The Power of Formative Assessment

Use Data to Improve Educator Effectiveness and Student Achievement

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Examining Formative Assessment

Formative assessment is an ongoing process, while test-taking is an event. Formative assessments enable rather than evaluate (Heritage, 2011). They are assessments for learning rather than of learning.

When used correctly, formative assessment — checking in at frequent, regular intervals throughout the school year to quickly determine student mastery of academic concepts and content — can improve teaching and student achievement by providing data and tools to drive timely, evidence-based instruction that helps every student grow and achieve learning goals, regardless of where they started. The purpose of this whitepaper is to further explore the use of formative assessment, evaluate its effectiveness and explain how to use formative assessment data to support teaching and learning.

Defining and Conducting Formative Assessment

Assessments are commonplace in today’s classrooms. While essential in an educational environment that continues to raise the bar for student achievement and place stronger emphasis on personalized learning, frequent testing can take away from valuable instructional time and lead to testing fatigue. It is important that all stakeholders — administrators, teachers, students, parents — understand what formative assessment is and its value.

Defining Formative Assessment

Formative assessments are not to be confused with summative assessments. Formative assessments occur throughout the learning process to evaluate how well students are learning, while summative assessments take place at the end of a learning sequence to determine what, or if, students have learned. Summative assessments also are often high-stakes, graded and weighted, and used for accountability purposes.

Formative assessment has two objectives: it is an assessment for learning, and an assessment as learning. The first objective, for learning, is to monitor all students’ progress toward a specific learning goal and to use that growth knowledge to close the gap between what the students know and what they need to know. The second objective, as learning, refers to the importance of feedback and the teacher’s and the student’s role to reflect on learning (Clark, 2012).

There are two categories of formative assessment: Universal screening and progress monitoring. Both are essential to an effective Multi-Tiered System of Supports (MTSS). Universal screening should be administered first to check
group ability levels and to identify on-track, high-performing and at-risk students. If a majority of students are struggling with a concept or skill, educators can then make broad changes to core Tier 1 instruction and delivery, as well as professional development to support teachers. When specific students are identified as at-risk, teachers can differentiate instruction for those individuals. The system also can identify interventions that are needed for at-risk students.

Following universal screening, progress monitoring should take place for at-risk students participating in Tier 2 and Tier 3 support. Progress monitoring should occur frequently — usually weekly or bi-weekly — but it is brief. These assessments allow teachers to quickly assess a student’s performance, measure their rate of improvement toward learning goals and evaluate whether the interventions and supports in place for each student are working. From there, teachers can determine whether to adjust instruction, continue with current practices or end intervention entirely. The result is highly responsive, efficient and targeted instruction.

**Conducting Formative Assessment**

Formative assessments can be administered in a number of ways. The most effective are evidence-based assessments proven to be valid, reliable measures of student achievement. They also take a multi-source, multi-method approach that combines Computer-Adaptive Testing (CAT) and Curriculum-Based Measurement (CBM) in order to provide a more complete picture of the whole child and accurately measure student proficiency, risk and future outcomes using the most appropriate tools for their intended purposes.

- **Computer-Adaptive Testing (CAT):** CAT uses student answers to inform subsequent questions and automatically adjust to a student’s skill level. This provides a measure of broad achievement, making it best-suited for universal screening.

- **Curriculum-Based Measurement (CBM):** CBM are quick and sensitive to a student’s growth over brief assessment periods. For this reason, CBM is ideal for progress monitoring.

Formative assessments provide highly accurate data about a student’s level of understanding throughout the learning process to drive differentiated and targeted instruction. For that data to make a difference in instruction and achievement, they must be actionable and applied with purpose.
Evaluating Formative Assessment

There are differing philosophies around formative assessment: how it should be defined, how assessments should be structured, how it is conducted, and whether or not assessments should be graded.

But what defines formative assessment more than its design is how it is used. Formative assessment must be integrated into the teaching and learning process and used to improve instruction and academic achievement. When this is done effectively, there is little disagreement among educators and researchers that formative assessment works.

A Review of Important Research

In general, research conducted around formative assessment and its impact on student achievement shows a positive correlation between the two: Students who consistently complete frequent formative assessments throughout the learning process perform better on a variety of indicators than their peers who don’t (Hanover Research, 2014).

Research has found that the impact of formative assessment on achievement can result in as much as .4 to .7 standard deviations. This is the equivalent of moving from the 50th percentile to as high as the 75th percentile on standardized tests (Brookhart, 2010).

One of the most-cited resources on the effectiveness of formative assessment was conducted by Paul Black and Dylan William, who drew from more than 250 articles on formative assessment to determine that research shows formative assessment does improve learning — potentially more than other education interventions. Black and William came to the conclusion that not only is formative assessment an essential component of classroom work, but also that implementing formative assessment practices can raise standards of achievement. They found this to be particularly true among low-achieving student groups compared to their peers.

Core Features of Formative Assessment

For formative assessment to have an impact on teaching and learning, it is critical that it be applied correctly for universal screening and progress monitoring. The purpose of formative assessment is for teachers to quickly and efficiently identify students in need of support, create instructional targets for those students, monitor student growth toward those goals, and then determine when intervention and supports need to be altered or are no longer needed.
For this to occur, any approach to formative assessment must include these four core features:

1. **Clear Instructional Objectives or Learning Targets**
   Teachers must define what students must know, understand and do as an outcome of learning. Even more importantly, these learning targets need to be shared with students. Moving forward, these targets must be tied to ongoing formative assessment and progress monitoring so both the teacher and students know where they are in relation to the goal and what they must do to master the learning objective.

2. **Integrated Instructional Tools**
   Formative assessment should be equipped with tools that are useful and efficient, helping teachers quickly accomplish one or more of the following goals:
   - Screening students to identify those who are on track to meet learning targets, or at risk of missing them
   - Providing information regarding skills and knowledge gaps that must be targeted in instruction
   - Monitoring student’s growth toward learning targets and providing ongoing feedback about that progression

3. **Data for Targeted Instruction**
   The cornerstone of formative assessment is the strategic adaptation of instruction to meet students’ needs (Clark, 2012). With the help of formative assessment, educators should be able to make data-based decisions regarding the adaptation or differentiation of instruction around the most critical areas of need, and receive continuous and immediate feedback about how well their instruction is working.

4. **Teacher and Student Feedback**
   Formative assessment involves feedback for teachers and students. Teachers receive formative assessment feedback to assess student learning and inform instructional practices. Teachers must also communicate feedback to students. Effective student feedback has three elements that students must be made aware of and understand: recognition of the desired goal, evidence about the student’s present position in relation to achieving that goal, and an understanding of what must be done to close the gap (Black and William, 1998).

The purpose of providing this feedback to students is for them to become involved in goal-planning, monitoring and reflection (Clark, 2012). When students understand what their strengths and weaknesses are, and what they must do to reach their goals, this can enhance engagement, motivation and, ultimately, student achievement.
Using Formative Assessment with Impact

Formative assessment yields a significant amount of detailed data about individuals and groups of students. But these data are only useful when used with purpose. For many schools and districts, that purpose is for building and strengthening an MTSS framework. Formative assessment informs decision-making at every tier of instruction and intervention, and provides necessary, built-in supports to help teachers successfully support all students.

MTSS systems are in place to help every student succeed — academically and socially — and to help every teacher provide timely support to achieve that success. To do this, learning must be personalized, and teachers must have data and tools to evaluate student performance and design and revise instructional practices for students’ specific areas of need. Through universal screening and progress monitoring, formative assessment provides the in-progress data teachers need to adjust instruction and intervention at the individual, class and school levels.

The Critical Role of Data in Formative Assessment

In an MTSS model, educators must support all students’ learning needs. Some instruction needs to be provided universally (Tier 1), while some students might require more intensive instruction and intervention (Tiers 2 and 3) to meet grade level requirements.
Data from formative assessment help educators determine student needs:

1. **Use data to gauge baseline student performance.** Students learn at different rates. A student who was struggling in the fall might improve by winter, while a student who is on track in the winter might fall behind by spring. Conduct universal screening of all students at least three times each year — in the fall, winter and spring — to identify which concepts and skills students are struggling to master, or which students are at-risk of not meeting grade-level requirements.

   After gathering universal screening data, conduct meetings for each grade level with the support of your data team: teachers, school psychologists, interventionists, literacy and math coaches, and principals. Prior to these meetings, establish the criteria for what it means to be “at-risk,” and identify which students fall into that category.

2. **Use data to evaluate core Tier 1 curricula.** This instruction is provided to every student in a grade or classroom. If Tier 1 curricula are effective, then at least 80 percent of students will be on track to meet grade level learning goals. If this is not the case, then adjustments to Tier 1 core instruction may be necessary.

3. **Use data to group students.** If there are students who are struggling to meet grade level goals solely through Tier 1 instruction, you can use formative assessment data to determine who those students are and how to allocate resources for Tier 2 and 3 interventions.

   Some students may be below grade level but could catch up with daily Tier 2 intervention in addition to Tier 1 instruction. It is recommended that this Tier 2 intervention take place 3–5 days every week for 30 minutes a day. Tier 3 students require much more intensive intervention because these students have scores that fall significantly below grade-level expectations.

   Formative assessment also can be used to identify high-achieving students. Formative assessment can guide additional instruction and enrichment activities that can better support these gifted students as well.

4. **Use data to calculate student growth.** Weekly or bi-weekly progress monitoring measures should be in place to set goals for Tier 2 and 3 students and to measure whether interventions are working to progress students toward those learning goals. Progress monitoring data can reveal which students are growing, and those who are not. Note that it is important to monitor student progress for enough time before adjusting instruction to allow interventions to take hold. Typically, 9 to 12 data points are needed in order to document intervention effects, but sometimes it might be more or less. For this reason, it is important for teams to review data regularly (e.g., monthly).
Calculate that growth — or lack thereof — with rate of improvement (ROI). This can be determined by subtracting performance on one assessment from the student’s performance on a prior instance of the same and dividing by the time that has passed between the two assessments.

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\text{ROI} = \frac{(\text{Assessment} \#2 - \text{Assessment} \#1)}{\text{interval between tests}}
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It is important to note that ROI can be calculated for individuals with progress monitoring data and for groups using universal screening data. If insufficient growth is occurring, then teachers can make changes to core instruction or tiered intervention practices. In some cases, students may need to be moved between tiers based on their performance.

5. **Use data to engage families in academics and school improvement.**

Some caregivers may question why students take so many tests throughout the course of the school year. Formative assessment is sharable, and it is recommended that educators communicate formative assessment data to help caregivers understand the value of assessment. When sharing assessment data with families:

1. Explain assessments and translate data in a way caregivers will understand. For example, try comparing formative assessments to child wellness exams. Both are used to measure how children are growing and thriving, and if not, what needs to be done to help them.

2. Outline the specific screenings that take place and what they measure. Then go on to explain how knowing this information allows teachers to adapt their instruction to meet students’ individual needs as those needs arise.

3. Practice transparency with assessment data. Make formative assessment data available to caregivers, either during parent teacher conferences, in detailed letters home or via your student information system. Build on that data, providing advice for how caregivers can support their child in meeting learning goals.
Find Power in Formative Assessment

Formative assessment is not just another test. Formative assessment evaluates how students are performing and progressing toward their learning goals. The most valuable formative assessments take a multi-source, multi-method approach that provides a more accurate picture of a student. When used effectively, the data gleaned from these assessments can improve instruction and learning outcomes at the individual, class and school levels.

References


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FastBridge Learning Resources

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For more information about formative assessment, visit www.fastbridge.org.