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Assessment With and for Students

The word “assessment” comes from the Latin verb “assidere,” meaning “to sit with.” This word origin implies that in assessment the teacher sits with the learner and assessment is something teachers do *with* and *for* students rather than *to* students (Green, 1998).

Formative assessment, in particular, is something teachers do *with* and *for* students. Teachers involve students *with* them in the assessment, thus students and teachers are partners, both sharing responsibility for learning. Formative assessment provides evidence *for* improving student learning. Indeed, to emphasize this function, it is often referred to as “assessment *for* learning.” Lorna Earl (2003) also uses the phrase “assessment as learning,” signaling the active role students play in the process.

A major landmark in the emergence of formative assessment was a synthesis of research findings from conducted by Paul Black and Dylan Wiliam in 1998. This review, and the more commonly read *Phi Delta Kappan* article in the same year, led to the widespread recognition of formative assessment as a powerful method for improving all students’ learning. They concluded that student learning gains triggered by formative assessment were “amongst the largest ever reported for educational interventions,” with the largest gains being realized by low achievers (1998b, p. 141). This was, and remains, powerful evidence for the value of formative assessment.

Based on their review, Black and Wiliam determined that effective formative assessment occurs

- when teachers make adjustments to teaching and learning in response to assessment information;

- when students receive feedback about their learning, with advice on what they can do to improve; and
- when students are involved in the process through peer and self-assessment.

Notice that Black and Wiliam refer to the “process” of formative assessment. Formative assessment is not a thing—it is not a single test given to students to see what they have learned for the purpose of grading, placement, or classification. That is the function of summative assessments like an end-of-unit classroom test, the quarterly benchmark test, or the annual state test. Instead, formative assessment is a process that occurs during teaching and learning and involves both teachers and students in gathering information so they can take steps to keep learning moving forward to meet the learning goals.

Lorrie Shepard, in her very influential 2000 presidential address to the American Educational Research Association, proposed a set of principles emerging from recent theories of learning as a framework to explain and integrate the findings from the diverse studies reviewed by Black and Wiliam. Among these were the following:

- Intellectual abilities are socially and culturally developed.
- Learners construct knowledge and understandings within a social context.
- Intelligent thought involves “metacognition” or self-monitoring of learning and thinking.
- New learning is shaped by prior knowledge and cultural perspectives.
- Deep learning is principled and supports transfer. (Shepard, 2000, p. 8)

She considered the kinds of assessment practices that are compatible with these principles, proposing fundamental changes in both the substance and purpose of assessments. In terms of substance, she argued that classroom assessments must be congruent with important learning goals, and they must directly connect to ongoing instruction. In terms of purpose, she called for fundamental changes in the perception of assessment functions. Assessments should be used to help students learn and to improve instruction, rather than functioning as “occasions for meting out rewards and punishment” (p. 10). Moreover, a reformed view of assessment should include not only clearly communicating expectations and intermediate steps to students, but also the requirement that students be actively involved in evaluating their own work (Shepard, 2000). Shepard’s presidential address, with its recommendations for a revolution in attitudes toward assessment, placed a premium on the process of formative assessment for teaching and learning.

In this chapter, we will look at how the process of formative assessment works in the classroom, but first let’s get into a little more detail about what formative assessment is. You can see several definitions of formative

What Experts Say About Formative Assessment

An assessment activity can help learning if it provides information to be used as feedback by teachers, and by their pupils in assessing themselves and each other, to modify the teaching and learning activities in which they are engaged. Such assessment becomes ‘formative assessment’ when the evidence is actually used to adapt teaching work to meet learning needs (Black, Harrison, Lee, Marshall, & Wiliam, 2003, p. 2).

The process used by teachers and students to recognize and respond to student learning in order to enhance that learning, during the learning (Bell & Cowie, 2001, p. 536).

Formative assessment is defined as assessment carried out during the instructional process for the purpose of improving teaching or learning (Shepard et al., 2005, p. 75).

Assessment for learning involves teachers in using a classroom assessment process to advance, not merely to check on learning (Stiggins, 2002, p. 5).

Formative assessment “takes place day by day and allows the teacher and the student to adapt their respective actions to the teaching/learning situation in question” (Allal & Lopez, 2005, p. 244).

Assessment for learning is the process of seeking and interpreting evidence for use by learners and their teachers to decide where the learners are in their learning, where they need to go and how best to get there (Assessment Reform Group, 2002, pp. 1–2).

Formative assessment is a planned process in which assessment-elicited evidence of students’ status is used by teachers to adjust their ongoing instructional procedures or by students to adjust their current learning tactics (Popham, 2008, p. 6).

We see much more effective use of formative evaluation if it is separated from the grading process and used primarily as an aid to teaching (Bloom, 1969, p. 48).

assessment in the box above. Notice some of the key phrases these experts use in relation to formative assessment:

- *Information to be used as feedback by teachers and their pupils . . .*
- *Enhancing that learning during the learning . . .*
- *For the purpose of improving teaching and learning . . .*
- *Takes place day by day . . .*
- *Decide where pupils need to go and how to get there . . .*

- *Advance, not merely check on, student learning . . .*
- *By students to adjust their current learning tactics . . .*

The function of formative assessment as a means to improve learning during instruction clearly comes through, as does the idea that not only teachers but also students are active users of formative assessment. In sum, *formative assessment is a process that takes place continuously during the course of teaching and learning to provide teachers and students with feedback to close the gap between current learning and desired goals.*

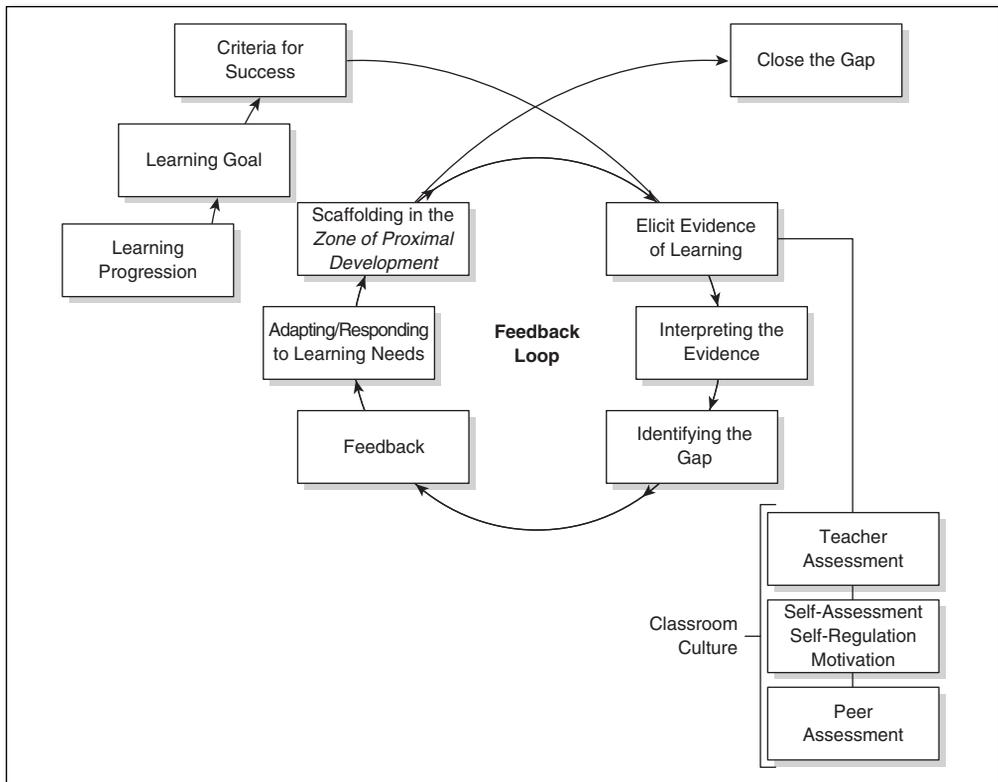
THE PROCESS OF FORMATIVE ASSESSMENT

Now we are going to look closely at the process of formative assessment shown in Figure 2.1. Each element of the process is elaborated in subsequent chapters. What is important at this point is for you to gain an overview of the process and its components.

Note that the process is framed as a cycle, illustrating that formative assessment is *continuous* process, integrated into instruction. You'll also notice that the end point of the cycle is "close the gap." This is because formative assessment is intended to close the gap between where the learner currently is and where the learner and the teacher want to be at the end of a lesson. The idea of closing the "gap" comes from D. Royce Sadler (1989), who stressed feedback as the centerpiece of formative assessment. Following Ramaprasad (1983), he emphasized that information is only considered feedback when it is "used to alter the gap" (Sadler, 1989, p. 121). This means that the feedback generated from formative assessment must be used to make changes in the students' learning status and help them close the gap between their current status and the intended learning goal. When the gap is closed, another gap opens as student learning moves to the next stage, and formative assessment is used to close the gap once again.

DETERMINE LEARNING GOALS AND DEFINE CRITERIA FOR SUCCESS

The process of formative assessment begins (at the top left of Figure 2.1) with teachers identifying the learning goal(s) for a lesson or a sequence of lessons and determining the criteria for success. As Figure 2.1 suggests, the learning goal is derived from a learning progression (more on this in Chapter 4). The learning goal identifies what the students will learn during the course of the lesson or lessons. The success criteria identify what it

Figure 2.1 The Process of Formative Assessment

takes to meet the learning goal and are used as checks on learning. Before the lesson(s) begin, these goals and success criteria are shared with the students. Success criteria are the guide to learning *while* the student is engaged in the learning tasks.

ELICIT EVIDENCE OF LEARNING

While instruction is under way, teachers use a variety of strategies to elicit evidence of how student learning is evolving toward a goal. There is no single way to conduct formative assessment. Since 1969 when Bloom suggested the use of brief tests at the end of a phase of learning as an aid to teaching, the conception of formative assessment has enlarged. The enlarged perspective promotes the integration of formative assessment within each instructional activity, and therefore allows for more diversity in how learning is assessed. Diverse approaches can include, for example, planned questions, observation, instructional tasks (representations, explanation, performance, problem solving), exit cards, notes to the teacher, or

curriculum-embedded assessments. The key point about the strategy employed is that it should enable teachers to access information about how learning is developing.

In general, strategies for eliciting evidence should be planned in advance of instruction, though sometimes they can arise spontaneously during the lesson. For example, when a teacher is planning a math lesson, she might decide on particular questions she will ask at specific points in the lesson to determine how well students understand the math concept, and adjust her instruction in light of the student response. However, in the same lesson spontaneous formative assessment can occur. This happens when the teacher gains an insight into student learning from something the students do or say during the instructional activity, sometimes referred to as a “teachable moment.” In this case, too, the teacher will need to decide if any instructional adjustments are necessary. Chapter 5 will address in detail strategies to elicit evidence.

INTERPRETING THE EVIDENCE

Whether from planned or spontaneous formative assessment, teachers examine the evidence in relation to the success criteria to determine the status of student learning: what the students understand, what their misconceptions are, what knowledge they have or do not have, and what skills they are or are not acquiring. While interpreting evidence, the teacher may realize there is not enough evidence to make a determination about the students’ current learning status, so eliciting further evidence will be necessary. The teacher might also find that they do not need to make any instructional adjustments because they have already met the success criteria.

While students are engaged in learning they use the success criteria to keep track of how well they are moving forward toward the goal, and to make adjustments to their learning when necessary. When students are involved in peer assessment, they also use the success criteria to interpret the evidence and provide each other with feedback about how learning can be improved. To do this, students must understand what the success criteria mean.

IDENTIFYING THE GAP

Recall that the purpose of formative assessment is to close the gap between students’ current status and the intended learning goal. This is not the same as the “achievement gap” that describes the gap in achievement between some subgroups of students and others. Students who are learning something new *should* have a gap, otherwise learning is not advancing.

Interpreting the evidence from formative assessment is key to identifying the gap between students' current learning status and the goal of current instruction. Closing the gap is achieved by responding to the evidence through feedback, which results in adaptations to instruction and to learning.

FEEDBACK

To be effective in promoting learning, feedback needs to help students take steps to move forward in their learning. This does not mean telling the students if they are right or wrong. As Paul Black (2003) observes, this “is merely frequent summative assessment.”

Instead, in formative assessment teachers provide descriptive feedback to the students about the status of their learning in relation to the success criteria and give cues to the students about what they can do to progress and close the gap. In a recent, extensive review of studies on feedback, Hattie and Timperley (2007) suggested that, whatever the source of the feedback, it must answer three major questions asked by a teacher and/or by a student:

- *Where am I going?* (What are the goals?)
- *How am I going?* (What progress is being made toward the goal?)
- *Where to next?* (What activities need to be undertaken to make better progress?) (p. 86)

Teachers are not the only ones to provide feedback. As noted earlier, peers can also provide feedback that helps their classmates improve learning. In addition to external feedback from teachers and peers, students get feedback about their own learning through self-assessment. This is important because when students are monitoring their learning they are engaged in metacognition (that is, thinking about thinking), which we know from cognitive research is important to effective thinking and competent performance (see, for example, National Research Council, 2000; National Research Council, 2001).

Sadler (1989) emphasized that to be able to self-monitor and engage in metacognitive activity, students must come to hold a conception of quality similar to the teacher's. He noted that to develop this concept of quality the student must:

- Possess a concept of the *standard* (or goal, or reference level) being aimed for,
- Compare the *actual* (or current) *level of performance* with the standard,
- Engage in appropriate *action* which leads to some closure of the gap. (Sadler, 1989, p. 121)

Later in the chapter, we will see what it means in practice to develop students' conceptions of quality so they can use feedback effectively to support their own learning.

The last thing to say about feedback here is that it must be *used* to improve learning. If feedback is not used it becomes in Sadler's terms "dangling data" and dangling data cannot close the gap, thus rendering the formative assessment process useless. Chapters 5 and 6 will focus on feedback.

ADAPTING AND RESPONDING TO LEARNING NEEDS

As a result of the feedback about learning teachers receive from formative assessment, they plan the action they will take so that their instruction is matched to the students' learning needs. In other words, teachers select learning experiences that will place appropriate demands on the students and lead to closing the gap between where the students currently are in learning and where they need to go.

By engaging in self-assessment, students also make adjustments to their own learning, selecting appropriate strategies from their repertoire so that they move forward. Chapter 6 deals with student self-assessment.

SCAFFOLDING NEW LEARNING

The term "scaffolding" characterizes the support that teachers (or peers) give to students to move them from what they already know to what they can do next and close the gap between their current learning status and the learning goal (Wood, Bruner, & Ross, 1976). The teacher provides the necessary instructional support so that learning is incrementally internalized, ultimately becoming part of the students' independent achievement, and thus closing the gap (Vygotsky, 1978). Students are responsive in the process of scaffolding, using feedback and their own learning strategies in collaboration with the teacher's instruction. Formative assessment takes place during scaffolding to identify the degree to which the learner is advancing and may result in further instructional/learning adaptations if the gap is not closing.

CLOSE THE GAP

The final step in the process of formative assessment is to close the gap between where learners are and where they need to be to achieve the learning

goal. As one gap closes, the teacher selects new learning goals and another gap is created, renewing the formative assessment cycle.

CLASSROOM CULTURE

The whole process of formative assessment depends on a classroom culture where students feel safe to say they do not understand something and give and receive constructive feedback from peers. Teachers must establish a classroom culture characterized by a recognition and appreciation of individual differences. In a classroom where students listen respectfully to each other, respond positively and constructively, and appreciate the different skill levels among peers, all students will feel safe in the learning environment to learn with and from each other. We will discuss the classroom culture in greater detail in Chapter 7.

THEORY INTO PRACTICE

Now it's time to think about what the process of formative assessment looks like in practice. Consider this classroom scenario. In Mr. Gibson's tenth-grade English class, the students are working on developing a research paper. Mr. Gibson has told the students the learning goal they are currently focused on is the following:

To create a multi-genre paper informed by your research that presents one or more perspectives on a research question or thesis statement.

Mr. Gibson has also provided the students with a set of criteria by which the quality of their paper will be judged:

1. The paper begins with a clear thesis statement.
2. The paper demonstrates a thorough knowledge of the topic.
3. Multiple genres are included.
4. Clear transitions are made between each genre.
5. The paper includes a series of claims and explanations.

To illustrate what the criteria look like before the students embark on their own paper, Mr. Gibson shares multi-genre papers written by his

prior students. He asks students to work in pairs to discuss the papers and to think about where the papers meet the criteria, where they don't, and why. After the paired work, Mr. Gibson leads the students in a discussion of the criteria, asking pairs to share their thinking with the whole class. From this discussion, he is able to get a sense of how well the students understand the criteria and are able to clarify their thinking along the way.

During the time the students are creating their own paper, Mr. Gibson engages them in a range of activities, all consistent with the learning goal. First, the students write their individual thesis statement, and he provides written comments about its clarity as a beginning of the paper. In several cases, he makes suggestions for how the student might think about improving the statement. Next, the students develop an outline of the paper with a rationale for what information is important and why they have selected particular genres. The students share their outlines in groups of four, and peers provide comments on the outline and rationales for selection of information and genres. At this time, Mr. Gibson circulates around the classroom, listening to the discussion and intervening when he wants to clarify a point or probe the students' thinking.

Now, with a thesis statement and an outline of their paper, the students write a first draft. Mr. Gibson reminds them to constantly review their work in light of the criteria and exemplar papers he has provided, and to make adjustments when they think they are not successfully meeting any criterion. Once the first draft is completed, each student has a conference with a peer. The peers read each other's drafts against the criteria and provide comments about where they think the criteria have been met successfully, with suggestions for improvement. Then they go about revising their work to produce a second draft. At this point, they are ready for an individual conference with Mr. Gibson. To guide the conference, each student is required to submit their draft to him along with three specific questions. For example, one student has questions about the clarity of his thesis statement, about the degree to which his claims are backed by evidence, and the effectiveness of his use of transitions. To this student, Mr. Gibson provides the following feedback:

You have a clear thesis statement, and your paper provides a series of claims and examples. Your paper could be strengthened by improved use of transitions. I have marked places where you have used effective transitions with an X, and with a Z to indicate where transitions could be improved. Review the Xs to help you think about how to create better transitions in the Z sections, then we will discuss.

After the students have received feedback from Mr. Gibson about their papers, they make revisions and resubmit them to him. Mr. Gibson reads and evaluates the final drafts and gives each paper a grade.

Let's think about this scenario in light of the research and theories presented earlier in the chapter. In Table 2.1, you can see the theory and how Mr. Gibson put it into practice.

Table 2.1 Theory Into Practice

<i>Theory</i>	<i>Practice</i>
Students developing the same conception of quality as the teacher (Black & Wiliam, 1998; Sadler, 1989). Students possess a concept of the <i>standard</i> (or goal, or reference level) being aimed for (Ramaprasad, 1983; Sadler, 1989). Learning expectations are visible to students (Shepard, 2000).	Mr. Gibson provides learning goal and criteria for meeting the goal. Teacher shares examples of prior students' work to illustrate criteria.
External feedback is provided (Black & Wiliam, 1998; Hattie & Timperley, 2007; Sadler, 1989). Feedback prompts an active response from students (Hattie & Timperley, 2007). Feedback is used to alter the gap between current status and reference level (Black & Wiliam, 1998; Bloom, 1969; Ramaprasad, 1983; Sadler, 1989).	Mr. Gibson writes comments on thesis statement, some students revise.
External feedback is provided (Hattie & Timperley, 2007; Ramaprasad, 1983; Sadler, 1989). Feedback prompts an active response from students (Black & Wiliam, 1998; Hattie & Timperley, 2007). Students are constructing knowledge within a social context (Shepard, 2000).	Students share outlines with peers who provide comments while Mr. Gibson observes.
Students are engaged in self-monitoring (Black & Wiliam, 1998; Sadler, 1989; Shepard, 2000).	Students write first draft monitoring their writing against the success criteria.
Feedback is used to alter the gap (Ramaprasad, 1983; Sadler, 1989).	Peers read first draft and provide comments against criteria. Revisions to paper.
Students are engaged in self-monitoring (Hattie & Timperley, 2007; Sadler, 1989; Shepard, 2000). Students use feedback to alter the gap between current status and reference level (Ramaprasad, 1983).	Mr. Gibson/student conference. Students bring up three questions about criteria to guide conference. Mr. Gibson provides comments.

In sum, Mr. Gibson presented the learning goals at the start of the instructional sequence and carried them through the sequence, making purposeful reference to them as appropriate. In addition, feedback was provided at multiple stages by both Mr. Gibson and peers. As the next section will illustrate, Mr. Gibson maintained a clear separation between formative and summative assessment functions.

FORMATIVE AND SUMMATIVE ASSESSMENT

What Experts Say About Summative and Formative Assessment

Formative assessment helps teachers adapt their instruction to meet students' needs and assists students to determine what learning adjustments they need to make. Summative assessment helps determine whether a student has reached a certain level of competency "after completing a particular phase of education, whether is be a classroom unit, or 12 years of schooling" (National Research Council, 2001, p. 38).

Summative assessments are used to measure what students have learned. Formative assessment refers to "frequent, interactive assessments of student progress and understanding to identify learning needs and adjust teaching appropriately" (Organisation for Economic Co-operation and Development, 2005, p. 21).

"Formative assessment is designed to extend and encourage learning; summative assessment is used to determine how much students have learned, with little or no emphasis on using results to improve learning." (McMillan, 2007, p. 7)

"Summative assessments are best thought of as retrospective. The vast majority of summative assessments in education are assessments of what the individual has learnt, know, understands and can do. In contrast, formative assessment can be thought of as being prospective." (Wiliam, 2000, p. 14)

In 1967, Michael Scriven used the terms "formative" and "summative" to describe the two distinct roles that evaluation of curriculum might play (Scriven, 1967, p. 43). He referred to the formative role of evaluation in relation to the "on-going improvement of the curriculum" (p. 41) and the summative role of evaluation serving to enable administrators to evaluate

“the entire finished curriculum” (p. 42). In Scriven’s view, formative evaluation would permit administrators to make ongoing improvements to the curriculum, and summative evaluation would occur at the point when administrators made a judgment about its quality. Since Scriven’s original formulation, the terms summative and formative have been applied specifically to assessment. Summative assessment is concerned with summing up or summarizing the achievement status of a student. In contrast, formative assessment is concerned with how judgments about the quality of student responses (performances, pieces, or works) can be used to shape and improve student learning “*during* the learning” (Bell & Cowie, 2001, p. 536; emphasis added).

As we saw earlier, Mr. Gibson provided a grade for the paper at the end of the process. His grade was a summative assessment of the final paper, his judgment about the level of performance the students had achieved. The grade did not provide feedback about how to improve, which as you recall is central to formative assessment.

When he was using formative assessment (the review of the thesis statement, the peer review of the outline, self-monitoring in relation to the success criteria and peer and teacher review of drafts), he received and provided feedback so he and his students could keep learning moving forward toward the ultimate goal.

In the next chapter, we will focus on where formative assessment fits in the big assessment picture and how both summative and formative can work together to contribute to effective teaching and learning.

SUMMING UP

- Formative assessment is used to make changes to alter the gap between current learning and desired goals.
- Formative assessment is a continuous process, integrated into instruction to collect evidence about *how* student learning is progressing toward learning goals.
- Formative assessment involves a variety of assessment methods and strategies—there is no one way to conduct formative assessment.
- Feedback that helps learners move forward is central to formative assessment.
- Formative assessment involves students in self-assessment about how their learning is progressing so that they can be active agents in learning, working with teachers to close the gap between current levels of understanding and desired learning goals.

REFLECTION QUESTIONS

1. How often do you use formative assessment in your classroom? How often do you use summative assessment?
2. For what purposes do you use summative and formative assessment? Are these purposes the same as the ones described in the chapter?
3. Which areas that you have read about in this chapter would you like to develop further in your work?