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Formative Assessment:
A Research Summary

The role of formative assessment in student outcomes, personalized learning, and PLCs

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Definition

In contrast to summative assessment, which focuses on grades, formative assessment is generally understood to focus on student learning, providing teachers with data to continually tailor instruction to student needs. According to Black & Wiliam (1998), "Assessment becomes formative when the evidence is used to adapt the teaching to meet student needs."

Stiggins (2005) defines the difference as follows: "Summative assessment has referred to tests administered after learning is supposed to have occurred to determine whether it did. Meanwhile, formative assessment is conducted during learning to promote, not merely judge or grade, student success."

Similarly, Formative Assessment for Teachers and Students (FAST), a program of the Council of Chief State School Officers (CCSSO), has defined formative assessment as "a process used by teachers and students that provides feedback to adjust ongoing teaching and learning to improve students' achievement of intended instructional outcomes" (cited in Popham, 2008).

Definitions generally include the concepts of culturally responsive teaching and feedback within a learning context, or "information with which a learner can confirm, add to, overwrite, tune, or restructure information in memory, whether that information is domain knowledge, meta-cognitive knowledge, beliefs about self and tasks, or cognitive tactics and strategies" (Hattie & Temperley, 2007).

However, some researchers have avoided a standardized definition of formative assessment because the variety of implementation has complicated effective practice (Clark, 2011).

Research indicates that formative assessment helps teachers understand what students know and do not know, allowing them to guide student learning with personalized learning pathways.

"Assessment becomes formative when the evidence is used to adapt the teaching to meet the student needs."

-Black & William (1998)

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Goals

A major goal of formative assessment is to develop students' meta-cognitive strategies, to help them set goals, monitor their own progress, and evaluate their thinking processes, supported by active learning, mutual discourse, and the democratic values of equality, representation, and consensus, according to Clark (2011).

Stiggins (2005) emphasizes that formative assessment must change the emotional environment around testing, especially for perennial low achievers. It must require students to move beyond the goal of outperforming other students toward the goal of individual competency. And it must require teachers to help all students believe they can achieve a level of academic success.

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Summative vs Formative Assessment

Despite the prevalence of summative, or high-stakes, testing, researchers have repeatedly pointed to its negative impact on students, who may suffer from intense pressure, repeated failure, and public comparison. Turner, Thorpe and Meyer (1998) found that students with low self-efficacy and goal orientation typically experience high levels of test anxiety and do not rise to meet the demands. And Stiggins (2005) refutes the common belief that test anxiety builds motivation, "To maximize learning, our teachers believed, maximize anxiety. Assessment has served as the great intimidator."

Scriven (1966) points out that although summative assessment breaks down class performance into individual performances, it does not match instructional materials and techniques with individual student backgrounds, abilities, interests, and attitudes. As a result—although high-stakes testing such as No Child Left Behind was intended to support low- achieving students—it may exaggerate academic disaffection and the achievement gap.

Scriven identifies negative effects of high-stakes testing in several subject areas. For example, in students' development of scientific understanding, "it might be the case that very little accretion occurs in the understanding of a child during any course or year, but that tiny accretion may be of very great importance in the development of good scientific understanding. It would not show up on tests, indeed it might be stultified by the intrusion of tests. In this case, evaluation seems to be both incompetent and possibly destructive."

Other studies have identified a relationship between high-stakes culturally unresponsive learning environments, academic disaffection, and achievement disparities (e.g., Bishop & Glynn, 1999; Harlen & Deakin Crick, 2003.) Shute & Kim (2011) define the primary problem with current assesment practices as follows: "The information from the assessment is not being used, as it could and should, to support teaching and learning." And Clark (2011) points to an intense administrator focus on summative testing that "de-skills, de-motivates and de- professionalizes teachers."

In contrast, according to Shute & Kim (2011), "research suggests that well-designed and implemented formative assessment is an effective strategy for enhancing student learning. Evidence to date suggests that students in classes where formative assessment was implemented learned in six months what would have taken a year in other classes."

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>
> -Shute & Kim, 2011

Black & Wiliam (1998) found that formative assessment helps low achievers more than other students, thus reducing the range of achievement while improving overall performance. And researchers such as Symonds (2004) found that schools where data was used were significantly more successful than others in closing the achievement gap. Sadler (1989) and others attribute this rise in achievement to students' ability to influence their own learning, as they gradually become more independent and self-monitoring.

Implementation Changes

However, true formative assessment is still not widely used in U.S. classrooms. Research has identified numerous challenges, including a relatively weak policy agenda (Clark, 2011) and few opportunities for teachers to learn how to use formative assessment to improve learning (Stiggins, 2005). Two explanations have been identified by Shute & Kim (2011): "It's hard to do, and it's often misconstrued as yet another test," rather than a "test-supported process" (Popham, 2009).

The Council of Chief State School Officers (CCSSO) has echoed this viewpoint: "The core problem lies in the assumption that formative assessment is a particular kind of measurement instrument, rather than a process that is fundamental and indigenous to the practice of teaching and learning" (Heritage, 2010).

And Clark (2011) has pointed to poor timing, since the interest in formative assessment coincided with the NCLB belief that instructional processes require clear definition and measurement in order to be valid. Consequently, meta-cognitive learning strategies and culturally responsive teaching have received little consistent emphasis in U.S. schools.

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Success Factors

Black & Wiliam (1998) emphasize that true formative assessment requires significant rethinking, "It involves far more than the addition of a few observations and tests to an existing program. What is needed is a classroom culture of questioning and deep thinking, in which pupils learn from shared discussions with teachers and peers."

Because schools that close the achievement gap have been shown to assess students often and change their instructional \programs accordingly, Symonds (2005) emphasizes that schools need frequent, reliable data, and teachers need support to use data effectively. Students play an important role in this model, gradually understanding the path they need to follow and partnering with their teachers to continuously monitor their level so they can help to set goals and manage their progress.

According to Stiggins (2005), the rethinking process requires "many different assessment methods to provide students, teachers, and parents with a continuing stream of evidence of student progress in mastering the knowledge and skills that underpin or lead up to state standards. This assessment FOR learning focuses on day-to-day progress as students climb the curricular scaffolding leading up to state standards. When consistently carried out as a matter of routine within and across classrooms, this set of practices has been linked to achievement gains of one-half to two standard deviations on high-stakes tests, and the largest gains made are by low achievers."

"Assessment FOR learning focuses on day-to-day progress as students climb the curricular scaffolding leading up to state standards."
-Stiggins, 2005

Clark (2011) lists the teaching strategies necessary for effective formative assessment: higher- order questioning techniques, problem solving techniques, jot time to help students commit their ideas to writing, use of misconceptions, wait time, traffic lighting, group and pair work, discussions, feedback as comments not grades, oral feedback, sharing of assessment criteria, peer assessment, redrafting of work, and peer-peer communication. Stiggins (2005) describes how teachers must continually offer descriptive feedback and focused guidance specific to the learning target and manage student involvement effectively.

Researchers have pointed to the important role of feedback in formative assessment, and Hattie & Timperley (2007) identify different types of feedback that often overlap. The most common type of feedback is feedback about the task, often called corrective feedback, that generally relates to correct-ness, neatness, or behavior. Feedback about the processing of the task concerns information about relations in the environ-ment, relations perceived by a person, and relations between the environment and the person's perceptions. Feedback about self-regulation addresses the way students monitor, direct, and regulate actions toward the learning goal.

"Teachers need to make appropriate judgements about when, how, and at what level to provide appropriate feedback."
-Hattie & Timperley, 2007

"Teachers need to make appropriate judgments about when, how, and at what level to provide appropriate feedback and to which of the questions it should be addressed. Feedback, however, is only part of the answer, and under certain circum-stances instruction is more effective than feedback. Feedback can only build on something; it is of little use when there is no initial learning or surface information" (Hattie & Timperley, 2007). These findings indicate that the best use of assessment is to inform instruction.

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The Role of PLCs

According to Stiggins (2005), few opportunities exist for teachers to acquire the new skills they need in order to use formative assessment and data to improve learning. Hattie & Jaeger (1998) emphasize that "providing and receiving feedback requires high proficiency in developing a classroom climate, the ability to deal with the complexities of multiple judgments, and deep understandings of the subject matter to be ready to provide feedback about tasks or the relationships between ideas, willingness to encourage self-regulation."

Consequently, professional learning communities (PLCs) play an important role in developing teachers' knowledge of practice and supporting the focus on student learning. Vescio, Ross, & Adama (2008) point to five essential characteristics of PLCs—shared values and norms; a clear and consistent focus on student learning; reflective dialogue among teachers about curriculum; instruction, and student development; de-privatized practice to make teaching public; and a focus on collaboration.

In their research review of PLCs, Vescio, Ross, & Adama report that, "All eight studies that examined the relationship between teachers' participation in PLCs and student achievement found that student learning improved. There seemed to be a common feature that facilitated success, a persistent focus on student learning and achievement by the teachers in the learning communities."

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> -PLCs, Vescio, Ross, & Adama

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MasteryConnect Alignment with Research

MasteryConnect addresses the research findings in numerous ways. It addresses the goals of formative assessment by continually providing teachers with the data they need to adjust teaching and learning, tailor instruction, move beyond grading, and promote student success. It is designed to identify students' levels of understanding and target learners for intervention, using formative assessment data to evaluate and improve outcomes. Teachers can take advantage of MasteryConnect's formative assessment test bank based on over one million standards, as well as third-party test banks. They can also create their own standards-aligned formative assessments and custom benchmark or interim assessments, with numerous reports to keep principals and district administrators in the loop.

As stressed by many researchers, MasteryConnect provides formative testing information to support learning rather than judge students and teachers. As students and teachers access data in real time, immediate feedback motivates students to take ownership of their learning and helps teachers determine how to support every student. MasteryConnect goes beyond data collection to inform instruction. Teachers can use MasteryConnect as a framework to help students develop the meta-cognitive strategies that are part of true formative assessment. At the same time, it helps teachers improve their practice and build a consistent curriculum by supporting data sharing and collaboration in PLCs.

Research indicates that access to frequent, reliable data plays a key role in closing the achievement gap, and MasteryConnect has been shown to improve student outcomes. According to Utah principal Todd Theobald, teachers and students in his high-poverty school successfully set goals and tracked progress in weekly PLC meetings based on MasteryConnect data. With each teacher focusing on a few key standards and impartial data providing support in a challenging teaching environment, the school saw a rapid improvement in student achievement. "We used to be a failing school, but with MasteryConnect we moved from an F to a B in one year," said Todd.

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-Todd Theobold, Utah Principal

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Summary

As schools increasingly look to personalized learning paths to drive student improvement, research indicates that teachers must first know what students do and do not know in order to create those paths. Formative assessment provides teachers with the data they need in daily classroom practice. And PLCs help them learn how to use that data to develop personalized instruction, build a common curriculum to support consistent instruction, and analyze and improve their own practice—recognizing that "instruction and formative assessment are indivisible" (Black & Wiliam, 1998). MasteryConnect is designed to support teachers, students, and administrators throughout this crucial process.

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The Canvas Learning Management Platform is a set of teaching and learning tools designed to deliver the digital foundation for schools and districts of all sizes. As part of the Canvas platform, MasteryConnect delivers the standards-aligned performance data K-12 educators need to improve instruction and student outcomes. With integrated formative and benchmark assessment tools, you can more easily target interventions, adjust instruction in the moment, and cultivate collaborative teams. **Learn more at https://www.instructure.com/canvas/k-12.**