Formative Assessment & Standards-Based Grading

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THE CLASSROOM STRATEGIES SERIES
Chapter 2

THE ANATOMY OF FORMATIVE ASSESSMENT

The discussion in chapter 1 highlights both the interest in and the confusion about formative assessment and its use in K–12 classrooms. An obvious question one might ask is, Why the confusion? To answer this question, it is useful to understand some history about the term formative assessment. Initially, it was used in the field of evaluation. In an American Educational Research Association monograph series published in 1967, Michael Scriven pointed out the distinction between evaluating projects that were being formulated and evaluating those that had evolved to their final state. The former were referred to as formative evaluations and the latter were referred to as summative evaluations.

In the world of projects, the distinction between formative evaluation and summative evaluation makes perfect sense. Consider a project in which a new curriculum for elementary school mathematics is being developed. There is a clear beginning point at which the authors of the program start putting their ideas on paper. There are benchmarks along the way, such as completing a first draft, gathering feedback on that draft, and making revisions based on the feedback. Finally, there is a clear ending point when the new curriculum has been published and is being distributed to schools.

According to Popham (2008), Benjamin Bloom tried in 1969 to transplant the formative/summative evaluation distinction directly into assessment, but “few educators were interested in investigating this idea further because it seemed to possess few practical implications for the day-to-day world of schooling” (p. 4). As described in chapter 1, it would take until the Black and Wiliam (1998a) synthesis for the idea to catch on. At that time, they offered the following definition of formative assessment:

Formative assessment . . . is to be interpreted as all of those activities undertaken by teachers and/or by students which provide information to be used as feedback to modify the teaching and learning activities in which they engage. (pp. 7–8)

In 2006, the Council of Chief State School Officers (CCSSO) attempted to tighten the definition of formative assessments. According to Popham (2008),

A central activity in the CCSSO assessment initiative was the creation of a new consortium focused specifically on formative assessment. A CCSSO consortium is composed of key department of education personnel from
those states that wish to participate. Each of these groups is referred to as a State Collaborative on Assessment and Student Standards (SCASS), and a new SCASS dealing exclusively with formative assessment, known as Formative Assessment for Students and Teachers—or FAST SCASS, if you’re in a hurry—was formed in mid-2006. (pp. 4–5)

At its inaugural four-day meeting in October of 2006, FAST SCASS crafted a definition of formative assessment that reflected the latest research on effective assessment practices. As reported by Popham, the following definition came out of this effort: “Formative assessment is a process used by teachers and students during instruction that provides feedback to adjust ongoing teaching and learning to improve students’ achievement of intended instructional outcomes” (2008, p. 5). Defining features of formative assessment were as follows:

- Formative assessment is a process, not any particular test.
- It is used not just by teachers but by both teachers and students.
- Formative assessment takes place during instruction.
- It provides assessment-based feedback to teachers and students.
- The function of this feedback is to help teachers and students make adjustments that will improve students’ achievement of intended curricular aims. (Popham, 2008, p. 5)

In his 2008 book Transformative Assessment, Popham updated that definition again: “Formative assessment is a planned process in which teachers or students use assessment-based evidence to adjust what they are currently doing” (p. 6). He also listed the following characteristics:

- Again, formative assessment is not a test but a process—a planned process involving a number of different activities.
- One of those activities is the use of assessments, both formal and informal, to elicit evidence regarding students’ status: the degree to which a particular student has mastered a particular skill or body of knowledge.
- Based on this evidence, teachers adjust their ongoing instructional activities or students adjust the procedures they’re currently using to try to learn whatever they’re trying to learn. (p. 6)

The preceding definitions have certainly illustrated the general concept of formative assessment, but this book is intended to go one step further by specifying how formative assessment might manifest in the classroom. To this end, the categories depicted in Table 2.1 are used throughout the book. Table 2.1 addresses two important distinctions in classroom assessment: types of assessments and uses of assessments. This chapter attempts to flesh out the defining characteristics of both.

Before delving into the anatomy of formative assessment, we should begin with a working definition of classroom assessment in general. Paraphrasing from the distinctions made in Classroom Assessment and Grading That Work (Marzano, 2006), we will define a classroom assessment as anything a teacher does to gather information about a student’s knowledge or skill regarding a specific topic. This definition is very much in keeping with the general descriptions of assessment provided by Black and Wiliam in their 1998 article titled “Inside the Black Box: Raising Standards Through Classroom Assessment.”
That work was a brief description of the findings from their synthesis of 250 studies on formative assessment. They noted:

We use the general term assessment to refer to all those activities undertaken by teachers—and by their students in assessing themselves—that provide information to be used as feedback to modify teaching and learning activities. (1998b, p. 2)

Interestingly, this definition is almost identical to the definition of formative assessment they offered in their more technical discussion of their findings, “Assessment and Classroom Learning,” which was also published in 1998. As stated previously, their definition of formative assessment was:

Formative assessment . . . is to be interpreted as all of those activities undertaken by teachers and/or by their students which provide information to be used as feedback to modify the teaching and learning activities in which they are engaged. (1998a, pp. 7–8)

The similarities in definitions for the general construct of assessment and the more specific construct of formative assessment highlight the need for clearer distinctions. Examining types of assessment in contrast to uses of assessment helps provide these distinctions.

**Types of Classroom Assessments**

According to table 2.1, there are three types of assessments a teacher might use in the classroom: obtrusive assessments, unobtrusive assessments, and student-generated assessments. Each can and should be used in a comprehensive system of formative assessment.

**Table 2.1 Distinctions Regarding Classroom Assessments**

<table>
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<tr>
<th>Types of Classroom Assessment</th>
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**Obtrusive Assessments**

Obtrusive assessments interrupt the normal flow of activity in the classroom. Instruction does not occur during obtrusive assessments. Instead, instruction stops while students “take the assessment” (hence the term obtrusive).

Obtrusive assessments can take many forms. Probably the most common form is the paper/pencil test. For example, as a form of obtrusive assessment, a science teacher schedules a quiz to assess students’ understanding of the concept of mutualism, or a language arts teacher provides a five-item short-answer test designed to assess the students’ comprehension of a reading passage.
Demonstrations and performances can also be forms of obtrusive assessments. For example, as a form of obtrusive assessment, a dance teacher asks students to perform a dance step they have been practicing during the week, a physical education teacher focusing on basketball asks students to demonstrate the proper execution of a free throw, or a science teacher asks students to demonstrate how the cell membrane is selectively permeable by designing and explaining a model. Obtrusive assessments can also be oral. For example, as a form of obtrusive assessment, a social studies teacher asks an individual student to explain the defining characteristics of a constitutional democracy. In all of these examples, instruction stops while assessment occurs. The following examples depict obtrusive assessments in a variety of subject areas.

**Language arts:** To assess the students’ ability to write a persuasive paper, the teacher assigns students the task of identifying a claim about a topic of their choice and supporting that claim with appropriate facts and qualifiers. Students begin the task in class and turn it in the next day.

**Mathematics:** To assess the students’ ability to make reasonable estimations of weight, students are given four objects each. They must consider the weight of each object and write down estimations they consider to be reasonable using the units of measure studied in class. They must also write brief justifications for their answers. At the end of class, the students turn in their assessments.

**Science:** To assess the students’ understanding of the systems of the human body, the teacher provides them with a blank outline of a human body. He asks them to graphically locate the heart, the lungs, the liver, and the stomach. They are also asked to write down the system associated with each organ and provide brief explanations of that system’s major purpose.

**Social studies:** To assess the students’ knowledge of United States geography, the teacher provides a blank map of the country. Students must write in the names of as many states as they can in the time allotted.

**Physical education:** To assess the students’ ability to hit a golf ball, the teacher asks each student to demonstrate a golf swing using a driver. After hitting the ball, each student is asked to evaluate his or her own swing and name one thing he or she could have done to make it better. After analyzing the swing, the student is asked to demonstrate again, this time thinking in advance about what he or she needs to improve on.

**Art:** To assess the students’ ability to draw using perspective, the teacher presents them with three-dimensional objects such as cylinders, prisms, and cubes. They are asked to choose one object and use the relevant elements of perspective to draw it as realistically as possible within the allotted time.

**Technology:** To assess the students’ ability to use PowerPoint, the teacher assigns students the task of creating a brief PowerPoint presentation designed to teach their classmates about one of their hobbies. Students begin the task in class and are asked to finish the projects at home in preparation for in-class presentations the next day.

**Unobtrusive Assessments**

In contrast to obtrusive assessments, unobtrusive assessments do not interrupt the flow of instruction. In fact, students might not even be aware that they are being assessed during an unobtrusive assessment.
Unobtrusive assessments are most easily applied to content that is procedural, or content that involves learning a skill, strategy, or process. For example, a physical education teacher observes a student on the playground executing an overhead throw and notes that he or she performs the skill quite well; during independent work in the laboratory, a science teacher notes that a particular student is not following the correct procedure for combining chemicals safely. Each of these situations provides the teacher with information about the student’s current status regarding a specific skill, strategy, or process, but in neither case is the student aware that such information has been obtained by the teacher. The following examples briefly depict unobtrusive assessments that might be employed in various subject areas.

*Language arts:* A teacher observes a student writing a haiku poem of his or her own design. The teacher considers this an unobtrusive assessment of the student’s ability to write this type of poem.

*Mathematics:* A teacher observes a student working a division problem from a homework assignment on the board. The student works through the problem correctly, and the teacher considers this an unobtrusive assessment of the student’s ability to perform the process of division.

*Science:* A teacher observes a student performing the steps of a scientific procedure and taking notes in a lab book. The teacher considers this an unobtrusive assessment of the student’s ability to perform and document a scientific experiment.

*Social studies:* A teacher observes a student identifying on a map of the city where his or her house is located. The teacher considers this an unobtrusive assessment of the student’s ability to read a map.

*Physical education:* A teacher observes a student stopping a soccer ball with his or her feet and then kicking it to a teammate during a game played in class. The teacher considers this an unobtrusive assessment of the student’s ability to stop a ball and kick it with accuracy.

*Art:* A teacher observes a student acting a part in a role-playing exercise and considers this an unobtrusive assessment of the student’s ability to create and maintain a character.

*Technology:* A teacher observes a student typing with correct technique while looking at the computer screen instead of the keyboard. He or she considers this an unobtrusive assessment of the student’s typing ability.

**Student-Generated Assessments**

Student-generated assessments are probably the most underutilized form of classroom assessment. As the name implies, a defining feature of student-generated assessments is that students generate ideas about the manner in which they will demonstrate their current status on a given topic. To do so, they might use any of the types of obtrusive assessments discussed in the preceding text. For example, one student might say that she will provide an oral answer to any of the twenty questions in the back of chapter 3 of the science textbook to demonstrate her knowledge of the topic of habitats. Another student might propose that he design and explain a model of the cell membrane to demonstrate his knowledge of the topic. The following examples depict student-generated assessments that might be employed in various subject areas.
Language arts: To demonstrate her understanding of a book read in class, a fifth-grade student proposes that she write a paper describing the events of the story and how one event caused another, leading to the story's ultimate resolution.

Mathematics: To demonstrate his understanding of geometric angles, a fourth-grade student proposes that he measure and draw acute, obtuse, and right angles as well as complementary and supplementary angles in the presence of the teacher.

Science: To show that she understands the solar system, an eighth-grade student proposes that she draw a diagram of the solar system and write a paper describing the major features of each different planet and its relationship to the other planets in the system.

Social studies: To demonstrate his understanding of the causes of World War II, an eighth-grade student proposes that he write a paper on how the war might have been avoided if the Treaty of Versailles had not been so punitive to Germany.

Physical education: To show that she can do a forward and a backward roll, a kindergarten student offers to demonstrate both movements for the teacher.

Art: To show his skill at shading, a sixth-grade student offers to draw and shade an object in his house and bring the drawing to class.

Technology: To show that she understands how email works, a first-grade student offers to send the teacher an email from the school computer lab and bring a printed copy of the teacher's reply to class.

Exercise 2.1 provides some practice in classifying assessments. (See page 35 for a reproducible of this exercise and page 132 for a reproducible answer sheet. Visit marzanoresearch.com/classroom strategies to download all the exercises and answers in this book.)

Exercise 2.1
Obtrusive, Unobtrusive, and Student-Generated Assessments

After reading each of the following classroom assessment scenarios, determine whether it is best classified as an example of obtrusive, unobtrusive, or student-generated assessment.

1. Mona is very close to receiving an A on the content that has been covered in her art class this quarter. She approaches the teacher and proposes that she provide a sketch to show she has mastered the techniques presented during the quarter.

2. After teaching the concept of a thesis statement, discussing examples of successful thesis statements, and providing the students with opportunities for practice, Mr. Grace gives his students a topic and asks them to write a corresponding thesis statement. He scores the effectiveness of the thesis statements using a rubric and records the scores for each student.

3. After teaching a unit on editing and revising, Ms. Minturn asks her students to pull out a hard copy of an essay they composed earlier in the year. She breaks the class into pairs and asks them to read and suggest edits and revisions on their partners' essays. She collects the revisions and grades each student according to a rubric on the effectiveness of his or her editing.

4. Mr. Davis is teaching a unit on shading. He takes his class to an outside garden, and while the students are creating compositions focusing on the shadows and colors they see, he walks around and observes their progress. Without interrupting, he records an assessment score for each student in his gradebook.

5. Ms. Lewis has been working with her students on a cooperative learning goal. While she is monitoring recess, she notices four of them working together to complete a double-dutch jump rope game. Because all four students have to cooperate to reach their goal, Ms. Lewis decides these students have fulfilled the requirement for score 3.0 on the rubric she has designed for cooperative skills.
Uses of Classroom Assessments

As depicted in table 2.1 (page 23), there are three different uses of classroom assessments: formative scores, summative scores, and instructional feedback.

Formative and Summative Scores

As described in the first part of this chapter, the formal definition of formative assessment and Popham's (2008) amendments to that definition indicate that formative assessment is a process as opposed to a specific type of assessment. In fact, it would be accurate to say that, in general, a specific assessment is neither formative nor summative—it all depends on how the information is used. Theoretically then, the same assessment could be used in a formative sense or in a summative sense. John Hattie (2003) made this point quite eloquently:

As illustrated by Bob Stake's maxim: when the cook tastes the soup it is formative, when the guests taste the soup it is summative. Thus a key issue is timing, and it is possible that the same stimulus (e.g., tasting the soup) can be interpreted and used for both forms of assessment. Hence, it is NOT the instrument . . . that is formative and summative. It is the timing of the interpretation and the purpose to which the information is used. (p. 4)

This noted, it is also true that assessments can and perhaps should be tailored to collect data that will be used for either formative purposes or summative purposes but not both. As noted by Pellegrino, Chudowsky, and Glaser (2001): “Often a single assessment is used for multiple purposes; in general however, the more purposes a single assessment aims to serve, the more each purpose will be compromised” (p. 2).

For the reasons cited in the preceding text, throughout this work, the terms formative scores and summative scores are used in lieu of the terms formative assessment and summative assessment. Assessments, then, can have multiple forms (obtrusive, unobtrusive, and student generated) and multiple uses, two of which are to generate formative scores and summative scores. This focus on formative and summative scores as opposed to formative and summative assessments provides a unique perspective on classroom assessment and tracking students’ progress over time. To illustrate, consider figure 2.1 (page 28).

In figure 2.1, four formative scores have been assigned to the student, Lindsay, on the topic of writing transitions in expository compositions. Each of these scores is on a scale from 0 through 4, indicating that the teacher used a rubric to score this particular skill. Each score represents the student’s level of knowledge at a certain point in time. The last (fourth) score in the sequence is not necessarily the summative score. The summative score (recorded to the far right of the graph in the last column, labeled “S”) represents the teacher’s judgment about Lindsay’s final status based on all of the previous scores. To illustrate how a summative score is generated, consider figure 2.2 (page 29).

The depiction in figure 2.2 is certainly different from traditional approaches to keeping track of students’ scores. It is also different from the recommendation of some authors that formative scores should not be recorded since they are to be used only as practice for summative assessments. In this book, we take strong exception to that perspective for one major reason: a summative score should not be derived from a single final assessment. Rather, a summative score should be the most reasonable representation of a student’s final status at a particular point in time. All available information about a student should be used in the determination of his or her final status—his or her summative score. This practice is quite consistent with the sentiment of the members of the Committee on the Foundations
of Assessment, who produced the ground-breaking book in assessment titled *Knowing What Students Know*: “The committee recognizes that all assessments are in a sense ‘formative’” (Pellegrino et al., 2001, p. 38).

**Student Progress Chart**

**Keeping Track of My Learning**

Name:  *Lindsay*

Learning Goal:  *Transitions in expository writing*

My score at the beginning:  *1.5*. My goal is to be at  *3*  by  *March 30*.

Specific things I am going to do to improve:  *Work 15 min. three times a week*

![Learning Goal: Transitions](image)

- a.  *Feb. 5*
- b.  *Feb. 12*
- c.  *Feb. 20*
- d.  *Feb. 28*
- e.  
- f.  
- g.  
- h.  
- i.  
- Summative Score:  

*Figure 2.1 Line graph depicting formative scores.*

To construct a summative score, the teacher examines the student’s pattern of responses over time. *The teacher does not compute an average of the student’s formative scores to construct a summative score.* This would be an absolute violation of the principles of formative assessment. The technical reason averaging makes little sense is explained in some depth in *Classroom Assessment and Grading That Work* (Marzano, 2006). The short version of that explanation is that averaging makes sense only if no learning has occurred from assessment to assessment or if assessments measure very different things. Obviously, in a formative system, all assessments for a particular topic will be on the same topic. This is the case in figures 2.1 and 2.2—all four assessments pertain to the student’s (Lindsay’s) skill at writing paragraphs with good transitions. As depicted in figures 2.1 and 2.2, Lindsay’s first formative score was a 1.5, and her last was a 3.5. The average of these four formative scores (1.5, 2.0, 2.0, and 3.5) is 2.25, which certainly does not reflect her status at the end of the grading period.
A logical question some educators ask is, Why not simply use the student’s final score as the summative score? The answer to this question was provided in chapter 1 in the discussion of error found in all assessments (see table 1.6, page 13). Recall that all assessments contain error, and one has to take that error into consideration when interpreting any single score as an estimation of a student’s true status (or true score) at any point in time. Thus, the final formative score in a series of formative scores might, in fact, be an accurate indicator of a student’s true score at that time, but it might not be.

A second question asked by educators (which is related to the first) is, Why not administer a final assessment and consider this as the summative score? The answer to this question is the same as the answer to the first question. Even if a very good final assessment is designed, it will still contain error. Consequently, it cannot be absolutely trusted as the true score for an individual student. This noted, it is still a viable and useful (but not absolutely necessary) practice for teachers to design some type of final examination and then enter that score into the mix with other formative scores. Obviously, the formative score that is based on a detailed final examination would receive more weight in determining a summative score than would previous formative scores.
To consolidate the discussion thus far, it is useful to list the characteristics of formative scores as described in this book.

1. Formative scores can be derived from a variety of types of assessment that include obtrusive assessments, unobtrusive assessments, and student-generated assessments.

   The four formative scores depicted in figures 2.1 and 2.2 (pages 28 and 29) could have been generated by any of the three types of assessments. To illustrate, the first assessment for Lindsay might have been an essay designed by the teacher—an obtrusive assessment. The second assessment in figures 2.1 and 2.2 could have been unobtrusive in that the teacher happened to notice Lindsay’s use of transition sentences in a composition done for another class. The third assessment might have been student generated in that Lindsay proposed to the teacher that she complete some structured exercises on the use of transitional sentences in a grammar and composition text. The fourth assessment could have been another obtrusive assessment, perhaps a second composition assigned by the teacher.

2. Assessments that yield formative scores must be scored.

   As we shall see in the next section, on instructional feedback, all assessments do not have to be scored. However, assessments must be scored if they are to be used to generate formative scores. Additionally, they must be recorded in some way, as depicted in figures 2.1 and 2.2.

3. A set of recorded formative scores is used to track student progress over time.

   As depicted in figures 2.1 and 2.2, formative scores should be recorded and displayed in such a way as to track student progress. In subsequent chapters, we will consider a variety of ways to display student progress, including technology-based approaches.

4. A set of formative scores is used to generate a summative score at the end of a particular interval of time, such as a grading period.

   One of the primary uses of formative scores is to generate a summative score. This is not done by averaging formative scores or simply using the last formative score in the set. As we shall see in chapters 5 and 6, formative scores can also be used to examine knowledge gain.

**Instructional Feedback to Teachers and Students**

In contrast to formative scores is instructional feedback. Table 2.2 depicts the similarities and differences between these uses of assessment.

As indicated in table 2.2, assessments used to generate formative and summative scores and assessments used for instructional feedback have common characteristics: both can involve obtrusive assessment, unobtrusive assessment, and student-generated assessment. Additionally, both can be scored, though scoring assessments used for instructional feedback is not required.
Table 2.2 Formative and Summative Scores Versus Instructional Feedback

<table>
<thead>
<tr>
<th>Formative and Summative Scores</th>
<th>Instructional Feedback</th>
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<tbody>
<tr>
<td>Formative and summative scores can be derived from a variety of types of assessments that include obtrusive assessments, unobtrusive assessments, and student-generated assessments.</td>
<td>Instructional feedback can be derived from a variety of types of assessments that include obtrusive assessments, unobtrusive assessments, and student-generated assessments.</td>
</tr>
<tr>
<td>Assessments are scored.</td>
<td>Assessments may or may not be scored.</td>
</tr>
<tr>
<td>Scores are recorded and used to track student progress.</td>
<td>Because assessments are not recorded, they are not part of the formative tracking of students over time, but they do serve to inform the teacher about how both the class and specific students are progressing.</td>
</tr>
<tr>
<td>Formative scores are used to generate a summative score.</td>
<td>Instructional feedback is not a formal part of the design of summative scores, but it may help teachers determine the most appropriate summative score for specific students.</td>
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To illustrate how instructional feedback might manifest in the classroom, consider the following examples:

- In response to questions the teacher asks, students hold their thumbs up to signal they know the answer, hold their thumbs down to signal they do not know the answer, and hold their thumbs to the side to signal they are not sure if they know the answer.

- A teacher gives a practice quiz that is scored on the spot by students as the teacher goes through the answers. Each student scores his or her own answers. As the teacher goes over each question, he or she asks students to raise their hands if they feel they need more help with the content. At the end of the activity, each student knows how he or she scored on the practice test, and the teacher has a sense of how well the class did.

- After students have practiced strategies for the overhand throw of a softball, a teacher observes them at recess playing a game of softball. He mentally makes a note of how well each student is executing the throw and uses this feedback to help redesign the next lesson with students. In class, he provides feedback to specific students based on what he saw at recess.

Note that each of the activities qualifies as an assessment in that it provides information about students’ level of knowledge or skill regarding a specific topic. In the first example, the assessment involves questions posed by the teacher orally. All students respond to the questions using hand signals. This is a form of obtrusive assessment. Because it is oral and because the whole class responds to every question, student responses are not scored.

In the second example, the form of assessment is more formal—the teacher gives a quiz. Additionally, the quiz is scored. Right after the quiz, the teacher goes over each item as students score their own papers. As before, this is an obtrusive assessment, but this time individual student scores are generated. However, because the assessment is designed for instructional feedback, students’ scores are not recorded.

The third example is an unobtrusive form of assessment. The teacher observes students executing a physical skill and makes mental notes. The teacher does not assign scores. Instead, he uses the observations to redesign the next lesson and identify the feedback he wants to provide to specific students.
In addition to the characteristics in the preceding list, instructional feedback typically involves a great deal of interaction between teacher and students. In the first example, this might manifest as the teacher asking students why they think certain answers are correct or incorrect. The same is true for the second example. As the teacher goes over the answers with students to the various questions in the quiz, he or she might engage students in a dialogue about the strength of specific answers. In the third example, the teacher might have an extended conversation with students about their individual techniques, inviting input from them about ways to improve. In effect, instructional feedback provides an opportunity for teachers and students to reexamine content with the added benefit of assessment data that provide an indication of their current status.

In some cases, assessments used for instructional feedback are employed serially within a single lesson. Consider again the example in which the teacher asks questions orally and students respond using hand signals. The teacher might begin the class with a series of such questions, many of which the majority of students answer incorrectly. After some input from the teacher, another set of similar questions might be posed. More, but not all, students might respond favorably. Again, input is provided to students, and a third and final set of related questions is asked—this time with all of the students answering the questions correctly. In this approach, assessments used for instructional feedback are scaffolds that gradually increase the knowledge level of the class as a whole.

Exercise 2.2 provides some practice in discerning between instructional feedback and formative scores. (See page 36 for a reproducible of this exercise and page 134 for a reproducible answer sheet. Visit marzanoresearch.com/classroomstrategies to download all the exercises and answers in this book.)

**Exercise 2.2**

**Instructional Feedback Versus Formative Scores**

<table>
<thead>
<tr>
<th>Exercise 2.2</th>
<th>Instructional Feedback Versus Formative Scores</th>
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<tbody>
<tr>
<td>1. Ms. Levine is teaching a unit on oral communication. At the end of the unit, students will give an oral presentation on a book of their choosing, but Ms. Levine knows students need opportunities to practice skills such as eye contact, enunciation, and pace and volume control. To provide those opportunities, Ms. Levine asks the students more direct questions than she ordinarily might. The student who answers is asked to stand and address the class so that he or she may become a bit more comfortable with speaking in front of a group. Ms. Levine provides spontaneous feedback as well, such as suggesting that a student slow down or speak louder.</td>
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<tr>
<td>2. After a unit on the circulatory system, Mr. Williams asks students to complete a written test. He grades each one and records the scores.</td>
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<tr>
<td>3. Ms. Bowman has given her students updates on their current scores for each learning goal covered during the first quarter of the school year. Candice has been reminded that her score for a goal involving immigration is 2.5 on a 4-point rubric, and she wants to raise that score to 3.0 by the end of the quarter. She approaches Ms. Bowman with an idea to create a family tree depicting the names of each family member on her mother's side, the countries from which they came, and the date of their arrival. Candice believes this would demonstrate her knowledge of the score 3.0 content.</td>
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<tr>
<td>4. Mr. McKimm is teaching a unit on quadratic equations. He writes an equation and its solution on the blackboard and asks the class to vote on whether the solution is correct or incorrect. He chooses one student to explain why he or she thinks the solution is correct and one to explain why he or she thinks the solution is incorrect. After hearing both sides, the students vote again. Mr. McKimm makes a mental note of how many students appear to understand the problem.</td>
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<tr>
<td>5. Ms. Walker is teaching a unit on volleyball. After covering individual skills with the students, she has split them up into teams. During one of the games, she notices that Ashley executes a perfect overhead serve. Ashley has had trouble with this skill, receiving low scores in the past. After seeing the serve, Ms. Walker makes a mental note to assign Ashley a higher score in the gradebook.</td>
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The Importance of Changing Behavior

One of the defining features of the process of formative assessment as described in this book is that it provides information to students and teachers regarding adaptations they might make to improve performances. On the students' side, this involves identifying the specific content they must improve on and things they might do to improve. For example, after receiving instructional feedback on her use of the overhand throw, a student realizes that she needs to hold the softball looser when she throws. She decides to try this the next time she is in gym class.

On the teacher's side, behavior change involves identifying content that must be reviewed or retaught. For example, after scoring the practice quiz with students, the teacher realizes that he needs to review some vocabulary about the topic that he thought students already knew. The following scenarios provide examples of how the process of formative assessment can be used by teachers and students to adapt their behaviors in the service of learning.

Scenario 1: Ms. Butler is a high school language arts teacher who has just given an obtrusive assessment and is now recording the scores for formative purposes. She notices that almost all of the students performed poorly on an essay asking them to discuss the significance of the Arctic climate in the book Frankenstein. She realizes that while the class had discussed other, more concrete symbols in the book, they had not once during the school year touched on the ways setting can be used as a symbol. She decides to revisit this essay with the class and discuss the wide range of symbolic possibilities in any novel, using the Arctic climate in Frankenstein as an example.

Scenario 2: Mr. Mercer is an elementary art teacher who is unobtrusively assessing his students while they make origami holiday ornaments. He notices that while students seem to be doing well constructing the ornaments from precut pieces of paper, they are having a hard time cutting any pieces on their own. He realizes that while he went over in detail the processes of folding and constructing the ornaments, he did so with paper he had prepared by precutting. He decides to interrupt the class activity and go over the procedures for cutting so that students can perform the learning goal with more proficiency.

Scenario 3: The teacher has just given Maeve her score on the last quiz she took. She notices that she missed both items on soil salinization. Also, the teacher wrote on her paper, "Maeve, you seem to be confused about this." Maeve immediately goes to the Internet to try to determine where she is inaccurate.

Scenario 4: Mr. Cumberbund is a middle school social studies teacher who has just given an obtrusive assessment for formative purposes on the topic of government. He notices that while students performed well on questions regarding the executive and legislative branches of the government, almost all of them performed poorly on questions relating to the judicial branch. When rethinking his teaching strategies, he realizes that the content he covered had more to do with specific influential rulings of the Supreme Court and not the workings and purposes of the judicial branch in general. He decides to revisit this topic using a different approach.

Scenario 5: Aida has just participated in an activity in which students in her class were asked to vote on which answers they thought were correct for a series of questions on primary sources. For the first time, she realizes that she is very confused about this concept and resolves to ask her teacher about it as soon as she gets the chance.
Exercise 2.3 provides review questions for this chapter. (See page 37 for a reproducible of this exercise and page 136 for a reproducible answer sheet. Visit marzanoresearch.com/classroomstrategies to download all the exercises and answers in this book.)

**Exercise 2.3**

**Review Questions**

The following questions deal with much of the important content in this chapter. Answer each one and then compare your answers with those provided on the corresponding answer sheet.

1. What are the three types of classroom assessment, and what are some of the unique qualities of each?
2. What are the three ways to use assessments, and what are some of the unique characteristics of each?
3. What is the difference between formative assessment and formative scores as defined in *Formative Assessment and Standards-Based Grading*?
4. Describe how assessments can provide information to teachers about their own performances.

**Summary**

This chapter began with defining assessment as a broad construct involving anything that is done to provide information about students' knowledge and skill regarding content for a particular topic in class. Formative assessment is defined as a process that narrows the scope by requiring that the assessments be used for purposes of modification. There are three types of classroom assessment: obtrusive assessment, unobtrusive assessment, and student-generated assessment. Obtrusive is the most traditional form, and it involves interrupting instruction to "take" the assessment. Unobtrusive assessments can be employed informally for individual students whenever a teacher witnesses a student performing a relevant skill, strategy, or process. Student-generated assessments are those the students design and execute under the guidance of a teacher to improve a score or grade. Each of these types can be used in three ways: to create formative scores, or scores that are recorded in the interest of providing information to students and teachers about the progression of learning; to create summative scores, or scores that are derived at the end of a grading period and represent a student's final status at a particular point in time; or to provide instructional feedback, in which case assessments may be scored but are not recorded and are used to help inform students about areas of improvement and teachers about the progression of individual students or an entire class.
Exercise 2.1

Obtrusive, Unobtrusive, and Student-Generated Assessments

After reading each of the following classroom assessment scenarios, determine whether it is best classified as an example of obtrusive, unobtrusive, or student-generated assessment.

1. Mona is very close to receiving an A on the content that has been covered in her art class this quarter. She approaches the teacher and proposes that she provide a sketch to show she has mastered the techniques presented during the quarter.

2. After teaching the concept of a thesis statement, discussing examples of successful thesis statements, and providing the students with opportunities for practice, Mr. Grace gives his students a topic and asks them to write a corresponding thesis statement. He scores the effectiveness of the thesis statements using a rubric and records the scores for each student.

3. After teaching a unit on editing and revising, Ms. Minturn asks her students to pull out a hard copy of an essay they composed earlier in the year. She breaks the class into pairs and asks them to read and suggest edits and revisions on their partners’ essays. She collects the revisions and grades each student according to a rubric on the effectiveness of his or her editing.

4. Mr. Davis is teaching a unit on shading. He takes his class to an outside garden, and while the students are creating compositions focusing on the shadows and colors they see, he walks around and observes their progress. Without interrupting, he records an assessment score for each student in his gradebook.

5. Ms. Lewis has been working with her students on a cooperative learning goal. While she is monitoring recess, she notices four of them working together to complete a double-dutch jump rope game. Because all four students have to cooperate to reach their goal, Ms. Lewis decides these students have fulfilled the requirement for score 3.0 on the rubric she has designed for cooperative skills.
Exercise 2.2

Instructional Feedback Versus Formative Scores

After reading each of the following classroom scenarios, determine whether it illustrates an assessment being used for instructional feedback or for formative scores.

1. Ms. Levine is teaching a unit on oral communication. At the end of the unit, students will give an oral presentation on a book of their choosing, but Ms. Levine knows students need opportunities to practice skills such as eye contact, enunciation, and pace and volume control. To provide those opportunities, Ms. Levine asks the students more direct questions than she ordinarily might. The student who answers is asked to stand and address the class so that he or she may become a bit more comfortable with speaking in front of a group. Ms. Levine provides spontaneous feedback as well, such as suggesting that a student slow down or speak louder.

2. After a unit on the circulatory system, Mr. Williams asks students to complete a written test. He grades each one and records the scores.

3. Ms. Bowman has given her students updates on their current scores for each learning goal covered during the first quarter of the school year. Candice has been reminded that her score for a goal involving immigration is 2.5 on a 4-point rubric, and she wants to raise that score to 3.0 by the end of the quarter. She approaches Ms. Bowman with an idea to create a family tree depicting the names of each family member on her mother’s side, the countries from which they came, and the date of their arrival. Candice believes this would demonstrate her knowledge of the score 3.0 content.

4. Mr. McKimm is teaching a unit on quadratic equations. He writes an equation and its solution on the blackboard and asks the class to vote on whether the solution is correct or incorrect. He chooses one student to explain why he or she thinks the solution is correct and one to explain why he or she thinks the solution is incorrect. After hearing both sides, the students vote again. Mr. McKimm makes a mental note of how many students appear to understand the problem.

5. Ms. Walker is teaching a unit on volleyball. After covering individual skills with the students, she has split them up into teams. During one of the games, she notices that Ashley executes a perfect overhand serve. Ashley has had trouble with this skill, receiving low scores in the past. After seeing the serve, Ms. Walker makes a mental note to assign Ashley a higher score in the gradebook.
Exercise 2.3

Review Questions

The following questions deal with much of the important content in this chapter. Answer each one and then compare your answers with those provided on the corresponding answer sheet.

1. What are the three types of classroom assessment, and what are some of the unique qualities of each?

2. What are the three ways to use assessments, and what are some of the unique characteristics of each?

3. What is the difference between formative assessment and formative scores as defined in Formative Assessment and Standards-Based Grading?

4. Describe how assessments can provide information to teachers about their own performances.
Answers to Exercise 2.1

**Obtrusive, Unobtrusive, and Student-Generated Assessments**

1. *Mona is very close to receiving an A on the content that has been covered in her art class this quarter. She approaches the teacher and proposes that she will provide a sketch that shows she has mastered the techniques presented during the quarter.*

   Mona is employing student-generated assessment in this scenario. She has designed an assessment that will demonstrate her mastery of the content.

2. *After teaching the concept of a thesis statement, discussing examples of successful thesis statements, and providing the students with opportunities for practice, Mr. Grace gives his students a topic and asks them to write a corresponding thesis statement. He scores the effectiveness of the thesis statements using a rubric and records the scores for each student.*

   Obtrusive assessment is being employed in this scenario. Mr. Grace has provided his students with instruction and practice, and he is now directly administering an assessment for which he will record a score for each student.

3. *After teaching a unit on editing and revising, Ms. Minturn asks her students to pull out a hard copy of an essay they composed earlier in the year. She breaks the class into pairs and asks them to read and suggest edits and revisions on their partners’ essays. She collects the revisions and grades each student on the effectiveness of his or her editing.*

   Obtrusive assessment is being employed in this scenario. The teacher has provided a structured editing activity, and the work students are asked to do is graded and recorded by Ms. Minturn.

4. *Mr. Davis is teaching a unit on shading. He takes his class to an outside garden, and while the students are creating compositions focusing on the shadows and colors they see, he walks around and observes their progress. Without interrupting, he records an assessment score for each student in his gradebook.*

   Unobtrusive assessment is being employed in this scenario. Mr. Davis is assessing the work of his students, and he is recording their scores, but in a way that does not interrupt their work. It is possible that the students are not even aware of the assessment.

5. *Ms. Lewis has been working with her students on a cooperative learning goal. While she is monitoring recess, she notices four of them working together to complete a double-dutch jump rope game. Because all four students have to*
cooperate to reach their goal, Ms. Lewis decides these students have fulfilled the requirement for score 3.0 on the rubric she has designed for cooperative skills.

Unobtrusive assessment is being employed in this scenario. Ms. Lewis is observing her students, but they are unaware they are being assessed. She determines they have reached a score 3.0, and she records that score for each of the four students.
Answers to Exercise 2.2

Instructional Feedback Versus Formative Scores

1. **Ms. Levine is teaching a unit on oral communication. At the end of the unit, students will give an oral presentation on a book of their choosing, but Ms. Levine knows students need opportunities to practice skills such as eye contact, enunciation, and pace and volume control. To provide those opportunities, Ms. Levine asks the students more direct questions than she ordinarily might. The student who answers is asked to stand and address the class so that he or she may become a bit more comfortable with speaking in front of a group. Ms. Levine provides spontaneous feedback as well, such as suggesting that a student slow down or speak louder.**

   This scenario exemplifies the use of assessment as instructional feedback. Ms. Levine is not recording scores for her students. She is only providing opportunities for them to practice their public speaking as well as providing feedback to help them in the future.

2. **After a unit on the circulatory system, Mr. Williams asks students to complete a written test. He grades each one and records the scores.**

   This scenario exemplifies the use of assessment for formative scores. The written test is formal, and the grades are recorded.

3. **Ms. Bowman has given her students updates on their current scores for each learning goal covered during the first quarter of the school year. Candice has been reminded that her score for a goal involving immigration is a 2.5 on a 4-point rubric, and she wants to raise that score to a 3.0 by the end of the quarter. She approaches Ms. Bowman with an idea to create a family tree depicting the names of each family member on her mother’s side, the countries from which they came, and the date of their arrival. Candice believes this would demonstrate her knowledge of the score 3.0 content.**

   This scenario exemplifies the use of assessment for formative scores. Candice is the one seeking to improve her grade and designing an assessment she believes will demonstrate she is deserving of a higher score, but the family tree is still an assessment, and the grade will be recorded.

4. **Mr. McKimm is teaching a unit on quadratic equations. He writes an equation and its solution on the blackboard and asks the class to vote on whether the solution is correct or incorrect. He chooses one student to explain why he or she thinks the solution is correct and one to explain why he or she thinks the solution is incorrect. After hearing both sides, the students vote again. Mr. McKimm makes a mental note of how many students appear to understand the problem.**

   This scenario exemplifies the use of assessment for instructional feedback. Mr. McKimm is not recording scores here; he is merely providing students with opportunities to think independently and learn from their mistakes.
5. Ms. Walker is teaching a unit on volleyball. After covering individual skills with the students, she has split them up into teams. During one of the games, she notices that Ashley executes a perfect overhand serve. Ashley has had trouble with this skill, receiving low scores in the past. After seeing the serve, Ms. Walker makes a mental note to assign Ashley a higher score in the gradebook.

This scenario exemplifies the use of assessment for formative scores. Although Ashley is not aware that she is being assessed, Ms. Walker has seen the level of execution she is looking for and will record Ashley's score.
Answers to Exercise 2.3

Review Questions

1. What are the three types of classroom assessment, and what are some of the unique qualities of each?

The three types of classroom assessment are obtrusive assessment, unobtrusive assessment, and student-generated assessment. Obtrusive assessment is characterized by its formality. Classroom activity is suspended, and students “take a test.” They know they are being assessed, and most often the assessment is scheduled and students are notified ahead of time. Unobtrusive assessment, by contrast, is characterized by its informality. Students most often are not aware they are being assessed. Instead, the teacher simply observes the students in action and gleans necessary information about their proficiencies. Student-generated assessment is characterized by the control it gives the student. As opposed to a teacher giving a formal or informal assessment, a student independently comes to a teacher with a specific idea of how he or she can demonstrate proficiency on a learning goal.

2. What are the three ways to use assessments, and what are some of the unique characteristics of each?

The three uses of assessment are formative scores, summative scores, and instructional feedback. Formative scores are snapshots of a student’s level of understanding or skill at a particular point in time, and they are recorded. Formative scores are meant to be used in conjunction with one another so that a teacher can get an overall picture of a student’s achievement across an interval of time such as a grading period. Summative scores, by contrast, do not reflect a single performance on an assessment. Instead, they represent the teacher’s overall judgment of a student’s performance over a period of time. All of the formative scores lead up to the summative score. Instructional feedback is an assessment that may or may not be scored but is not recorded. It is meant to provide students with immediate information about their performance.

3. What is the difference between formative assessment and formative scores as defined in Formative Assessment and Standards-Based Grading?

Formative assessment is a process, whereas a formative score refers to a specific assessment used in the process of formative assessment. Formative scores provide teachers with the data necessary to construct summative scores.

4. Describe how assessments can provide information to teachers about their own performances.

Assessments can let teachers know what information needs to be reviewed or retaught. If a large group of students does not do well on a particular assessment, the teacher knows that that information needs to be revisited.