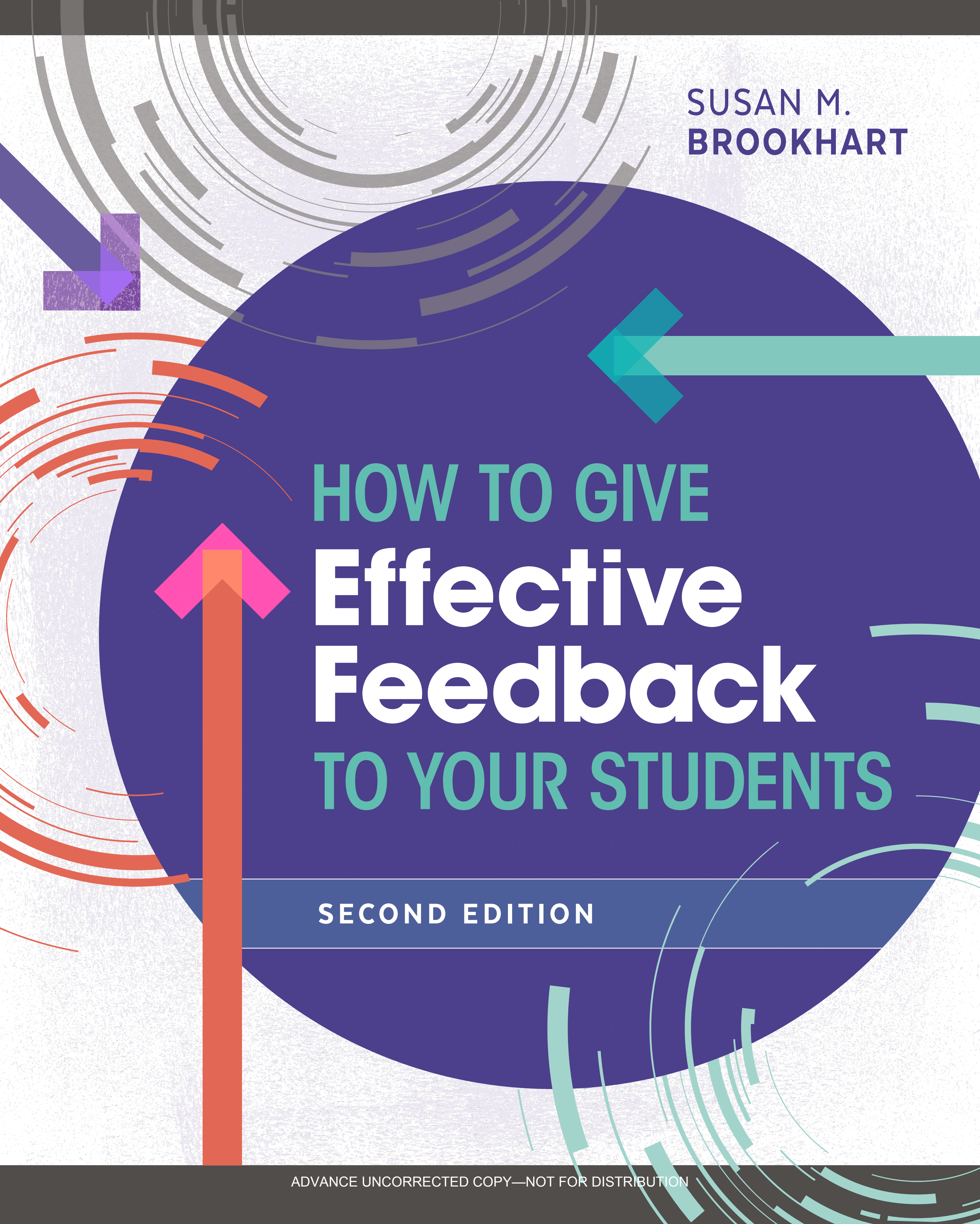
SUSAN M.
BROOKHART

HOW TO GIVE
Effective Feedback
TO YOUR STUDENTS

SECOND EDITION



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Phone: 800-933-2723 or 703-578-9600 • Fax: 703-575-5400
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Feedback: The Long View— Does Feedback Improve Learning?

Feedback can lead to learning only if the students have opportunities to use it. One of the best ways you can help students learn to use feedback is to make sure you build in opportunities for students to use it fairly soon after they receive it. The "long view" of feedback, using the metaphor of a telescope lens, helps us remember to focus on the consequences of feedback. Did the feedback improve student learning?

Feedback is effective if it "feeds forward" (Moss & Brookhart, 2009, pp. 44–59)—if it "is used by the learner in improving performance" (Wiliam, 2011, p. 120). Actually, there is still debate in the field of formative assessment as to what constitutes "formative"—does the feedback have to change performance or is it enough that the feedback *could* be used to change performance? To my mind, this distinction matters little when you are giving feedback to a student with the intention of feeding learning forward. If some positive consequence for learning does not ensue, then the feedback has failed in its purpose. That doesn't have to be cause for weeping and wailing—just keep trying. Try to learn from the failure. What was the cause? Did the student not understand the feedback? Was the feedback too much or too little? Did the student understand but not have an opportunity to do revisions or do further studying in a timely fashion? Whatever the cause, learn from it and adjust your feedback accordingly.

What the Research Shows

I'd like to start the research section of this chapter with a personal story. I have done some research about students' uses of formative assessment information myself. I was interested in how students interpret the feedback that is available to them and what they do with it. This research was part of a broader research agenda that sought to describe how classroom assessments of various sorts affected student learning and motivation. As part of that research, I interviewed elementary, middle, and high school students about their classroom assessments and their responses to them. The story I will tell here is about the high school students.

I visited classes in two high schools, and I talked with a variety of students. They ranged in socioeconomic background, attendance and behavior records, health and well-being, attitudes toward school—everything you can imagine. One of the things that struck me the most was that the successful students, most of whom were college-bound and intentionally applied themselves to their studies, used every bit of information they could get—whether it was intentional feedback or not—to move their learning forward. If students are to improve, they must develop an increasingly complex understanding of themselves as learners, of their learning goals and the criteria for success, and of strategies that help them improve. Successful students test their concepts of themselves as learners and of the quality of their work against the evidence they get in their feedback. Successful students are willing to have the quality of their work confirmed or challenged, knowing they have the means to meet the challenge (Brookhart, 2001). Conversely, the less successful students were more likely to see assessment and feedback as under their teacher's control, not their own.

I wish you could have been there with me as I talked with the successful students. If you are a teacher, you have met some of these students yourself. There was the shy senior in the Anatomy class who had just heard the day before that she was accepted into Harvard. There was the ebullient sophomore in an English class who acknowledged that he didn't think he was going to enjoy a poetry-writing assignment because he didn't really like poetry, but once he got into it found that "it wasn't that bad and I enjoyed it" (Brookhart, 2001, p. 165). There was the sweet 11th grader who used her interview and research assignment to find out more about what life must have been like for her great-grandfather, who had died two years before. These students, with the help of their teachers, all saw that the information about their learning conveyed by their classroom assessments was useful to them. They all figured out ways to use the information themselves. It was so wonderful to share the insights of these proactive, self-regulated learners.

One of the main points of this chapter is that you can scaffold this kind of experience with formative feedback for all students. You can, and should, deliberately plan lessons that include opportunities for students to use feedback. These opportunities can be structured to help students learn how to self-regulate—how to monitor their learning, incorporate feedback into their thinking, and adjust their next steps.

Some research suggests that the weakest link in the formative assessment chain is teachers' use of feedback. Heritage, Kim, Vendlinski, and Herman (2009) found that teachers were better at drawing conclusions about students' understanding from assessment information than they were at designing the next steps in instruction. If teachers have a hard time deciding on the next step based on formative assessment information, how much harder will it be for students? And yet some teachers routinely give students feedback that they intend to be used "next time" they do something.

"Next time" feedback is ineffective. The longer the time between receiving feedback and recalling it, much less using it, the more the feedback message fades from specific descriptions and suggestions to a general memory of evaluation. As much as we would like to believe it, students will not memorize our feedback and call it to mind the next time it is relevant. We have to structure those opportunities for students by planning immediate opportunities for students to use the feedback. We have to take the "long view" for feedback to be effective.

Recall from Chapter 5 that the last phase of the self-regulation of learning process is reaction and reflection. The last phase of the formative assessment cycle is "Where to next?" Taking the long view of feedback, not just giving feedback but following up with opportunities for students to use it, connects theory and practice. And, simply, it works.

Strategies for Helping Students Use Feedback

Using feedback from teachers does not come naturally to all students, but you can teach them to do it. You can also harness the usefulness of the feedback that comes from self- and peer assessment, both of which have their place and also their limits. Figure 6.1 summarizes the strategies discussed here.

Figure 6.1 Strategies to Help Students Learn to Use Feedback

- Model giving and using feedback yourself.
- Teach students where feedback comes from.
- Teach students self- and peer-assessment skills.
- Increase students' interest in feedback because they own it.
- Teach students to answer their own questions and develop self-regulation skills, necessary for using any feedback.
- Be clear about the learning target and the criteria for good work.
- Use assignments with obvious value and interest.
- Explain to students why an assignment is given.
- Make directions clear.
- Use clear rubrics.
- Have students develop their own rubrics, or translate yours into "kid friendly" language.
- Design lessons that incorporate using the rubrics as students work.
- Design lessons in which students use feedback on previous work to produce better work.
- Provide opportunities for students to redo complex assignments.
- Give new but similar assignments for less complex learning targets.
- Give opportunities for students to make connections between the feedback they receive and the improvement in their work.

Ideally, both self-assessment (internal feedback) and teacher feedback (external feedback) should help students control their learning. New concepts and skills will require more teacher regulation, including teacher feedback that describes performance and also suggests strategies for improvement. The strategies you suggest and model will become part of the students' repertoire for practicing that skill. The criteria you describe in your feedback will become part of the students' own criteria for viewing that kind of work. Gradually more and more self-assessment should occur: as concepts become more familiar, students come up with their own learning strategies, and less teacher feedback is needed.

Modeling How to Give and Use Feedback

Modeling is one of the best ways to teach. It's more than a classroom strategy; it's embodied in our culture, in sayings we use all the time to illustrate life lessons. "Practice what you preach" charges people to model. "Do as I say, not as I do" is an admission that when we don't practice what we preach, there is little reason for others to do what we advocate.

You can model giving and using feedback as part of lessons. I once observed a high school poetry lesson during which the teacher showed students a poem she had written, the comments of a friend, and then the revisions she had made. The students discussed why the changes were improvements and what the teacher had done in order to follow the suggestions. She provided something of a think-aloud about her decisions as a writer as she revised her poem after the feedback. She described what she was trying to express (it was a poem about darkness) and what effect she wanted the poem to have on her readers. Then she described the process of considering each suggestion with that in mind and deciding how to revise her poem accordingly.

You can also model openness to criticism by creating a classroom environment in which constructive criticism is expected and where "mistakes" are recognized as opportunities to learn—for you as well as your students. You express this attitude in your tone of voice and type of comment, in the opportunities for revising work and demonstrating improvement that you provide, and in your handling of that improvement. If a student is made to feel bad even after demonstrating improvement, openness to further constructive criticism is less likely.

Teaching Self-Assessment Skills

Self- and peer assessment skills may not come naturally. These skills are best taught in context, in lessons that use a self-assessment strategy to provide students with information about their own work that they can see is useful and helps them improve. This approach teaches students where feedback comes from. They will learn the strategy at the same time as they learn how to improve their project, writing assignment, math problem solving, or whatever they are working on.

Self-assessment increases students' interest in feedback because the feedback is "theirs"; it answers their own questions and helps them to develop the self-regulation skills necessary for using any feedback. Some research evidence suggests that self-assessment is more powerful for learning than peer assessment (Sadler & Good, 2006). The reason seems to be related to self-regulation. In self-assessment, students practice how to monitor, evaluate, and make plans about their own work in relation to a learning target. This, of course, is the goal of learning, whether it's called "self-assessment" or not.

Reviews of the self-assessment research (Andrade & Brown, 2016; Andrade & Valtcheva, 2009; Brown & Harris, 2013; Falchikov & Boud, 1989; Ross, 2006) report that students who are more competent self-assessors are more humble in their self-evaluations. High achievers tend to underestimate, while low achievers tend to overestimate, their performance as compared with teacher ratings. And in general, most students are accurate in their evaluation of how well they have done on tests. Training and practice in self-assessment, opportunities to discuss criteria, the nature of the task and criteria (simple and concrete tasks work best), and experience with the subject, as well as age and student ability, all affect the quality of self-assessment.

Andrade and Valtcheva (2009) argued that self-assessment can increase both learning and self-regulation of learning. They also found that students' attitudes toward self-assessment were only negative when the self-assessment was used for grading (summative assessment). Ross (2006) and Brown and Harris (2013) also emphasize the intimate connection between self-assessment and self-regulation of learning. Self-assessment enhances an internal locus of control, supports self-referencing over norm-referencing, and leads to improved self-efficacy, engagement, behavior, and student-teacher relationships.

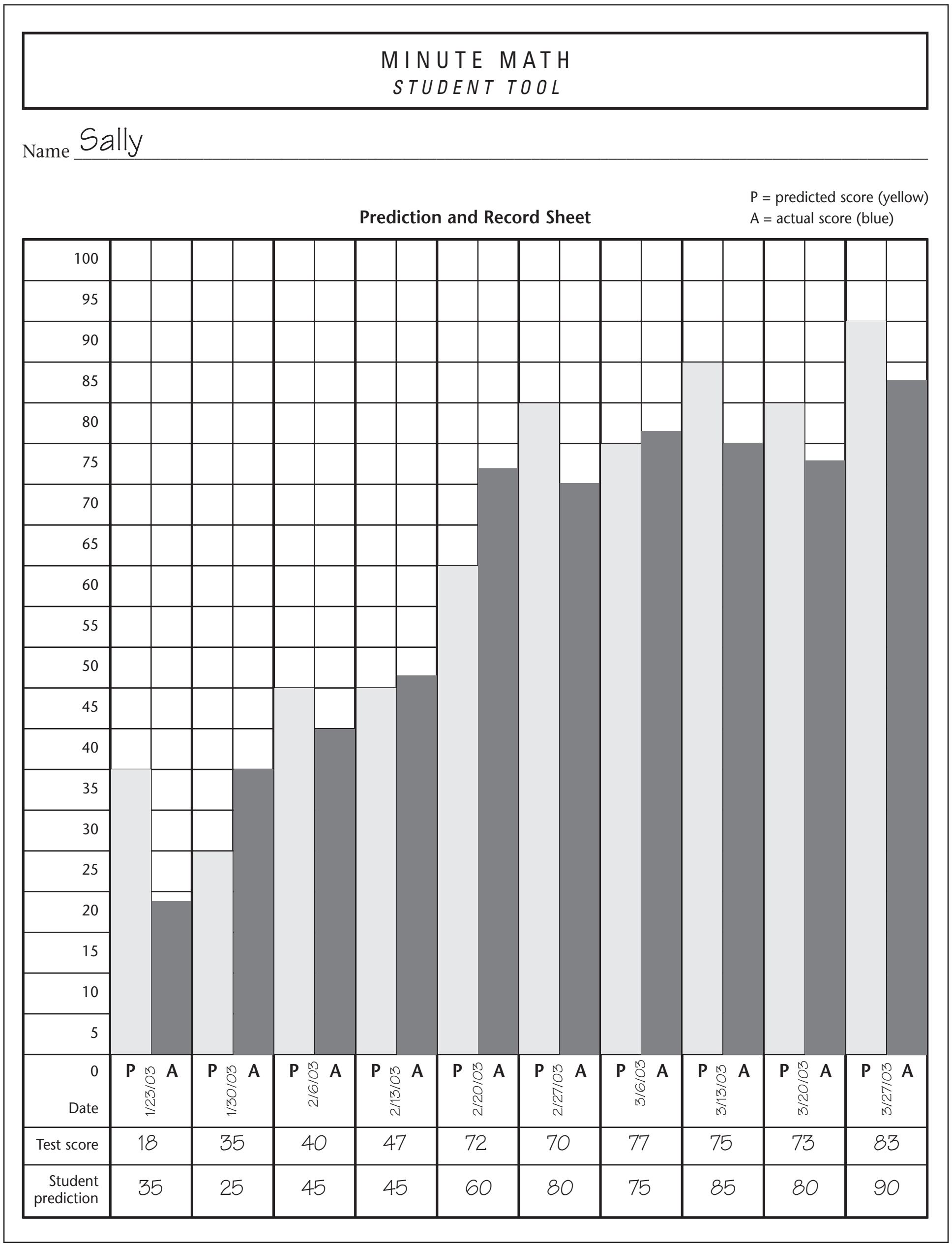
An Example from Elementary Math

One way to help students organize self-assessment and use it as feedback is to have them keep records of their performance and reflect on it. In one 3rd grade class, a teacher had her students make bar graphs to record each successive week of quiz scores on the multiplication facts, for 10 weeks. They also predicted how they would do the following week. Figure 6.2 shows what these "Minute Math" graphs looked like.

In conjunction with the graphs, the teacher used a lesson plan designed to help the students reflect on their performance and make plans for what to do to improve the next week. Each week as they were doing their graphing, she asked them to think about where they were now (their current quiz score), their goal (their predicted quiz score for the next week and something they needed to *learn* to reach it, e.g., "my seven tables"), and what they would do to reach their goal. To start their thinking, she gave them choices of study strategies that might help: study flash cards, play multiplication games, study with parents, write a number sentence, use repeated addition, draw a picture, or make an array. Students had to say which of these was the strategy they had used most last week; say how well they had followed through with that strategy; decide whether the strategy was working or not; and, based on that decision, plan to either stick with their strategy or switch to a new one. The following week they had the opportunity to evaluate again how well their strategy worked.

Notice that in this series of lessons the teacher didn't *give* the feedback herself. She was not in a position to know the feedback information that was needed—which study strategies each student had used and whether they had

Figure 6.2 “Minute Math” Student Graph



MINUTE MATH
STUDENT TOOL

Name Sally

Prediction and Record Sheet

P = predicted score (yellow)
A = actual score (blue)

Date	1/23/03	1/30/03	2/6/03	2/13/03	2/20/03	2/27/03	3/6/03	3/13/03	3/20/03	3/27/03
Test score	18	35	40	47	72	70	77	75	73	83
Student prediction	35	25	45	45	60	80	75	85	80	90

Source: From *Formative Assessment Strategies for Every Classroom* (2nd ed., p. 216), by Susan M. Brookhart, 2010, Alexandria, VA: ASCD. Copyright 2010 by ASCD.

worked to the student's satisfaction. What she did do was structure repeated opportunities for self-assessment and for *using* the feedback thus generated. After 10 weeks, the students were accustomed to asking themselves these questions. They were used to connecting the amount and type of effort they had expended with performance. And after going through them for 10 weeks, they had internalized that list of math study strategies. These are great "learning how to learn" outcomes in their own right, but you will not be surprised to hear that everyone in the class learned the multiplication facts as well.

Teaching Peer Assessment Skills

Research on peer assessment in higher education has been reviewed thoroughly (Falchikov & Goldfinch, 2000). Much of the research has been about peer-teacher scoring agreement (Falchikov & Goldfinch, 2000; van Zundert, 2010). However, the learning, performance, and interpersonal aspects of peer assessment in higher education have also been studied (Topping, 1998; van Gennip, 2009; van Zundert, 2010). Peer assessment skill does not "come naturally"; training in how to do peer assessment improves its outcomes (van Zundert, 2010). Students who receive better feedback derive more learning benefits from peer feedback (van Gennip, 2009). Social embarrassment and peer qualifications as evaluators are potential issues (Topping, 1998).

Panadero (2016) and Topping (2013) reviewed research on K–12 peer assessment. Panadero (2016) showed that traditional research on peer assessment has mostly been concerned with the reliability and validity of summative scores, but more recent research has treated peer assessment as a form of collaborative learning. He found that students have some concerns about peer assessment and that a friendship bias exists in peer assessment scoring. Topping (2013) found the research base for peer assessment as a support of learning to be weak; there was little evidence suggesting that it supported learning at the elementary level, although there was some evidence that it did so at the secondary level. Secondary students questioned the value of peer assessment and noted that the feedback from peer assessment may not be accurate. Affirming and suggestive peer feedback has positive effects on learning, but didactic and corrective feedback has negative effects. Both Panadero (2016) and Topping (2013) concluded that, despite the difficulties, peer assessment should be pursued as a collaborative learning strategy. They both advise more investment in collaborative and formative peer assessment and a move away from peer grading.

I also see a use for peer assessment as part of the formative learning process, as long as it is handled carefully. As students participate in peer assessment, they are practicing applying the criteria for good work. This practice builds general knowledge about the learning target more than individuals' skill at meeting it. Peer assessment also contributes to creating a classroom environment that values feedback and constructive criticism. Because peer assessment may not be the most direct path to improving students' own learning, it should be used when the purpose of a lesson is to provide external feedback to classmates about some work they will then have an opportunity to revise.

Ground Rules for Peer Editing

Peer editing of writing or peer review of projects or assignments can be fun for all and a great source of second opinions, or it can be a waste of time. Peer editing skills improve with practice, and some ground rules help. You could make a list of ground rules and post them or pass them out as a handout. The list in Figure 6.3 is just a suggestion; adjust the list for your own students.

Figure 6.3 Ground Rules for Peer Editing

- Read your peer's work carefully.
- Compare the work with the rubric.
- Talk about the work, not the person.
- Don't judge (e.g., don't say, "That's bad"); rather, describe what you think is good about the work and what's missing or could be done better.
- Make specific suggestions.
- Tell what you think, and then ask what the author thinks.

Ground rules for peer editing can become the basis for a role-play lesson. Select a pair of students (or a larger group—however many students you use to peer edit) to role-play peer editing in front of the class. Give each student a copy of your ground rules, and give each of the role-play students a copy of some work—either real work or something everyone would be familiar with, such as "Little Red Riding Hood" or "Mary Had a Little Lamb." Arrange the desks as you would for a real peer editing session, and ask the students to role-play peer editing each other's papers while the rest of the class watches.

Without letting the class know you've done so, ask each of the students to pick one of the ground rules to break during the role-play. For example, a student breaking the third rule might say things like "You idiot! This is the worst paper I ever saw!" A student breaking the fifth rule might say something like "This is nice" and not give any more feedback, such as explaining why it was nice or what to do next. After the role-play, ask the class if they can identify which rule or rules were broken and tell why. In discussion, ask students to identify the effect that breaking that rule had on the usefulness of the peer editing. Use one role-play or several, until students have had a chance to understand and internalize the ground rules.

Peer Assessment of Class Presentations

For class presentations, usually at least one of the criteria on a rubric has to do with how clear and understandable the presentation was to the audience. The class is in a good position to give feedback about that aspect of a presentation.

For peer assessment of class presentations, make sure the students are familiar with the rubric or whatever framework you are using to structure the feedback (for an example, see the rubric in Figure 3.5). Using some sort of rubric or statement of criteria is important for focusing class observations. Usually you would not simply say, "What do you think about this presentation?" You would ask students to give feedback about how well they thought the presentation met certain criteria. The best way for the class to become familiar with the criteria is to have them available as a guide as they work on their own presentations.

As each group makes its presentation, have class members who are not in the presenting group record their view of the quality of the presentation using the rubric and also write at least one observation. The ground rules used for peer editing can be adapted here. The observation should be about the work and describe what is good about the presentation (based on the criteria) as well as what's missing or could be done better. After each group has presented, give students some group work time to review the peer assessments. Ask each group to say what they think was the most helpful piece of peer feedback they received and what they are going to do differently for the next class presentation. And, of course, you need to assign another class presentation so students have an opportunity to use the feedback.

Be Clear About the Learning Targets and Criteria for Good Work

Establish clear learning targets and criteria for every lesson, then make sure the work students do to meet their targets embodies those targets and is well assessed according to the criteria; if not, redesign your assignments and criteria. High-quality assignments and rubrics or other criteria make possible good feedback. Feedback skills cannot make up for an assignment that is off the mark or work that isn't worth doing.

High-quality assignments and rubrics or criteria jumpstart good feedback. If students are mindful of the qualities of good work as they do their assignments, the feedback flows naturally from the process. Whatever the assignment is *becomes* the learning target for students, in a real sense. For example, when you ask a student, "What did you learn in school today?" the answer is not usually, "Our learning target was to properly use commas in compound sentences." It's more likely to be, "We did exercises about commas." If the assignment doesn't match your intended learning target in both content and cognitive level (recall versus higher-order thinking), your lesson will not end up teaching it. Further, you will not be able to give feedback on it. Feedback has to apply to the work students did, not the work they should have done.

Design assignments so they have certain characteristics. Each assignment should do the following:

- Require students to use the content knowledge or skills specified in the lesson's learning target or longer-term learning goal
- Require students to use the cognitive process (such as recall or higher-order thinking) specified by the learning target
- Specify the criteria for good work (which will be the criteria for both feedback and final evaluation)
- Provide students with complete and clear directions

Design your criteria so that they, too, match the learning target or goal. Your rubrics (or other statements of criteria) should do the following:

- Require student work to demonstrate the content knowledge or skills specified in the learning target or goal
- Require students to demonstrate the cognitive process (such as recall or higher-order thinking) specified by the learning target or goal
- Be clear to students

Sometimes assignments themselves are well designed, but the criteria don't match. The classic example is the written report that requires research and writing but that is judged as much or more on the cover page and the mechanics as on the substance. If the rubrics don't assess the content and skill the assignment is meant to cover, the evaluation and feedback based on the rubrics won't be relevant to the learning goal.

"Kid-Friendly" Rubrics

The rubrics you use to guide and to evaluate student work may sound like "teacher speak" to students. For example, "Few mechanical errors are present, and those do not obscure meaning," or something like it, is a common description in rubrics about the mechanics of writing. If they used their own words for that same description, students might say something like this: "Not too many mistakes. It makes sense."

The rubric in Figure 6.4 is for written reports. It was designed for social studies reports, but it is general enough that it could be used for some reports in other subjects as well. It was written by a teacher according to the principles for writing good rubrics (Arter & McTighe, 2001; Brookhart, 2013). The teacher assigned students to write a report about some aspect of the Lewis and Clark expedition. The assignment specified that they select a topic, write a thesis sentence, and then support the thesis with the written report.

Suggested topics included the effect of the Lewis and Clark expedition on a particular state; the effect of the expedition on Native Americans; the role of Thomas Jefferson in the expedition; and food, clothing, or shelter during the expedition. Students could pick a suggested topic or one of their own if the teacher approved it. Learning to write and support a thesis was one of the learning targets, as was learning how to do research and, of course, learning about the Lewis and Clark expedition. For example, the paper was not to be constructed as a paper "about" Jefferson's role in the expedition, but rather as a paper that began with and explored a thesis (e.g., "The Lewis and Clark expedition would not have happened if Jefferson had not believed there would be both economic and scientific benefits from it"). The teacher provided some resources in the classroom and time for research in the school library. The final product was to be a written report stating the thesis, supporting it with information, and illustrating it with visuals (tables, charts, or pictures). The rubric in Figure 6.4 was provided as part of the assignment.

The rubric was appropriate for the goals of the assignment, and most of the students were able to understand it. Encouraging "kid-friendly" rubrics does not mean that most students really don't understand teacher-written rubrics. However, these rubrics are not phrased the way students would speak, and therefore won't do much to help students keep the criteria in mind for self-regulation as they work. And, important for this book, these rubrics are not phrased in a way that relates to how students will take in teacher feedback when it's given.

To help students understand the criteria, monitor work on their reports, and understand teacher feedback, the teacher prepared an exercise for the day she gave the assignment. After she presented the assignment itself, she put the students in groups of three or four. She gave each of them a copy of her rubric

Figure 6.4 Teacher's Rubric for Written Projects

	Content	Organization	Written Language	Visuals
4	The thesis is clear. A large amount and variety of material and evidence support the thesis. All material is relevant. This material includes details. Information is accurate. Appropriate sources were consulted.	Information is clearly and explicitly related to the point(s) the material is intended to support. Information is organized in a logical manner and is presented concisely. Flow is good. Introductions, transitions, and other connecting material take the listener/reader along.	There are few errors of grammar and usage; any minor errors do not interfere with meaning. Language style and word choice are highly effective and enhance meaning. Style and word choice are appropriate to the project.	Graphics, props, constructions, or multimedia successfully fulfill the purpose of the assignment. Material is clearly connected to the points to be made. Points would not have been as clearly made without the materials. Use of materials is varied and appropriate. Use of materials is original and captures the audience's or reader's attention.
3	The thesis is clear. An adequate amount of material and evidence supports the thesis. Most material is relevant. This material includes details. Information is mostly accurate; any inaccuracies are minor and do not interfere with the points made. Appropriate sources were consulted.	Information is clearly related to the point(s) the material is intended to support, although not all connections may be explained. Information is organized in a logical manner. Flow is adequate. Introductions, transitions, and other connecting material take the listener/reader along for the most part. Any abrupt transitions do not interfere with intended meaning.	Some errors of grammar and usage are present; errors do not interfere with meaning. Language style and word choice are for the most part effective and appropriate to the project.	Graphics, props, constructions, or multimedia fulfill the purpose of the assignment. Material illustrates the points to be made. Use of materials is varied and appropriate. Use of materials is somewhat original.

(*continued*)

Figure 6.4 Teacher's Rubric for Written Projects (*Continued*)

	Content	Organization	Written Language	Visuals
2	The thesis may be somewhat unclear. Some material and evidence support the thesis. Some of the material is relevant, and some is not. Details are lacking. Information may include some inaccuracies. At least some sources are appropriate.	Some of the information is related to the point(s) the material is intended to support, but connections are not explained. Information is not entirely organized in a logical manner, although some structure is apparent. Flow is choppy. Introductions, transitions, and other connecting material may be lacking or unsuccessful.	Major errors of grammar and usage begin to interfere with meaning. Language style and word choice are simple, bland, or otherwise not very effective or not entirely appropriate.	Graphics, props, constructions, or multimedia are not entirely connected to the purpose of the assignment. Not all material illustrates the points to be made. Use of materials is appropriate but lacks originality.
1	The thesis is not clear. Much of the material may be irrelevant to the overall topic or inaccurate. Details are lacking. Appropriate sources were not consulted.	Information is not related to the point(s) the material is intended to support. Information is not organized in a logical manner. Material does not flow. Information is presented as a sequence of unrelated material.	Major errors of grammar and usage make meaning unclear. Language style and word choice are ineffective and/or inappropriate.	Graphics, props, constructions, or multimedia are not connected to the purpose of the assignment. Material does not illustrate the points to be made (or there are no points made). Materials are not relevant, appropriate, or original.

and a blank template. The template consisted of the same grid as the rubric, with the criteria titles and level numbers, but with the spaces for the descriptions of each level left blank.

The students "translated" the rubric into their own words, using their blank forms as worksheets and filling in one copy per group, with agreed-upon language, to turn in to the teacher. The teacher presented these as choices, and the whole class decided what they would list for each cell in the rubric. As needed, the teacher gave guidance and feedback orally during this discussion—for example, if the students seemed to have missed an aspect of one of the descriptions. The result was a kid-friendly rubric like the one in Figure 6.5, which was easier and more fun to use than the teacher's. The exercise also produced a deeper benefit.

Understanding text and putting it into one's own words is the classic comprehension activity. An important result of this exercise was that the students understood the criteria and therefore were better able to exercise self-regulation as they worked and to understand feedback as a comparison of their work with the criteria.

Figure 6.5 Kid-Friendly Rubric for Written Projects

	CONTENT	ORGANIZATION	WRITTEN LANGUAGE	VISUALS
4	I make a good point and support it well.	Logical. Organized. Flows.	Reads smooth!	Cool graphics make my point.
3	I make a good point and sort of support it.	Logical, but not all explained. Organized. Some flow.	Reads OK	Good graphics make my point.
2	Point is not so clear, and some info is wrong or missing.	Some logic. Some organization. Choppy flow.	Hard to read	OK graphics, not all to the point.
1	No point, bad info.	No logical relation to the point. Little organization. No flow.	can't read	Graphics not good or not related to the point.

Design Lessons Where Students Use Feedback

Design lessons in which students use feedback on previous work to produce better work. For learning targets that involve knowledge and understanding of facts or concepts, for example, use a series of assignments, and perhaps quizzes, that will enable students to see what they know and what they still need to understand. Feedback from each successive assignment should inform studying and work on the next assignment. By the time of the unit test or other assignment that counts for a grade, students will be at the top of their learning curve. They should be able to see how the work along the way helped bring them to that point. If some students don't, point it out to them.

For example, I once observed a 5th-grade teacher going over a math worksheet with problems to solve like 3002 – 284. The worksheet had 20 problems, and the student had done only 12 of them correctly. In the eight problems he got wrong, the issue was always borrowing across multiple digits. As the rest of the class was working, the teacher gave feedback in the form of working through the first of the eight incorrect problems with the student, having him articulate what she was doing at each step. Then, the teacher asked the student to work through the next incorrect problem himself, still articulating what he was doing at each step. Finally, the teacher gave the student an assignment: rework the other six incorrect problems using the same logic and strategy for borrowing. The revised assignment was not graded, although the teacher did review it and give the student more feedback: he had used his strategies well and had only one problem that was still incorrect, this time because of a copying error when he borrowed.

Now that the teacher and the student know the student has improved in borrowing across multiple digits, they will monitor the next practice work, and eventually the student will show his mastery on a test that will count in his grade. Notice that the teacher designed these instructional steps in such a way that the student got to use feedback for learning, in assignments that gave him a chance to see himself improving, and only then, finally, take a test that reported this learning.

Another example of designing lessons that build in opportunities to use feedback involves careful structuring of work on long projects. Build in formative checkpoints along the way, so that successive work is informed by feedback and the final product is the best each student can do. One or more of the following checkpoints could be included in the directions for a social studies or science project, for example:

- Having a brief conference after students have chosen a topic or, for older students, providing written feedback after they have written a paragraph supporting why their topic is relevant and researchable
- Having a brief conference or providing written feedback after students have developed a work plan or an outline
- Having a brief conference or providing written feedback on drafts of written reports, charts and materials or other components, depending on the assignment

Make sure students make the connection between the feedback they received and the improvement in their work. It may seem obvious to you that Sally's great work on her second paper is a direct result of her working on weaknesses identified in the previous paper. But Sally won't necessarily see that, and even if she does, her sense of self-regulation and control will be helped if she has a chance to identify the connection and take pride in it. Sometimes an additional bit of oral feedback about the process is all it takes: "Sally, I see that you really worked on adding details like we discussed after your last paper. I hope you're proud of yourself. Those extra details make this paper so much more interesting to read."

Formative Use of Summative Assessments

The intention of feedback is to be formative, to help students learn, and the best use of feedback happens before work is submitted for grading. However, some excellent opportunities for providing feedback come after summative events. Good students will take this feedback information, tuck it into their repertoires, and move on. All students can benefit from feedback on summative assessment if you provide another opportunity to incorporate it.

For certain kinds of assignments, offering students the opportunity to redo the assignment after feedback can work. Assignments that are about developmental learning goals (longer-term learning goals like writing or problem solving) can be appropriate for revision. Students can incorporate suggestions from feedback into revisions and make the work better.

Be careful to structure the terms under which you will accept revised assignments for credit. You want to avoid the situation in which students will do something, then check to see if it's good enough, and then do what you tell them to do. This undermines self-regulation and works against all the good principles this book has advocated. Students who have done the best they could the first time and then genuinely see how to do better will benefit from the opportunity to redo an assignment—and they should have that opportunity if it is possible within the classroom structure. Give other students who do not need to redo the assignment equally rewarding opportunities to build on their strengths, in effect, using feedback as well, to avoid being taken advantage of.

Assignments that are about mastering content knowledge need new but similar assignments for the same learning targets. If students have gone over a test and realized which facts and concepts they didn't understand, for example, and you give them the same test again, their near-perfect score won't reflect near-perfect knowledge. It will simply reflect their memorizing the answers they got wrong the first time. However, once students have gone over a test, it is a good idea to give them an opportunity to show that they did use that feedback to improve. What is needed in this case is a new but similar assignment: a test on similar content but with different questions (more similar, but not identical, problems about borrowing across multiple digits, for example), or another assignment that requires knowing the same content.

Giving Feedback When Returning a Test or an Assignment

Make sure you go over the last unit's test or assignment before launching into the next unit or assignment. Feedback isn't "feedback" unless it can truly feed something. Information delivered too late to be used isn't helpful. Make sure when you give feedback that there is time built in to actually use the information. Otherwise students will quickly learn to ignore feedback.

Clarify the relationship between the learning target and what you're doing when you give group feedback. Be explicit. For example, "I want you all to be able to . . . so we need to review. . . ." Go over the test questions or assignment, giving special emphasis to patterns of results and the particular group strengths and weaknesses they illustrate. Invite students to review their feedback on individual assignments or to analyze their test results for more specific information on their own needs.

Students quickly learn that a test is an important evaluation that becomes part of their grade. For that reason, many students focus on the grade and stop there. Thus, tests are usually full of information that does not get used. An analysis of test results can be a gold mine of information, but only if students know that they will get a chance to use the information, that it isn't too late to profit from the feedback.

You can structure a test so it is a learning opportunity instead of a "final word" on learning. *Formative Assessment Strategies for Every Classroom* (Brookhart, 2010) includes a tool for going over tests as a small-group activity and suggests ways to use the information from that group work. Stiggins (2007) suggests ways to go over tests as an individual activity. The form in Figure 6.6 uses ideas from both sources and could be used as the basis of a self-assessment lesson after a multiple-choice test or a short-answer test with clear right and wrong answers. If the test is a multiple-choice test, put the key (A, C, D, B, and so on) in the "correct answer" column before using the form with students. The form can also be used for math tests or other constructed-response "right-answer" tests that have short answers. In that case, insert those correct answers (for example, "5 ft.," "4 sq. yds.") in the "correct answer" column.

Introduce the lesson by telling students that they are going to review their marked tests to see what they knew and did not know, according to the test, and to plan strategies for increasing their knowledge in the topic area. Ask students to brainstorm different reasons why someone might get an answer marked wrong. The students' reasons will probably include the following:

- Typographical error (student knew the answer but for some reason didn't mark it correctly)

Figure 6.6 Form for Review and Feedback on a Test

Question	Correct Answer	Did I get this wrong? If so, why?	What should I do about it?
1.			
2.			
3.			
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24.			
25.			

- Careless mistake (student should have known the answer but read the question so quickly an important word was skipped, or some similar error related to work habits)
- Misconception (student thought he or she knew the answer but was mistaken in his or her understanding)
- Lack of knowledge (student truly did not know: sometimes phrased as "I had no clue")

Most students can identify when they made a marking error or a careless mistake and can distinguish that from a true error in understanding. Distinguishing a misconception from a lack of understanding is harder: after all, to recognize a misconception almost always means having already learned the proper conception. To use this form, tell students to simply distinguish between wrong answers that don't indicate a learning problem (typos and careless mistakes) and wrong answers that do.

Pass out marked tests and the review form and give students time to review their own work. Some students will need coaching to figure out what they might do. Students should be able to see that for careless errors, helpful strategies would include being more careful and checking work before turning it in. For misconceptions, helpful strategies would include different types of studying. Encourage students to look for patterns in their errors. Are all the "don't understand" items about one or two concepts or skills? Encourage students to be specific with their plans. "Study more" is too vague to be helpful. Students should be able to specify what they should study based on the kinds of questions they got wrong. Ideally they should be able to say whether they need to study a strategy (for example, how to do a particular type of math problem) or a concept (for example, the functions of the various parts of the leaf during photosynthesis), because the approaches to studying each are somewhat different. Students should be able to tell you what they are going to *do* during this studying.

Once students have reviewed their tests, decided why their wrong answers were wrong, and indicated what they might do about it, have a brief wrap-up session with the class to discuss the strategies they have come up with.

Students will be interested in what you plan to do with the test grades. It is best if you can arrange for their feedback to do them some good. If another form of the test is available, you might follow this self-assessment session and some study time with a second version of the test and then record the better of the two grades.

As part of this lesson or as part of the original unit, have available strategies students can use that are appropriate for the unit material. Point students to helpful strategies as needed. Problem-solving strategies, for example, can be useful for certain kinds of math lessons or for other subjects. Study strategies range from the very specific, such as a mnemonic device to remember a particular set of facts or concepts, to more general study strategies like note taking, outlining, and the like. These strategies are more powerful than you might think. In elementary school I learned that "ROY G. BIV" spells the colors of the rainbow, and not only can I still recite "red-orange-yellow-green-blue-indigo-violet," but I also remember "Roy" to this day. I also remember how to outline and take notes, long after some of what I outlined has passed out of my memory. Every discipline has strategies that students can use to help with learning. Knowing what these are and how to teach them is part of pedagogical content knowledge in that discipline.

Looking Forward

The principles discussed in this book about planning, giving, and helping students use feedback are based on research about how students learn. They apply to all subjects. However, different subjects emphasize different kinds of assignments. Because feedback is specific to the work done and the strategies needed to improve that work, typical feedback may look a little different from subject to subject. We turn next to content-specific examples of feedback.

About the Author

Susan M. Brookhart is an independent educational consultant and author based in Helena, Montana. She currently serves as an adjunct faculty member in the School of Education at Duquesne University. She was the 2007–2009 editor of *Educational Measurement: Issues and Practice*, a journal of the National Council on Measurement in Education, and she is currently an Associate Editor of *Applied Measurement in Education*. She is author or coauthor of 17 books and more than 70 articles and book chapters on classroom assessment, teacher professional development, and evaluation. She was named the 2014 Jason Millman Scholar by the Consortium for Research on Educational Assessment and Teaching Effectiveness (CREATE) and is the recipient of the 2015 Samuel J. Messick Memorial Lecture Award from ETS/TOEFL. Dr. Brookhart's interests include the role of both formative and summative classroom assessment in student motivation and achievement, the connection between classroom assessment and large-scale assessment, and grading. She works with schools, districts, regional educational service units, and universities doing professional development and consultation. She may be reached at susanbrookhart@bresnan.net.