Region 1 Comprehensive Center Reimagining Education Series: Approaches for Assessing Student Learning

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The disruption of conventional assessment practices during the COVID-19 pandemic offers an opportunity for schools to reconsider the purposes and types of assessment used to evaluate student learning and inform instruction (Mann & Gardinier, 2020; Zhao, 2020). In spring 2020, most states cancelled student state assessments. During the current 2020–21 school year, many districts and schools are relying on alternative measures to assess students, including thoughtful approaches designed to fit the new realities of remote and hybrid learning (Bowles Therriault, 2020). For example, education leaders urged teachers to replace typical tests with more authentic assessment options, such as student capstones, reflections, or portfolios (Martinez, 2020; Weingarten, 2020). Competency- and proficiency-inspired approaches, which prioritize the substance of student work over seat time, also complemented remote learning by providing flexibility for students who faced scheduling and technological hurdles (Greene Knapp & Quick, 2020). In addition, concerns about unfinished learning prompted renewed attention to formative assessment as a strategy to help teachers tailor instruction to students' needs (Darling-Hammond et al., 2020; Nordengren, 2020).

Now is the time for parents, educators, policymakers, and other stakeholders to build on recent experiences with various forms of assessment to develop approaches to assessment aligned with deeper learning, personalization, and flexible pacing. This paper summarizes three broad and evidence-based approaches to assessing student learning:

- Competency-based and proficiency-based assessment
- Authentic assessment
- Formative assessment

Widespread implementation of one or more of these assessment approaches within an education system, in addition to statewide summative assessments, holds promise to improve student outcomes and classroom instruction. Although described separately in this paper, considerable overlap often exists between elements within these approaches, and assessment systems may combine two or all three approaches.

This paper is organized by approach. A brief description of each assessment approach is followed by a summary of supporting evidence, as well as common barriers to equitable implementation. Stakeholders also will find actionable steps for implementation in schools.

All Region 1 States Promote Innovative Assessment Strategies

- **Maine's** Department of Education is currently establishing a state assessment redesign taskforce. The state's plans to revise its approach to assessment suggests that Maine is aiming to develop authentic assessments that allow "students to apply their learning in a real-world context."
- The **Massachusetts** Consortium for Innovative Education Assessment (MCIEA) is a network of eight public school districts advancing the role of performance assessments as an alternative to standardized, multiple-choice examinations. Among the Consortium's guiding principles is a goal for "students [to] demonstrate what they know and can do through real-world applications." MCIEA is building teachers' capacity to develop performance assessments aligned to their course curriculum. Educator resources include a task bank with examples of performance tasks, rubrics, and curriculum plans. Massachusetts also has invested in the Kaleidoscope Collective, a pilot program to build deeper learning practices in public schools across the state from January 2020 through June 2021.
- **New Hampshire**'s Performance Assessment of Competency Education, more commonly known as PACE, is a nationally recognized assessment program developed to align with competency-based education systems (Blumenthal & Rasmussen, 2015). The state received waivers under both No Child Left Behind and the Every Student Succeeds Act to pilot and scale its innovative assessment system. Under PACE, students are assessed through a combination of state- and locally developed performance tasks. PACE's performance tasks replace conventional standardized tests for students in some subjects and grade levels.
- **Vermont's** Agency of Education passed Act 77, the Flexible Pathways Initiative, in 2013. The state sees implementing a proficiency-based learning model as key to that initiative and has worked to strengthen local assessment systems for personalized, proficiency-based education (Fitzsimmons, 2020). The agency has arranged stakeholder convenings to help develop high-quality comprehensive systems of assessments, with a particular focus on formative assessments that allow teachers and students to continually check their performance on identified goals.

Competency-Based Assessment

Competency-based assessment combines opportunities for students to demonstrate mastery of knowledge and skills with personalized pacing (Levine & Patrick, 2019; Woods, 2017). In schools that adopt competency-based assessments, students earn course credit and advance to new curriculum units after providing evidence of mastery of previous learning targets. By design, competency-based assessment does not require the consideration of classroom participation, or the amount of time that students spend studying or are in class (Levine & Patrick, 2019). Unlike traditional classroom assessment systems, which often adhere to a common schedule for all students in a class, competency-based systems promote completion or the submission of assessments based on the progress of individual students. Further, students are typically

afforded multiple attempts—and ongoing supports—to demonstrate mastery. In contrast, conventional approaches to assessment are more likely to offer a single opportunity to submit an assignment or take a test.

Proponents suggest that competency-based assessments offer several advantages over traditional assessments, including the following:

- Recognize and account for the likelihood that students progress through different units of the curriculum at varying rates.
- Clarify learning goals and expectations. Students understand the specific knowledge, skills, and abilities they must master.
- Strengthen the ability of teachers and schools to identify students' skill gaps and respond with targeted, differentiated supports.
- Depending on the competency to be mastered, offer greater flexibility for students to pursue topics of interest or determine the type of product they submit as evidence of mastery.
- Increase student engagement and motivation.
- Ensure that students graduate with the skills and knowledge to succeed in postsecondary education and careers by prioritizing learning outcomes over the accumulation of seat time and measures that include effort.

Despite theoretical arguments in support of competency-based assessment, only a few studies have examined its association with student outcomes (Steele et al., 2014; Surr & Redding, 2017). Recently, a descriptive study focused on New Hampshire schools that participated in the state's PACE examination program and employed competency-based practices and assessments throughout the school year (Evans, 2019). The findings indicated that students in PACE schools scored significantly higher on the state standardized accountability tests compared with students attending non-PACE comparison schools. The study detected a statistically significant, but small, positive association between PACE participation and student test scores in Grade 8 mathematics, Grade 11 mathematics, and Grade 11 English language arts. Other evaluations have documented a positive relationship between competency-based practices and student engagement, motivation, locus of control, and self-management (Haynes et al., 2016; Shakman et al., 2018).

Education systems structured around competency-based assessments must be designed and implemented with careful attention to equity (Lewis et al., 2014; Steele et al., 2014). Although the flexible, individualized pacing inherent to competency-based education is typically touted

as a way to personalize education to students' individual needs, it also risks exacerbating existing inequities. In particular, competency-based systems can compound achievement gaps among students who are traditionally underserved by the education system, and between students with and without strong executive function, time management, and metacognitive skills. Students without a strong foundation in these skills may be more likely to progress at a slower rate than peers and become discouraged. To ensure that all students have the skills to succeed in competency-based systems, schools should provide ongoing supports to bolster students' metacognitive learning strategies and growth mindsets. Further, schools need to develop systems to identify students and target support to students who struggle to demonstrate mastery. Regular monitoring of student progress also is critical to the early identification of students who may benefit from extra guidance or targeted interventions.

Action steps related to competency-based assessment are included in Table 1.

Authentic Assessment

Authentic assessments may look different by grade and educational setting but generally prompt students to apply their knowledge and skills to real-world, hands-on activities in real or simulated settings (Frey et al., 2012; Wiggins, 1989). Products and artifacts created as part of an authentic assessment process often are meaningful to the student or relevant to real-world public interests. For example, the numeric score or grade resulting from a multiple-choice test may hold less meaning for a student than an artifact of learning, such as a student-designed experiment, a research paper on a topic chosen by the student, or an art portfolio. Authentic assessments also aim to expose students to the conditions of achieving results in real-world settings. These may include the need to collaborate, identify and evaluate various resources, and solve complex problems with more than one accurate answer. Students also might offer input on the design of rubrics or scoring guidelines as a way to increase ownership of the assessment process and prompt critical thinking about what constitutes a high-quality product (Frey et al., 2012). By mirroring the contexts and expectations that students will encounter outside academic environments, high-quality authentic assessments offer opportunities for students to develop both products and skills that are more clearly of value outside the classroom.

Advocates of authentic assessments suggest that such assessments are more effective than conventional assessments at preparing students to apply the skills necessary to thrive in the workplace, postsecondary education, and civic life (Levine & Kawashima-Ginsberg, 2015; Wiggins, 1989). These settings present novel challenges that demand the ability to reason abstractly, plan complex activities, and analyze new information (Darling-Hammond, 1995). Compared with traditional types of assessment, authentic assessments are theorized to be more engaging and motivating for students.

Examples of Authentic Assessments

- **Art or Graphic Design:** Develop marketing materials for a school event.
- **English Language Arts:** Write a review of a novel, a film, or an art performance.
- **History or Social Studies:** Debate multiple viewpoints of a current or a historical event.
- **Mathematics:** Create a public transportation schedule that accounts for hourly fluctuations in ridership, number of buses/trains available, and revenue targets.
- **Science:** Research and identify solutions to a challenge or a threat facing the local ecosystem or environment.

Although judging the impact of authentic assessments on student outcomes still requires rigorous research, preliminary descriptive studies of schoolwide initiatives that include an authentic assessment component have documented positive student outcomes. A recent study of a consortium of high schools emphasizing authentic assessment found that consortium students had higher rates of graduation, college enrollment, and college persistence compared with their peers attending schools outside the consortium (Fine & Pryiomka, 2020). On average, students who attended high schools in the consortium maintained higher grade point averages during high school and in their first year of college compared with peers. Researchers have studied a similar network of schools grounded in deeper learning principles,[1] including a network-wide emphasis on evaluating students through activities aligned with authentic assessment, such as project-based learning, group work, and portfolios. Students enrolled in network high schools "reported higher levels of collaboration skills, academic engagement, motivation to learn[,] and self-efficacy" than similar students in non-network comparison schools (American Institutes for Research, 2016, p. 3).

Educators can incorporate strategies to ensure that authentic assessments provide equitable opportunities for all students to demonstrate their skill sets in relevant ways. Because authentic assessments often result in a wide variety of student work products, educators can promote consistency in grading by collaborating directly with students to codevelop rubrics. In addition, the parameters of authentic assessments should be flexible enough to allow students with differing access to resources the same opportunity to succeed.

Action steps related to authentic assessment are included in Table 1.

[1] The dimensions of deeper learning, originally articulated by the William and Flora Hewlett Foundation, include (a) mastery of core academic content, (b) critical thinking and problem solving, (c) effective communication, (d) ability to work collaboratively, (e) learning how to learn, and (f) developing academic mindsets.

Formative Assessment

Educators and policymakers have used the term "formative assessment" to refer to a diverse range of practices and goals (Bennett, 2011; Dunn & Mulvenon, 2009; Shepard, 2005). To provide the field with clarity about the meaning and appropriate uses of formative assessment, the Council of Chief State School Officers (2018) developed the following definition, grounded in a review of research, theory, and practice:

> Formative assessment is a planned, ongoing process used by all students and teachers during learning and teaching to elicit and use evidence of student learning to improve student understanding of intended disciplinary learning outcomes and support students to become self-directed learners. (p. 2)

The definition further identifies the core practices that students and teachers engage in during formative assessment:

- Clarifying learning goals and success criteria within a broader progression of learning.
- Eliciting and analyzing evidence of student thinking.
- Engaging in self-assessment and peer feedback.
- Providing actionable feedback.
- Using evidence and feedback to move learning forward by adjusting learning strategies, goals, or next instructional steps.

The use of feedback to make adjustments to learning and teaching—encompassed in the last two bullet points—is perhaps the most familiar characteristic of formative assessment. The feedback that students receive from teachers or peers should be specific and descriptive so that students understand how to advance toward learning goals (Cauley & McMillan, 2010; McManus, n.d.). For example, if the task is to write a persuasive paper, feedback such as "include more evidence to support this claim" or "you need to identify and refute at least two counterarguments" is likely to be more helpful for students than "your paper isn't convincing." Teachers, for their part, can use what they learn from formative assessment about students' understanding and skills to modify instructional approaches and activities (Shepard, 2005).

High-quality formative assessments uncover students' thinking processes while situating student thinking within (a) disciplinary-specific content knowledge and (b) learning progressions related to the instructional outcome (Bennett, 2011; Council of Chief State School Officers, 2018). Teachers can understand not only what students know but also why and how students arrive at certain conclusions or apply specific strategies (Coffey et al., 2011). Teachers

may use multiple methods to draw out students' thinking, such as strategically presenting open-ended questions during class discussion or incorporating opportunities for students to reflect on and share explanations or justifications. Information about students' reasoning and rationales is most useful if teachers' analysis and decisions about next steps are grounded in their own knowledge of the subject and disciplinary-specific ways of thinking. Learning progressions, or learning trajectories, are a promising tool to strengthen teachers' understanding of the ways in which students' subject-specific skills or knowledge develop from beginner through advanced levels (Sztajn et al., 2012; Wilson, 2018). By mapping students' current ways of thinking and levels of understanding to learning progressions, teachers can make informed decisions about next steps to guide student learning.

Studies of formative assessment suggest its use is positively related to student outcomes. A recent review of the research on formative assessment at the elementary level found beneficial effects on student academic achievement in all three subjects studied—mathematics, reading, and writing (Klute et al., 2017). Researchers also have found positive, albeit small, associations between formative assessment and the frequency with which students use self-regulated learning strategies (Makkonen & Jaquet, 2020). Formative assessment strategies that involved feedback from peers or self-assessment tended to have the strongest correlations with self-regulated learning.

As with other forms of assessment, educators should be aware of the potential for unconscious bias to influence inferences about student learning derived from formative assessment (Bennett, 2011). Incorporating multiple methods of formative assessment, instead of relying on one or two strategies, can play a role in averting biased inferences. For instance, teachers should not depend solely on whole-class discussion as a formative assessment strategy (Trumbull & Lash, 2013). Among English learners and students whose cultural backgrounds do not provide exposure to Socratic-type discussions, other formative assessment methods may elicit more accurate evidence of students' knowledge and understanding. Additional recommendations to reduce bias in formative assessment include basing instructional decisions on a strong understanding of subject-specific learning progressions and interpreting formative assessment data alongside colleagues with knowledge of students from specific populations (Bennett, 2011).

Action steps related to formative assessment are included in Table 1.

Table 1. Action Steps for Stakeholders

	Teacher	Administrator	Policymaker and Education Agency Staff	Student
1. Allocate sufficient time for assessment and rubric development, including time for teachers to collaborate with colleagues.	●	●	●	
2. Create clear, detailed rubrics to guide the evaluation of student work; co-create or share rubrics with students.	●			●
3. Provide professional learning opportunities and ongoing support to strengthen teachers' capacity to develop and implement assessments.		●	●	
4. Use authentic assessments as opportunities to explore personally meaningful interests.				●
5. Develop a communication and outreach strategy to ensure that all stakeholders—including students, parents, and families—are aware of systemic changes to assessment systems.		●	●	
6. Select learning management systems and grading software that align with your school's approach to assessment.		●	●	
7. Collaborate with colleagues to develop shared definitions and understandings of course competencies.	●			
8. Implement schoolwide systems and classroom practices to strengthen students' metacognitive skills, growth mindset, and executive function.	●	●	●	
9. Collaborate with other educators or schools to design and implement innovative assessment models.	●	●	●	

	Teacher	Administrator	Policymaker and Education Agency Staff	Student
10. Ask teachers for more information to increase understanding of course learning goals, the results of an assessment, or the scoring guidelines/rubrics.				●
11. Share ideas with teachers about alternative ways for demonstrating mastery of the course learning goals.				●
12. Provide specific, detailed feedback that helps students understand what they should do to make progress toward learning goals.	●			
13. Reflect on recent school projects and assessments. Identify strengths, areas for growth, and learning strategies that work well.				●
14. Establish school- or district-wide professional learning communities focused on assessment practices.	●	●	●	
15. Provide opportunities for teachers to participate in subject-specific professional learning opportunities, especially those focused on disciplinary ways of reasoning, learning progressions, and common student misconceptions.		●	●	

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