conclusions were made in relation to the teachers’ responses.

The main goal of this study was to determine whether or not teachers change their methods or strategies if their students perform poorly on formative assessments. According to the data, teachers responded that they make instructional adjustments or changes when students perform poorly on the formative assessment. They also responded that they seek professional development opportunities to aid in instruction after formative assessments are given.

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## Chapter 1

### Introduction

This study focuses on determining the extent to which elementary school teachers in a midwestern state utilize formative assessment results to make pedagogical changes for students who perform poorly. The purpose of this chapter is to provide background on the strategies many states are implementing to meet the instructional outcome requirements of the *No Child Left Behind* (NCLB) legislation enacted in 2001. A major goal of NCLB is to increase the accountability of schools and teachers by requiring students to demonstrate Adequate Yearly Progress (AYP) [Sec. 111(b)(2)(J)].

Because teachers have high stakes in the AYP requirement, it is important to know what states are doing to assist teachers in preparing students to meet this requirement. AYP applies to all students, including students who qualify for special education services. *The Individual with Disabilities Education Act* (IDEA), 2004, states “Children with disabilities must be included in general state- and district-wide assessment programs, with appropriate accommodations and modifications in administration, if necessary” [Sec.300.138(a)].

### Background

A popular strategy employed by states is to provide items from prior state assessments for the purpose of creating new formative assessments (Gallager & Worth, 2008). Teachers are encouraged to develop formative tests they can administer to their students. Formative assessments are intended to provide a snapshot of how students are performing at a particular time in the school year. This snapshot allows teachers to review the performance of individual students, and to determine how best to modify their



instruction to assist students whose performance indicates they need additional help in selected content areas. Failure of schools to meet AYP requirements is a consequence of the collective low performance of students. There can be multiple reasons for low performance, which may or may not include the ability of students and the instructional skills of teachers. The resources available to teachers, combined with the professional preparation of teachers, may also be a contributing factor (William, 2006).

Periodically it can be heard in schools and institutions of higher education that teachers “teach to the test” and do not utilize formative assessments as they are intended to be used. One example of teaching to the test is looking at past exam content and focusing instruction on those curricular areas assessed in state assessments. There are differing viewpoints on teaching to the test. Bushweller (1997) states that as long as the test measures what students are supposed to learn, it is fine to teach to the test. However, Brehm and Gates (2008) question the appropriateness of teaching to the test, and suggest that this practice does not foster learning, but instead becomes the year’s entire focus. Herein lies a fundamental question: do students whose teachers teach to the test perform better on comprehensive exams, such as state assessments?

This study will focus on identifying teachers’ perceptions of how they make changes in instruction on the basis of formative assessments. Another issue addressed in this study is whether classroom teachers believe they possess the skills needed to utilize formative assessment results in instructional planning. According to one blue print for state assessment, the formative process should “provide students with timely and useful feedback on how to improve their work” (Wiggins, 2002, p.1). For this to happen, the

teacher needs to know how to effectively use formative assessment results for the benefit of individual students.

### **Classroom Assessment**

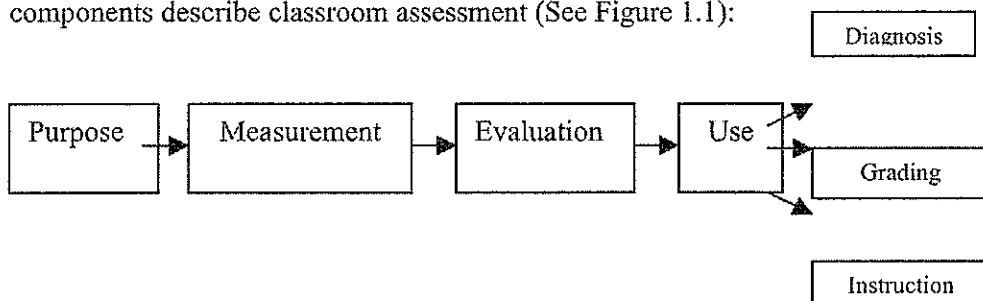
Gipps (1994) suggested that the role of traditional schooling is for the classroom teacher to know exactly what students are learning. Traditional schooling may be described as “teach, then test.” Assessment is the natural process by which teachers find out what students know. Socratic questioning is a prime example of how good teachers use schema and paradigms to determine what students know in relation to what subject matter has been taught (Merritts & Walter, 2006).

School reform has focused extensively on testing and assessment (Sunderman, 2008). When NCLB was enacted in 2001, many educators saw this legislation as a way to hold schools accountable for student learning. Lagemann (2000) suggested that education has failed to develop a strong, self-regulating, professional community. This view of the education profession lends itself to the idea that schools across the country are renegade entities and tend to do whatever they want. However, one could argue that testing and accountability are some of the specific ways states control schools to determine whether learning takes place (Beare & Boyd, 1993).

Tests and assessments evolved to gauge whether a student has mastered a specific subject. Today, assessment tools have been developed to measure many forms of behavior and areas of human performance. In contemporary education, these tools assess performance at specific ages and grade levels.

The role of assessment in teaching is focused on how teachers can improve student learning (Popham, 2003). Teachers must be highly qualified in order to improve

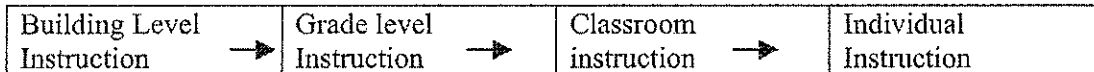
student learning. This process of teacher training and development was integral to the reauthorization of IDEA legislation in 2004, as well as the enactment of NCLB in 2001, and has become a major approach to accountability. According to McMillian (2006), four components describe classroom assessment (See Figure 1.1):



*Figure 1.1.* Flowchart of classroom assessment components.

Popham (2003) reinforced this process of classroom assessment with references to meeting the needs of students. McMillian (2006) says that “a clear vision is needed” when one looks at the purpose of any type of method to measure student learning (p. 9). Additionally, teachers should consider the act of measurement itself, as well as what techniques should be used to gather information. How teachers use assessment results is one of the most important ideas to consider in regard to assessment. McMillian (2006) stated three uses of classroom evaluation that can be beneficial: diagnosis, grading, and instruction. These three uses align with the focus of this study.

In addition to McMillan’s uses of classroom assessment, there have been other roles identified, including the monitoring of learner mastery benchmarks and standards. Butler and McMunn (2006) stated that teachers must ask themselves these questions: (a) what are learning targets, and how do I unpack, or analyze, and reflect on those targets, and (b) what are my goals for my students?



*Figure 1.2.* Formative assessment flowchart.

In the figure above, individual schools use assessment data to make instructional decisions at the building level; separate grade levels make instructional decisions based on data for each grade level; teachers make decisions for their classrooms and also for each individual student (Justice & Vukelich, 2008).

### **Statement of the Problem**

NCLB (2001) has resulted in a level of instructional accountability that places increased expectations on teachers. Teachers are expected to ensure their students meet performance expectations specific to curriculum standards set by their State Educational Agency (SEA). This makes access to assessment data important in instructional decision-making, especially for students who are eligible for IDEA services. Once a child has been identified as qualifying for IDEA services, funding can then be used to help meet the student's needs. Several states have invested in making the assessment and instructional resources that are aligned with curriculum and/or assessment standards available to teachers. One such resource takes the form of formative assessments. Formative items are derived from previously administered state assessments. Teachers may access these items and organize them as tests for their students. The results become additional data teachers may use to make decisions regarding instruction and to enhance the performance of their students. The underlying assumption is that students will achieve the curriculum standards, and that their learning will be reflected in their performance on state assessments. The challenge, however, is that teachers are provided little or no direction

in how to use the results to improve instruction for their students who do not perform well on formative tests (Tienken & Wilson, 2001).

Little is known about how teachers use formative test results (Wilson & Barenthal, 2006). Formative assessments represent timely snapshots of student performance, and are intended as useful feedback to teachers. If used properly in making instructional decisions, formative assessments can increase success in the classroom and performance on state assessments (Wilson & Barenthal, 2006). The intent of this study is to determine how formative assessments, and the results of such assessments, are used in elementary classrooms in a midwestern state. The question addressed in this study is whether teachers change their teaching strategies based on formative test results in order to enhance the performance of students scoring low on the formative tests.

### **Purpose of the Study**

The purpose of this study is to determine whether teachers at the third-, fourth-, fifth-, and sixth-grade levels, in districts that utilize formative data in reading and in math, plan and implement adjustments to instruction for individual students. Because a number of states do not provide a formative assessment program, an additional purpose of this study is to determine whether the use of formative assessments by teachers helps students perform better on state assessments after they make instructional adjustments.

### **Research Question**

This study will focus on whether teachers utilize formative assessment data in improving instruction for learners. Specifically, do classroom teachers at the third-, fourth-, fifth-, and sixth-grade levels utilize formative assessment data in reading and math to plan and implement adjustments to curriculum and instruction for their pupils?

## **Definition of Terms**

*Accommodations:* Accommodations are techniques and materials that make learning easier without changing the basic curriculum. They also help teachers provide access to the general education curriculum for students who are in need of accommodations.

*Adequate Yearly Progress (AYP):* AYP is required under NCLB (2001) and provides a way to measure school performance. Each state is required to establish challenging content and performance standards, and to implement assessments that measure students' performance against those standards.

*Alternate assessment:* This type of assessment is used for a small number of students who cannot participate in large-scale assessments, even with accommodations. However, states may include proficient scores from those assessments, and those scores will be capped at 2.0% of the total tested population. Additionally, states may continue to include proficient scores from such assessments in making AYP decisions and those scores will still be capped at 1.0% of the total tested population (U.S. Department of Education, 2006). Alternate assessments involve evaluative procedures that vary from the usual, customary, or standardized way a measurement is conducted, either by some special accommodation made for the assessee, or by alternate methods designed to measure the same variable.

*Assessment:* The process of documenting, in measurable terms, the knowledge, skills, attitudes and beliefs of students in relation to the curricular requirements of their teachers, as well as state and local educational agencies. Assessment can be formative or summative.

*Computerized assessment (CA):* An online, computer-delivered version of state assessments for the mandated NCLB state-testing program in mathematics and reading. The online testing formats include the same content as the existing paper and pencil test.

*Cut score:* Cut scores are selected points on the score scale of a test. The points are used to determine whether a particular test score is sufficient to reach a particular performance level. Cut score performance levels are narrative descriptions of the skills and knowledge that students must demonstrate in order to reach each performance level.

*Formative assessment:* A form of assessment designed to provide immediate evidence of student needs regarding a particular skill or content area, often conducted at the beginning of, or during, the school year.

*Formative assessments: TestBuilder* is an example of a computer-based vehicle for delivering formative assessments to local schools.

*Individualized Education Program (IEP):* A written plan and legal document that states a child's present level of functioning, specific areas in which the child needs special services, annual goals, short-term objectives, services to be provided, and the method of evaluation to be implemented for children 3 to 21 years of age who have been determined to be eligible for special education.

*Summative assessment:* A comprehensive assessment of the level of student learning at the end of a program. Summative data are often used to provide evidence of mastery and progress toward achieving the goals of a program, about which the summative assessment measures knowledge and/or performance.

## Chapter 2

### Review of Literature

#### Introduction

This study focuses on determining the extent to which teachers in grades 3, 4, 5, and 6 in a midwestern state utilize formative assessment results to make pedagogical changes for students who perform poorly on those assessments. Formative assessment is an instruction-related procedure teachers use to take periodic snapshots of student progress across the curriculum. This review of literature is a description of relevant and current research pertaining to the goals of this study. Topics covered in this chapter are: (a) the history of assessment, (b) school and classroom assessments, (c) formative assessment, (d) summative assessment, (e) formative assessment policies and practices in one midwestern state, and (f) changes in pedagogy based on formative assessment.

The need for assessment has existed ever since the need to determine whether a person is ready to move on in a particular area, or to accept a particular role in life. Gipps (1994) observed that the traditional role of assessment is to help teachers better instruct poorly performing students. While traditional schooling may look like “teach-then-test,” Gipps (1994) would argue that schooling should feature a teach-then-reteach approach, as necessary. Specifically, assessment is the natural process by which teachers find out what students know (Popham, 2010). Socratic questioning is an example of how good teachers use schema and paradigm to determine what students know in relation to what has been taught (Merritts & Walter, 2006). Schema, for teachers, is a mental view of teaching, philosophy, and assessment. This mental view is developed over time from others in the teaching field. Kuhn (1962) defined “paradigm” as a set of practices that define a



scientific discipline during a particular period of time. These sets of practices are what drive teachers in pedagogy and assessment.

School reform has focused on the need for testing and assessment to reflect the success or failure of new policies and practices. From early normal schools to modern institutions of higher education, teacher training was built on science and the discipline of looking for truth (Yung, 2006). This truth, ultimately, was reflected in ways to measure what students learn. Over the years, those efforts led to the widespread practice of systematic “checks for understanding.” These checks have become, and are manifested today, as state assessments (Lagemann, 2000).

When NCLB was enacted in 2001, many educators saw this legislation as a way to attempt to hold schools accountable for student learning. Lagemann (2000) suggested that education had failed to develop a strong, self-regulating professional community; thus, accountability was externally imposed by the federal government and is the lynchpin of NCLB.

### **History of Assessment**

The earliest known written tests were developed in China around 2200 B.C. The earliest standardized tests were used in China around 537 B.C. (Miyazaki & Schirokauer, 1981). These tests were developed to determine whether government officials could perform and bring honor to their particular offices. Unlike aristocrats, government officials were appointed, rather than born, into a position. Special areas such as music and art were subject to particular scrutiny, due to the high honor of those positions (Hashaway, 1998). This type of assessment operated for over 2000 years. Hashaway (1998) goes on to say that in the United States tests were used to determine merit for

positions and advancement until the 1850s. At this point in history, tests did not have reliability data or validity to guide administration. This type of testing ended near the 1850s because of a general lack of accountability and standardization, as well as increased immigration of limited English speakers to the United States (Hashaway, 1998).

In the nineteenth-century, schools began to test their students to see if they had mastered what they were taught. Students who did not pass the tests were literally left behind, and were required to repeat what they had not mastered (Boaler, 2000). Teachers in the nineteenth century were often required to pass a test of their knowledge, and could be interviewed by members of the local school board to ensure they measured up to community, secular, and most often, religious standards, and to ensure the teachers were “fit” to serve in that role. Once a candidate was hired for a teaching position, he or she faced no more tests of proficiency or pedagogical delivery (Fiske, 1987). Ravitich (2002) stated that the feeling in schools at that time was that if a student failed to learn, it was the fault of the student.

Changes implemented at the turn of the 20<sup>th</sup> century increased student success as well as the standing of the United States in the global market. Shepard (2000) stated that the social efficiency movement of the 1900s sought to use science to solve problems of industrialization and urbanization. However, this movement also sought to improve education in order to address the larger issues of industrialization and urbanization.

Modern assessments were born of necessity to gauge student mastery of specific subjects (Parsons, Hinson & Sardo-Brown, 2001). Because there were no standards or standardization processes in place in at the turn of the 20<sup>th</sup> century, assessments may have

been churned out haphazardly and randomly (Watkins & Campbell, 2000). Today many assessment tools have been developed to measure a wide range of constructs, from IQ to attitudes about one's career choice. In the contemporary education setting, assessment tools are developed to show specific performances at specific ages and grade levels. These tools have been developed with stringent validity and reliability measures in place. Stiggins and Conklin (1992) stated that, over time, assessment tools became better at what they measured because of the nature of school reform and improvement.

From the mid 1830s to 1852, Horace Mann became a revolutionary educator through his advocacy for the standardization of schooling, particularly school evaluation and measurement (Hashaway, 1998). Mann measured the progress of students in Boston schools and provided an accountability tool for school boards. In this way, school boards could hold administrators accountable for student learning. Roles and responsibilities that focused on student learning and achievement, for administrators and teachers alike, came to light as various educational reforms gained a foothold in the United States' educational system. Historically, assessment practices shifted the responsibility for learning slightly away from the learner and somewhat toward the school and its leaders. No longer was the responsibility for failure on the student alone; responsibility was placed on administrators and subsequently on the classroom teacher (Hashaway, 1998).

### **Assessment Practices in Schools and Classrooms**

Sternberg and Williams (1998) observed that students in all disciplines, and at all levels, confront exactly the same problem: they are being taught by methods that fit poorly with patterns of abilities. Sternberg and Williams (1998) went on to ask whether teachers should teach to student strengths rather than weaknesses. If so, teachers and

students need to understand the student's strengths and weaknesses, and then direct instruction to the strengths in order to minimize the weaknesses. This is related to classroom assessment because teaching to the test is one of those ideas teachers use to compensate for perceived deficits in students. Firestone, Monfils and Schorr (2004) indicated that teachers might use the approach of teaching to the test as a way of predicting in what areas the students will perform poorly on actual tests.

Weimer (2002) stated assessment can be a process of gathering information from multiple sources, including student self-assessment, to provide a snapshot of what students know and can do. This implies that assessment may be as simple as the teachers' and students' subjective judgment of performance, or as complex as a comprehensive, standardized test of several content areas. Wormeli (2006) pointed out that assessment affects a variety of decisions, including grades, advancement, placement, instructional needs, and curriculum. Teachers must be diligent in fair and useful grading practices. This perspective of assessment as the gathering of information allows teachers to make adjustments to teaching methodology as well as assign grades for course content.

Testing increases the pressure placed on teachers and administrators to devote considerable time to prepare students to do well on tests. Damage to students and schools can be an unintended product of this increased pressure (Thomas, 2005). As a consequence, narrowly focused tests that emphasize recall have led to a similar narrowing of curriculum and emphasis on rote memorization of facts, with little opportunity to practice higher-order thinking skills. Such a practice essentially involves teaching to the test (Thomas, 2005). When teachers teach to traditional tests by providing daily skill instruction in formats that closely resemble tests, their instructional practices

are both ineffective and potentially detrimental, due to their reliance on outmoded theories of learning and instruction (Thomas, 2005). According to Firestone, Monfils and Schorr (2004), teaching to the test has been linked to intense preparation for an exam, in the form of end-of-the-year summative assessments. Firestone, Monfils and Schorr (2004) went on to say teachers know more about teaching to the test than they do about what items might be included on an assessment.

According to Butler and McMunn (2006), like all assessments, high stakes tests pursuant to the requirements of NCLB (2001) are used to collect information about students and make comparisons. Unlike formative assessment, high stakes tests are used to gauge knowledge of students without regard to remediation. One of the purposes of high stakes tests is for teachers, administrators, parents, and students to discern comparative similarities and differences between and among students (Madaus, Russell, & Higgins, 2009). Madaus, Russell and Higgins (2009) observed that, in preparing students for high stakes testing, teaching to the test becomes an incentive to help students succeed on summative assessment.

Both schools and parents depend on assessment. Teachers and administrators use assessment to perform individualized diagnostic routines for students, as well as to monitor their advancement in the curriculum before, during, and/or after the school year. This process is formulated to assess, provide feedback, and ultimately motivate students to perform. In essence, teachers and administrators use assessment to make informed and educated estimates about students' performance in relation to mastery of goals and benchmarks of the curriculum (Butler & McMunn, 2006). Parents use assessment to assess strengths and weaknesses in educational programs, as well as to determine and

build upon the individual interests and strengths of their children. Parents also use assessment as NCLB intended—that is, to hold schools accountable to standards set by state and local educational agencies. Like teachers and administrators, parents also use assessment to make informed and educated decisions about their children’s education.

Butler and McMunn (2006) identified several key features of assessment in the classroom. First, classroom assessment should be authentic (see Wiggins, 2002). This type of assessment should provide relevance in regard to task and environment. Authenticity can increase student ownership of the assessment process by showing students the real-life application of what is being measured. An example of authentic assessment could involve assessing the accuracy of making change at a student-run school store.

Classroom assessment should also be characterized as quality assessment (Angelo & Cross, 1993). Quality, in this case, involves a clear and concise purpose regarding what data the teacher is trying to obtain by way of assessment. Teachers can directly measure performance in relation to expectations and provide instructive feedback to students.

A third feature is that tests should be a routine part of on-going classroom assessment and instruction. Typical tests measure content, knowledge, and the skill-performance of students. In recent years, teachers have devised classroom tests to measure students’ progress toward general education curriculum standards (Tindal & Haladyna, 2002).

Finally, in general, classroom assessments serve a diagnostic-prescriptive purpose, but they can also be used to inform policy and drive accountability provisions of policy. According to the United States Department of Education (2006), the NCLB

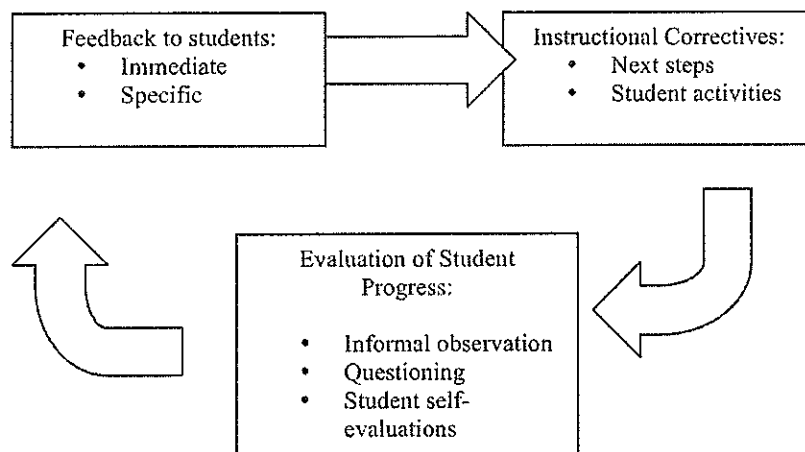
accountability provision requires states to describe how they will close the achievement gap and make sure all students—including those experiencing economic disadvantage, those among ethnic minority groups, those with disabilities, and those whose primary language is not English—achieve academic proficiency. Schools must report data to the state departments so the latter can produce annual state and school district report cards that inform parents, community, and policy makers about the status of student proficiency and school progress. Schools that do not make adequate progress must provide supplemental services, such as free tutoring or after-school assistance, take corrective actions, and, if still not making adequate yearly progress (AYP) after five years, make dramatic changes to the way the school is run (Walsh, Kemerer, & Maniotis, 2005).

**The role of formative assessment.**

The role of formative assessment is to assess students periodically in order to determine the extent to which they have learned what has been taught. Dell’Olio and Donk (2007) stated that the most important product of formative assessment is immediate and frequent feedback. This is important for teachers, because they can focus specifically on re-teaching skills students did not master, and give students experiencing difficulties more information. This is important for the student, not only because he or she will be left behind, but also because re-teaching can focus on learning, rather than merely finding the right answers.

Formative assessment is an approach to assessment that enables “snapshots” of student progress within the curriculum; “Formative assessment has become a buzzword in the field of educational measurement” (McMillian, 2006, p. 117). Student achievement and success are enhanced, in regard to pressing toward benchmarks, when effective

formative assessment strategies are used (McMillian, 2006). Formative assessment can be used to take a quick look at how the students are progressing toward those benchmarks. Quenemoen and Thurlow (2004) state teachers must put time, effort, and thought into improving how they determine what students are learning. This can improve all forms of assessment, in varying contexts and for varying purposes, including formative assessment. Formative assessment, when implemented as intended, operates as a cyclical and continual process involving student work and behavior, feedback to students, and instructional correctives. McMillian's (2006) Formative Assessment Cycle illustrates this process:



*Figure 2.1.* The formative assessment cycle.

Ainsworth and Viegut (2006) observed that formative assessment could provide immediate feedback to students regarding their current levels of understanding. When teachers have information on which to base educated decisions about their students, they can plan accurately and with necessary precision in relation to curriculum standards. If the teacher knows in advance what knowledge and skills are required for students to master a particular subject, the use of formative assessment, such as a sight word



recognition activity in reading, can help teachers set grade level mastery benchmarks (Ainsworth & Viegut, 2006).

Hall and Burke (2004) stated that a prominent use of formative assessment is to engage in permanent interaction with the curriculum, providing evidence that learning is occurring. Teachers can use formative assessment to examine student learning over time and in multiple contexts. Moreover, these authors regard formative assessment as a process that takes place in the classroom, beginning with eliciting a response from the student, revising instruction, and as a result, improving student learning.

Having students score and analyze their own formative assessments furthers the benefit to students (Ainsworth & Viegut, 2006). This process can help students set goals, as well as establish a buy-in for the assessment process as a whole. Student experience in formative assessment allows teachers to make pertinent adaptations and adjust for those students who may not be learning what the teacher is teaching. Formative assessment enables teachers and students alike to respond constructively to instructional data and increase student performance (Wormeli, 2006).

#### **The role of summative assessment.**

Unlike formative assessment, summative assessment involves a comprehensive evaluation of people and/or a program. It is used to evaluate the level of learning at the end of a program (Popham, 2003). Summative data are often used to provide evidence of mastery and/or progress toward achieving the goals of the program for which the summative assessment measures knowledge and/or performance. In schools, summative assessment is most often used to make judgments regarding student performance. These judgments are then represented as marks, scores, or statements such as a “B+”, or “shows

improvement.” Summative assessments can then be defined as a measure of performance at the end of a sequence of study (Miller, Imrie, & Cox, 1998).

Standardized assessment, pursuant to the requirements of NCLB (2001), is summative in nature. As such, its results provide data for local administrators, state education officials, and, ultimately, state and federal policy makers. However, given the timing of the release of test scores, and the summative nature of these assessments, teachers are unable to use the test scores to make adjustments in specific curriculum content or teaching methods for the class of assessed students. Realizing the potential benefit of formative assessments for teachers and students, many states provide schools the option to take part in formative assessment procedures periodically throughout the school year, as part of the state’s (summative) standardized assessment programs. One such midwestern state served as the focal point for this study.

#### **Formative Assessment Practices in One Midwestern State**

In the Midwestern state where this study was conducted, formative assessment comprises a computer-based assessment delivery system, developed at one of the state’s universities. This computerized formative assessment is a tool designed to enable teachers to monitor students’ progress in reference to the state’s standards-based curriculum.

This state’s education department does not track the identities of those who take the formative assessment (D. Bowman, personal communication, January 7, 2010). However, the state’s Board of Education provides the formative assessment tool as a suggestion for supplementing instruction, prior to the summative assessments at the end of a school year. Not all schools in this state use the formative assessment tool, nor are

they required to do so. Any student is eligible to sit for this computerized assessment as their “official” state assessment. However, students may complete the formative assessment, via the formative assessment tool, if their school participates in the statewide program.

Test Builder is a computer program developed by the state university for teachers to develop and implement formative assessments. To use Test Builder, a teacher subscribes to the program via on-line registration; he or she is able to build specific assessments to meet his or her needs. Two processes are available: an existing, pre-built test, or the option to build one’s own test by selecting individual questions. Formative assessments provide feedback that can be used to modify teaching and learning activities.

Test Builder involves the following processes: (a) selecting and assigning formative tests, (b) modifying and creating formative tests, (c) administering formative assessments, (d) viewing and interpreting students’ results after giving formative assessments, and (e) accessing the teacher formative testing system. Once formative assessments are given, teachers can then look to improve the ways they introduce and teach the curriculum.

### **Change in Teacher Pedagogy with Assessment**

The term “pedagogy” means the manner in which something is taught (McLoughlin & Taji, 2005). Pedagogy can also be described in terms of a deep-rooted values system regarding how teachers approach the process of teaching. McLoughlin and Taji (2005) stated that teachers must be given time to think about the change in pedagogy that may come after formative assessments are given, because their values systems are developed over time and cannot be changed quickly. Several authors have indicated a

need for change in how teachers view adjustments in pedagogy. According to Appleton (2006), pedagogy is based on a view of learning held by the individual teacher. This view is shaped over time, and often is teacher-centered. Activities can be accepted or rejected according to how the teacher sees his or her learning environment.

Gordon and Bridglall (2006) observed that pedagogy is an interaction between students and teachers in relation to learning; thus, this relationship may be fluid rather than static. Formative assessment is a process that takes place at periodic intervals in the classroom, to provide pertinent information to guide the teacher to make appropriate adjustments to pedagogy.

The question may be posed, "Are teachers literate in assessment?" Stiggins (1999) used the term, "assessment literacy," as a way of showing the types of assessment skills teachers possess and utilize for the benefit of students. Stiggins (1999) also noted that many teachers did not have experience developing these skills in their teacher education programs. Olson (2002) reported that only 14 states required teachers to demonstrate competence in assessment to earn a teaching license, and only three states required that principals show expertise in assessment.

Shepard (2000) expressed the need for teachers to develop classroom assessment skills to increase student success, based on emerging research and discipline-based standards documents. Shepard (2000) went on to suggest that teachers need to make the following changes in their assessment practices: first, teachers must change their approach to teacher-student communication so that students can develop greater knowledge of, and responsibility for, learning goals; second, teachers must discover and develop students' prior knowledge and use that information in planning better instruction

to meet student needs; next, teachers must provide feedback to students that enhances the educational process, as opposed to information that focuses solely on deficits.

Building teachers' assessment skills and tools should be a focus of teacher education programs; new teachers should expect to share their knowledge of assessment with school administrators in screening interviews (Wilson, 2004). Because the stress of high stakes testing is so apparent in schools today, teachers may enter the profession at a disadvantage, due to lack of training in assessment. Butler and McMunn (2006) provided a phase system for implementation of assessment training and skills development. Phase one is the goal setting phase. This phase allows teachers to access and learn district benchmarks and standards. This helps teachers to develop standards and expectations for their students, as well as collaborative relationships with veteran teachers, in order to begin building expertise in assessment. Phase two includes the processes by which grading and reporting practices are examined. This phase focuses on principles of good classroom assessment, developing the ability to distinguish between formative and summative assessments, and learning how to interpret and analyze assessment scores. Phase three is the implementation of effective classroom assessment practices. In this phase, teachers regularly examine assessment practices and pedagogy, and continue to develop collaborative relationships with veteran teachers and the administration.

Butler and McMunn (2006) stated that teams of teachers can enhance assessment skills. Butler and McMunn (2006) have also shown that, through the process of collaborative learning and organizing teachers around learning teams, an educational institution can address and potentially improve the organization's capacity for change. Collaborative learning among teachers can improve capacity for change by allowing

teachers to develop skills that focus on each student's individual learning needs.

Cunningham (2003) advocated for a learning-centered model that utilizes assessment tools matched to individual teaching styles. The move from teacher-centered models of learning to student-centered models has led to changes in teacher education programs across the United States (Appleton, 2006).

Sunderman (2008) showed teachers might need to go back to the basics with regard to assessment. According to these authors, schools need to determine a more efficient and manageable way to implement assessment for changes in pedagogy to occur. They also showed that effective change could come from re-thinking the assessment process as a whole to allow for change in pedagogy with effective data collection and interpretation.

Formative and summative assessments play an integral role in measuring student performance. Teachers use data from these assessments to make decisions regarding mastery of content, grading, and movement from one grade to another. Teachers also use formative assessments as a way to determine student performance at periodic intervals throughout the school year. Data from formative assessments provide a rationale for change in pedagogy, in order to reach students who are performing poorly. Chapter 3 will review the methodology and data collection processes of this study.

## Chapter 3

### Methodology

#### Study Purpose and Procedures

The purpose of this study was to determine the perceptions of intermediate elementary-level teachers who utilize formative assessment scores to make curricular and pedagogical adjustments for students who perform poorly on those assessments. The research question for this study was, “Do intermediate elementary teachers who administer formative assessments use data from these assessments to adjust their teaching?”

#### Participants

Participants were 164 intermediate elementary-level teachers in a midwestern state who voluntarily completed a survey regarding use of formative assessments. Under the auspices of the state’s testing agency, the author sent an initial email (January 2008) to 5900 teachers who had used the formative assessment program. Of the 5900 email messages distributed, 566 were returned as “undeliverable.” One hundred six emails had been sent to teachers who did not fit the sample parameters of this study. Thus, the total number of emails successfully delivered to teachers of grades 3, 4, 5, and 6 was 5228. When data collection started, 180 of the teachers responded via email that they would be willing to participate in the study. When data collection ended (late February 2008), 164 of the original 180 teachers had completed the survey. As of February 2008, 164 of the 5228 (3.1%) teachers who reported utilizing formative assessments had participated in the study in part or whole. Consequently, email links and reminders were sent only to those 180 teachers who had agreed to participate in this study.

To maximize participation rates for this study, the incentive of a pencil was promised to all 180 participants on the condition that they provide their school address so the pencil could be mailed.

### **Development of the Survey**

To begin the process of developing this survey, the researcher consulted two administrators: an assistant superintendent and a building principal, each employed in a different local education agency (LEA). These administrators were chosen because of their extensive experience with state assessments at the district level, as well as their work experience in assessment. Conversations with these administrators involved the feasibility and appropriateness of survey formatting and content. For example, both administrators were asked about the appropriateness of questions related to the skills, instructional responsiveness, and efficacy of elementary teachers.

Pilot testing began in the fall of 2007 with 21 intermediate elementary-level teachers and administrators in these same two LEAs. Administrators were chosen to participate in the pilot study for two main reasons: first, because building administrators could provide face validity for the study; secondly, because building administrators at the elementary level are often former elementary classroom teachers; their perspectives might, therefore, reflect the general population of the participants in this study. Of the 115 surveys distributed, 21 were completed and returned. The return rate of 12.7% from the entire pilot study was lower than expected. A reminder was sent out two weeks after the pilot surveys were distributed. At one LEA, reminders were mailed to individual building administrators and were distributed accordingly. The Assistant Superintendent was also contacted and a reminder was sent to the participating teachers. This reminder



produced an additional two responses. At the other LEA, the reminders were taken to individual schools and placed in the teachers' mailboxes. This reminder produced an additional five responses. See Appendix B for an additional explanation of the results of the pilot study.

The study survey was formatted using a four-point Likert scale, which removes the neutral response and forces participants to agree or disagree with survey items (Lancaster, 2005). Statements were posed in such a way that participants' answers could be labeled as follows: 1=strongly disagree, 2=disagree, 3=agree, and 4=strongly agree. Groups of statements were used to determine each individual's perceived awareness of multiple areas of teaching. These areas were: a) effectiveness of teaching as reflected in the formative assessment process, b) administrator support in state assessments, c) changes in teaching strategies and methods with formative assessment score receipt, and d) professional development in knowledge and skills related to formative assessment score utilization.

Because the use of electronic surveys can be a way to reach potential respondents and possibly increase response rates, the Internet data collection site, <http://www.surveymonkey.com>, was used to host the survey and collect responses. Best and Krueger (2004) indicated that once participants are identified, an instrument can often be administered by email. The survey link was emailed four times to all participants within the data collection period. The initial email for the link to Surveymonkey.com was sent to 180 participants in December 2007. Another email was sent in early- and mid-January 2008. Finally, a reminder email was sent out in mid-February 2008. Kaplowitz, Hadlock, and Levine (2004) observed that using the web to collect research data achieves