



FEBRUARY 2020

Classroom Assessment Principles to Support Teaching and Learning

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Acknowledgements

An initial draft of these classroom assessment principles was developed in preparation for the NCME Special Conference on Classroom Assessment held at the University of Colorado Boulder, September 18-19, 2019. The authors wish to acknowledge extensive feedback and suggestions received from other conference organizers, partners, and participants, especially Derek Briggs, Sue Brookhart, Capucine Chapman, Erin Furtak, Margaret Heritage, Angela Landrum, Fritz Mosher, Rick Stiggins, and Doug Watkins.

About CADRE

The Center for Assessment, Design, Research and Evaluation (CADRE) is housed in the School of Education at the University of Colorado Boulder. The mission of CADRE is to produce generalizable knowledge that improves the ability to assess student learning and to evaluate programs and methods that may have an effect on this learning. Projects undertaken by CADRE staff represent a collaboration with the ongoing activities in the School of Education, the University, and the broader national and international community of scholars and stakeholders involved in educational assessment and evaluation.

Suggested Citation

Shepard, L. A., Diaz-Bilello, E., Penuel, W. R., & Marion, S. F. (2020). *Classroom assessment principles to support teaching and learning*. Boulder, CO: Center for Assessment, Design, Research and Evaluation, University of Colorado Boulder.

Introduction

This document presents a set of classroom assessment principles intended as a resource for practitioners, especially school leaders and district and state policymakers.

Together these principles articulate *a shared vision for effective classroom assessment practices*. The key ideas guiding this vision come directly from learning sciences research and the research literatures on motivation and assessment. They explain how classroom assessment can best be enacted to support teaching and learning. To ensure that the document remains maximally readable and useful, the text is not interrupted by academic citations; references listed at the end provide the research evidence that supports these claims.

Classroom assessment includes both *formative assessment* practices focused on moving learning forward and *summative assessment* used for grading, reporting, and competency determinations. The vision of classroom assessment advanced here is based on sociocultural learning theory, which holds that students' cognitive and affective capabilities and ways of being are jointly developed through interaction in their social and cultural context. Importantly, sociocultural theory attends to student identity and sense of belonging as part of learning as well as to the cognitive processes that enhance academic achievement. The assessment principles that follow from this theory are closely connected to ideas about asset-based pedagogies and responsive teaching. In contrast to deficit perspectives, asset-based approaches seek to engage the rich experiences that students bring with them to the classroom by adapting instruction and “responding” to those language and cultural resources. Our assessment principles address equity by fostering student agency and attending to identity and

cultural practices from their communities. Although formal instruments and tests are a part of assessment, especially for summative purposes, formative assessment need not rely on formal instruments and is more often effective when embedded in ongoing instructional activity.

The first set of principles below outlines our vision, which is framed from the vantage point of classroom teachers and their students. These principles articulate the actions and commitments needed to create an equity-focused learning culture.

While teachers (and students) are the primary classroom actors, it is unlikely that individual teachers could make all of these fundamental changes on their own without support from school and district leaders. Subsequently, we outline several “supportive statements” indicating what leaders based in schools, districts, and states can do with the collaboration of subject-matter experts, measurement experts, and teacher educators to support a school's enactment of this vision.





What should teachers and their students do to enact assessment as part of an equity-focused learning culture?



Develop a shared understanding of valued learning goals.

Learning goals are often contested and, even when goal statements seem to be agreed upon, there may not be a shared understanding about what success might look like or how to get there. Especially for the novice learner, understanding what the goal is and why it's important and having good models for what's expected are all essential conditions for productive learning. As noted by several conference participants, helping students understand the goals for learning is itself a challenging aspect of teaching because, paradoxically, students cannot fully understand what they do not yet know. Providing access to the goals and purposes for learning, must be taken up in engaging ways, with age-appropriate language and examples, and requires more than posting learning objectives and standards.



Integrate curriculum, instruction, and assessment based on well-founded theories of learning.

The development of curricular units of study, instructional activities, and assessment questions, tasks, and observations should be envisioned together. This integrated approach helps maximize the chances for assessment and learning activities to be coherently connected, unlike far too many assessment events that are separate from instructional activities. Such co-design requires a fine-grained, discipline-specific theory or model of learning. Models of learning

include culminating goal statements, but importantly, they also model or describe various pathways reflecting students' partial and emergent understandings enroute to more complete accomplishment of a goal. Learning progressions are one type of more formally developed model of learning, but more often models of "what to do next" can be supported by informal learning progressions or portfolios of student work collected over time to document both typical patterns and variations in how student thinking develops.



Recognize and build on the knowledge and experiences that students bring from their homes and communities.

Cognitive research taught us decades ago about the importance of building on prior knowledge for new learning, but this was often taken to mean using prior knowledge taught in school. Today, sociocultural theory and asset-based pedagogies show us the importance of all life experiences as relevant to learning, including students' "funds of knowledge" or the accumulated body of knowledge, assets and cultural ways of interacting drawn from their homes, communities, and influential social forces, as well as intuitive understandings of the natural world. Part of respecting student identity as fundamental to learning means inviting students to share experiences and perspectives from their funds of knowledge and drawing connections to learning goals. Connected to the second principle, this principle also calls for developing learning experiences and materials around students' funds of knowledge to help scaffold their understanding and access to content. Importantly, this type of orientation moves away from a deficit paradigm to more affirming, asset-based conceptions that draw on student strengths and are informed by student experiences and backgrounds.



Ensure that authentic instructional and assessment tasks are drawn from and connect to life outside of school to enhance both meaning and transfer.

Student learning requires robust curricular activity systems to engage students with high-quality tasks closely matched to the kinds of thinking and doing envisioned by valued learning goals. Authentic, real-world tasks are especially important for initial learning because they help to give meaning and purpose to otherwise decontextualized school work. At the same time, authentic issues and problems connected to students' lives help to ensure that school learning has relevance beyond the classroom. This principle is closely connected to principle #3 about connecting to the experiences and strengths that students bring with them to school, but it also entails opening new doors and offering opportunities that help make new learning meaningful and genuine. The call for authenticity does not mean that all learning must be project-based, nor does it rule out checks for things like math facts and grammar rules. The research evidence does show, however, that focusing classroom activities on isolated drills on facts is ineffective and that knowledge gained through applied contexts is more likely to be engaging and result in deeper learning.



» Engage in instructional practices where students talk with each other around meaningful tasks – as a way to elicit and extend student thinking and to help students learn to listen and support the development of each other’s ideas.

In contrast to traditional teaching approaches dominated by teacher talk, “discourse-based instructional practices” support deep learning by involving students in talking aloud about their reasoning and making it a part of the classroom culture to regularly learn from and critique the reasoning of others. The importance of helping students develop the ability to explain their reasoning and to support an argument with evidence can be seen in today’s standards for mathematics, science, English language arts, history, social studies, and other subject areas, where communication and argumentation skills are seen as fundamental to disciplinary expertise. These interactive strategies help to develop students’ abilities to make meaning and internalize knowledge – thus moving away from memorizing yet enhancing memory by deepening conceptual understanding. Such collaborative inquiry and talk-based instructional practices provide for feedback, self, and peer assessment without the need for formal assessment products.

» Value student ideas by presenting tasks in multiple modes and by using artifacts and other representations to document their thinking and learning.

In addition to talk-based instructional practices that elicit and build on student thinking, presenting tasks in multiple modes can serve equity goals and affirm a positive learning culture. For example, when teachers ask English language learners to draw, speak, listen and write to communicate ideas, using multiple modes provides opportunities for these students to engage in productive language fluency and to work through ideas. Given that the point of formative assessment is to advance learning while still in development, then working on and sharing partially formed ideas, in ways best connected to where students are, has to be a normal part of classroom discussions and activities.

» Provide accessible and actionable information about how students and teachers can improve.

For teachers, both formal and informal assessments are the most useful when they provide specific substantive insights about student thinking -- where student understandings are on firm ground as well as where they are stuck, and more importantly what alternative conceptions

might be in the way of making progress. Sometimes seeing where students are is sufficient to allow teachers to offer clear and actionable feedback about how to improve. At other times, teachers need support to help identify next steps for students, in which case, formal or informal learning progressions as described in principle 2 can help teachers identify effective instructional moves. Developing a learning culture also requires that teachers look for patterns that reveal shortcomings in their own instructional decisions and make visible to students how they are revising their teaching to be more responsive to students.



Foster student agency and self-regulation.

For students to thrive in school and in the world beyond, they need to master not only content knowledge at higher levels but also to develop the skills, awareness, and self-confidence to take responsibility for their own learning. Self-regulated learning involves goal-setting, making plans to achieve goals, monitoring progress, and upon reflection, adapting learning approaches to move closer to desired goals. Having students engage in assessment practices such as self-assessment can support the development of self-regulation by providing students with the opportunity to reflect on their work using clear criteria, revise, and set new goals accordingly.



Integrate linguistic and graphical scaffolds recommended for English language learners as a regular part of both instruction and assessment.

To ensure that equity is baked into instructional and assessment planning, it is important that language supports and multiple modes of explaining ideas be a regular part of on-going instruction. Often supports such as graphical aides, explaining in more than one way, modeling expectations, and deconstructing academic words like “compare” enrich the learning of monolingual English speakers as well as aiding emergent bilinguals.



Help students and teachers establish a productive relationship between formative feedback and summative assessments used for grading.

Formative feedback is more effective when it is not tied to grades. It is well documented in research studies that when student work is graded, students pay attention to the grade and not to substantive feedback intended to guide improvement. At the same time, students and teachers should see a relationship between instructional tasks and the kinds of tasks they will ultimately be asked to complete for grading purposes. Similarly, formative feedback should help acquaint students with the features of quality work (a learning goal in its own right) that will be used as criteria to determine grades. To support deep learning, criteria must be indicators of the intended learning and not about surface features of the work. *Present-day grading systems that require that grades be recorded frequently (e.g., daily or weekly) are not consistent with research on formative assessment, nor does it make sense to summatively evaluate learning while it is still in progress.*



Develop grading practices that validly reflect intended learning goals and success criteria, while avoiding the use of grades as motivators.

To provide a coherent learning experience for students, summative evidence of learning and grading criteria should be conceptually linked to the tasks and processes used to support initial learning. This does not mean, however, that early learning steps and products should be graded. Decades of research on both testing and motivation have shown that grading undermines learning when tests are an impoverished version of desired learning goals or when grades and point systems are used to try to control student effort. Research on motivation shows that “normative” feedback actually detracts from student learning, that is when students are told (or see, on classroom data walls) how their performance compares to that of classmates. Instead, substantive feedback to see how to improve has been demonstrated to enhance learning.





What can school and district leaders do to support this vision?

- » **Implement coherent curricular activity systems that integrate curriculum, instruction, and assessment based on well-founded theories of learning.**

The principles listed for school and district leaders require that leaders understand and value the learning-focused vision of instruction and assessment outlined here and then take action to better integrate current investments in curriculum adoption and implementation, professional development, and assessment that very often exist as separate initiatives.

- » **Build collaborations between assessment and curriculum department staff to inform the design and implementation of coherent curricular activity systems in schools.**

One particular strategy to better integrate curriculum and assessment is to bring assessment and curriculum department professionals together to consider implementation of this vision. To support organizational learning, such an effort could be undertaken in just one subject area such as mathematics, science, or literacy, with the idea of more closely integrating what each group of staff experts are asking of teachers and what they are in turn providing for their support. Once progress is made in one subject area, similar efforts could be undertaken with other subjects.



Provide professional development and coaching structures (e.g., time, supports for educator collaboration) that help to coordinate all of the different new things that teachers are being asked to learn, including learning and motivation theories, asset-based pedagogy, disciplinary practices, and classroom assessment principles.

Districts already invest in professional development for teachers, most often for implementation of standards, for separate diversity and inclusion trainings, and for data-driven decision making, which has sometimes been shown to work at cross purposes to diversity goals, when data conversations are driven by accountability pressures. Teacher learning, through educator collaborations such as professional learning communities, would be more effective if professional development efforts were better coordinated, instead of being offered as separate initiatives. There is a rich, potentially powerful research-base that connects new disciplinary practice standards, asset-based pedagogies, responsive teaching, and learning-focused classroom assessment practices. These different literatures all have a connection to sociocultural theory; and an appreciation for the underlying theory can support implementation in a deep way and forestall mechanistic and regressive interpretations.



Develop or adopt district-level assessments that embody the full range of desired learning goals.

While classroom formative assessment processes do not require formal instruments, data collection to meet district level needs often requires more formal approaches. Depending on the intended use (e.g., accountability, program evaluation, monitoring), these instruments will need to meet varying levels of technical quality for fairness, reliability and validity. More importantly, these district assessments should represent to students, parents, and educators what valued learning goals look like. If district assessments tap a limited and easiest-to-measure subset of intended learning, then resulting data will likely give a false picture of learning progress and, more seriously, students will develop the wrong idea about what kind of learning is valued and for what purpose. *This idea of district-level assessments elicited negative reactions from several conference participants, fearing that district “tests” would reproduce the same evils as current, multiple-choice-only commercial products and state standardized tests. Indeed, there would be no point in creating new instruments that carried forward all of the existing problems. To be supportive of what is hoped for in the classroom, district level assessments would need to be much more open-ended, be curricularly and performance-based, and be used to provide programmatic insights rather than student, teacher, or school rankings.*



Establish grading policies in support of grading practices aimed at establishing clear success criteria, while avoiding the use of grades as motivators.

Often district grading policies are at odds with research on formative assessment to support learning. Grading policies should be reexamined in light of learning research and research on motivation. If keeping parents informed is the reason for point systems and weekly postings,

then consideration should be given as to whether more substantive ways to share student work could be provided without teacher burden, or if revisions might be possible if students provide evidence of new learning at a later date.



Develop new processes for school improvement and mandated teacher evaluations that are coherent with sociocultural learning practices and commitments to equity.

If students' identities, interests, and experiences outside of school are fundamental to their learning opportunities, then – as just one example -- evidence could be gathered about how well teachers are able to make these connections. Students could be asked about the relevance of the curriculum to themselves and their community and whether they felt that they had made contributions to the class discussion. Observations of participation and quality of interactions should especially be examined for differences associated with race or gender, and teachers can be supported by coaches and instructional leaders in examining data together to identify and test strategies for improving equity of participation. Such evidence is less likely to be quantifiable in metrics that could be added up to teacher or school “grades,” but providing tools of this type is more coherent with a research-based understanding of student learning than traditional evaluation systems and more consistent with goals that are truly valued.



“Saline School Board Meeting (February 28, 2012)” by Corey Seeman on Flickr

What can states do?



Articulate a vision for learning and assessment that values classroom and other forms of local assessment.

Too often state assessments programs are under attack from the public, and, in response, assessment leaders try to defend their programs by affirming their “instructional relevance.” A more defensible stance would be to explain what large-scale, state assessments can do well, e. g., collect comparable data on schools and districts, report on subgroups, and monitor trends over time, and correspondingly to limit the burden (in terms of time and high-stakes consequences) of collecting such data. It would be helpful to acknowledge that state assessments are not particularly useful for making judgments about individual students but can be used to evaluate relative strengths and weaknesses in a school’s curriculum. States could better support effective classroom assessment by articulating a vision and framework for assessment, explicitly explaining the relationship of the state assessment to local assessments.



Develop state-level assessments that embody authentic learning goals and support the development of local systems of balanced assessment.

Research on teaching-the-test has for decades shown the distorting effects that occur when performance on state tests becomes the sole focus of instruction. More authentic representation of learning goals on state tests can improve the quality and range of instruction. In addition, explicit honoring of high-quality district assessments could go further in broadening understandings about goals for learning.



Provide model curriculum and assessment systems and/or sample curricular units that exemplify the integration of instructional activities and assessment in support of deep learning.

While the vast majority of districts nationally have local control over curriculum, it is also true that the majority of districts lack the resources to do deep curricular development including development of rich instructional activities with embedded formative and summative assessments. As part of a state department of education's support role for districts, states could offer model curriculum and assessment systems that explicitly attend to the relationship among state level needs, district needs, and classroom level needs. These resources would likely be sought after by districts looking for efficient ways to develop or build high-quality curricular resources. Although such systems would necessarily need to be adapted to local contexts, providing well-integrated models would: support educator learning at the local level; provide helpful guidance for other districts seeking to build these systems; and, may provide opportunities for cross-district collaboration.



Provide professional development resources for education leaders and teachers to support classroom-based assessments that are grounded in a research-based theory of learning.

As with the development of curriculum and assessment systems, states can also support a more coherent vision for professional development by considering how state-level implementation of disciplinary standards could be better integrated with diversity and inclusion, responsive teaching initiatives and with a learning-focused vision for classroom assessment. State leaders can also support consortia of districts working together to pool expertise in order to design coaching and teacher support systems that better attend to research on student and teacher learning.



Make sure that the state's articulated vision for learning and assessment is consistent across state programs.

In addition to improving state assessments and their use and providing instructional and curricular supports, states should examine whether other state policies and programs are consistent with the intended vision for classroom learning and assessment. For example, states may want to consider if monitoring systems in place for district and school improvement planning and guidance for teacher evaluations allow sufficient flexibility so that districts could engage in coaching and improvement cycles using evidence of classroom talk and equitable participation rather than test data.



What can measurement and subject-matter experts do?



Engage in collaborations to establish linkages between rich classroom level student work and the kinds of quantifications needed for district and state level assessments.

While quantifications are not the goal at all for the formative assessment that goes on in classrooms, aggregated quantifications are needed for district level assessments and for summative classroom assessments in middle and high schools. Too often, in the name of efficiency, computer-delivered, district-level tests provide impoverished representations of ambitious learning goals. Measurement and subject-matter expertise are needed jointly to engage in research and development efforts to better connect rich classroom level student work with the kinds of quantifications and sampling needed for district and state level assessments.



Support and perhaps lead efforts to improve classroom assessment literacy that clearly recognizes the need for varied assessment approaches necessary for effective classroom assessment.

Enacting a learning-focused vision of classroom instruction and assessment requires material resources and professional development for teachers, but it also requires a shared understanding – among teachers, school, district, and state leaders, and policymakers about what this vision entails and how it differs from past practices. Because this vision requires thoughtful integration across areas of expertise that have traditionally been separated, it is critical that measurement and subject-matter experts collaborate in efforts to further develop this vision and that they in turn collaborate with experts in diversity and inclusion and responsive teaching.



What can teacher educators do?

- » **Adopt a shared vision for teacher candidate learning about classroom assessment that integrates it with other program commitments to diversity, equity, learning theory, and subject-specific instructional practices.**

The equity-focused vision for classroom assessment outlined by the first eleven principles above is intended to be integrated and ambitious. It does not represent a separate set of “assessment literacy” knowledge and skills. Instead, for such a vision to be meaningfully enacted, teacher candidates must be helped to develop a theoretical understanding of how the principles, grounded in sociocultural theory, are connected; and they must have sufficient support from their instructors and mentors to develop repertoires of practice consistent with these theoretical commitments. Too often in the past, teacher education programs have provided candidates with highly separate and compartmentalized course offerings addressing subject-matter teaching methods, child development and motivation, and assessment (largely focused on summative test construction and grading). This leaves novices with the responsibility of recognizing and resolving contradictions and potentially working in isolation to establish a classroom culture that will be meaningful and coherent for their students. It would be far better if teacher educators constructed a shared vision that embodies these classroom assessment principles to support candidate learning across coursework and practicum experiences.

References

- Chappuis, J., Stiggins, R., Chappuis, S., & Arter, J. (2012). *Classroom assessment for student learning: Doing it right – using it well*, 2nd edition. Upper Saddle River, NJ: Pearson.
- Cowie, B., Jones, A., & Otrell-Cass, K. (2011). Re-engaging students in science: Issues of assessment, funds of knowledge and sites for learning.
- Datnow, A., Greene, J. C., & Gannon-Slater, N. (2017). Data use for equity: Implications for teaching, leadership, and policy, *Journal of Educational Administration*, 55(4), 354-360.
- Hewlett Assessment Cluster Working Group. *Principles for assessment design and use to support student autonomy*.
- Marion, S., Thompson, J., Evans, C., Martineau, J., and Dadey, N. (2019). A tricky balance: The challenges and opportunities of balanced systems of assessments. Presented at the annual meeting of the National Council on Measurement in Education. Toronto, Canada. Retrieved from: <https://www.nciea.org/node/493>.
- National Academies of Sciences, Engineering, and Medicine 2018. *How People Learn II: Learners, Contexts, and Cultures*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/24783>.
- Nicol, D. J. & Macfarlane-Dick, D. (2006). Formative assessment and self-regulated learning: a model and seven principles of good feedback practice, *Studies in Higher Education*, 31(2), 199-218, DOI: 10.1080/03075070600572090
- Penuel, W. R., & Watkins, D. A. (2019). Assessment to promote equity and epistemic justice: A use-case of a research-practice partnership in science education. *The ANNALS of the American Academy of Political and Social Science*, 683, 201-216.
- Shepard, L. A. (2019). Classroom assessment to support teaching and learning. *The ANNALS of the American Academy of Political and Social Science*, 683, 183-200.
- Shepard, L. A., Penuel, W. R., & Pellegrino, J. W. (2018). Using learning and motivation theories to coherently link formative assessment, grading practices, and large-scale assessment. *Educational Measurement: Issues and Practice*, 37(1), 21-34.
- Shepard, L. A., Penuel, W. R., & Pellegrino, J. W. (2018). Classroom assessment principles to support learning and avoid the harm of testing. *Educational Measurement: Issues and Practice*, 37(1), 52-57.

Feedback and recommendations from conference participants used to revise the principles document [can be found in the Appendices document](#).