EMBEDDED
FORMATIVE
ASSESSMENT

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CHAPTER 7

Activating Students as Owners of Their Own Learning

In the introduction to his book *Guitar,* Dan Morgan (1965) wrote, "No one can teach you to play the guitar" (p. 1). This was rather puzzling, since the subtitle of the book is *The Book That Teaches You Everything You Need to Know About Playing the Guitar.* However, Morgan clarified by adding, "But they can help you learn." This is pretty obvious really. Whether learning to play a musical instrument, a sport, or a whole range of other human endeavors, we intuitively grasp that teachers do not create learning; only learners create learning. And yet our classrooms seem to be based on the opposite principle—that if they try really hard, teachers can do the learning for the learners. This is only exacerbated by accountability regimes that mandate sanctions for teachers, for schools, and for districts, but not for students.

This chapter reviews the research evidence on the impact of getting students more involved in their learning and shows that activating students as owners of their own learning can produce extraordinary improvements in their achievement. The chapter concludes with a number of practical techniques for classroom implementation.

Student Self-Assessment

To many, the phrase *student self-assessment* conjures up images of students giving themselves grades and diplomas, and the reaction is often predictable, including phrases like "lunatics running the asylum" or "fox guarding the henhouse." There is, in fact, evidence that students can assess themselves quite accurately for summative purposes (see, for example, Darrow, Johnson, Miller, & Williamson, 2002) but only when the stakes are low. Whether or not students can assess themselves accurately for summative purposes is completely irrelevant to the topic of this chapter, which is whether students can develop sufficient insights into their own learning to improve it.

The answer is yes. The potential of student self-assessment for raising achievement was vividly demonstrated in a study of twenty-five elementary school teachers in Portugal (Fontana & Fernandes, 1994). Over a twenty-week period, the teachers met for two hours each week, during which they were trained in the use of a structured approach to student self-assessment that involved both a prescriptive component and an exploratory component.

The prescriptive component took the form of a series of hierarchically organized activities, from which the teacher selected on the basis of diagnostic assessments of the students. For the exploratory component, each day at a set time, students organized and carried out individual plans of work, choosing tasks from a range offered by the teacher. The students had to evaluate their performance against their plans once each week. The progression within the exploratory component had two strands: over the twenty weeks, the tasks and areas in which the students worked took on the students' own ideas more and more, and the criteria that the students used to assess themselves became more objective and precise.

In the first two weeks, students chose from a set of carefully structured tasks and were then asked to assess their own performance. For the next four weeks, students constructed their own mathematical problems following the patterns of those used in weeks 1 and 2, and evaluated them as before, but this time, the students were required to identify any problems they had had and whether they had sought appropriate help from the teacher. Over the subsequent four weeks, students were given additional sets of learning objectives and again had to devise problems but were not given examples by the teacher. Finally, in the last ten weeks,

students were allowed to set their own learning objectives, to construct relevant mathematical problems, to select appropriate apparatus, and to identify suitable self-assessments.

In order to evaluate the impact of the self-assessment activities on the students' progress, the achievement of the 354 students taught by the twenty-five study teachers was compared with that of 313 students taught by twenty teachers who had not been involved in the study in any way but were matched in terms of age, qualifications, and experience, and had been using the same curriculum scheme for the same amount of time. To further ensure comparability, the twenty control teachers were provided with the same amount of in-service professional development but which was not focused on student self-assessment. A standardized mathematics test was administered to all 667 students at the beginning of the twenty-week study and again at the end. The scores of those taught by the control-group teachers went up by 7.8 points, while the scores of those taught by the teachers employing self-assessment rose by 15 points. In other words, through the development of their self-assessment skills, students managed to learn in twenty weeks what would otherwise have taken thirty-eight weeks to learn. Using self-assessment in these twenty-five classrooms had almost doubled the rate at which students were learning. How, exactly, attention to student self-assessment improves learning is not yet clear, but the most important element appears to be the notion of self-regulation.

Self-Regulated Learning

The basic idea of self-regulated learning is that the learner is able to coordinate cognitive resources, emotions, and actions in the service of his learning goals (Boekaerts, 2006). Some (for example, Winne, 1996) have emphasized the cognitive aspects of this process—does the learner have the necessary knowledge, skills, strategies, and so on to reach the goal? Others (for example, Corno, 2001) have pointed out that many students possess the necessary skills but do not use them in classrooms, which suggests that the problem is not a lack of skill but rather a lack of motivation or volition. Since the 1970s, there has been a great deal of research in these two broad areas—metacognition and motivation—which is summarized in the next two sections. Then these two threads will be woven together (Wigfield, Eccles, & Rodriguez, 1998).

Metacognition

John Flavell (1976), widely credited with inventing the term, defined *metacognition* as follows:

> "Metacognition" refers to one's knowledge concerning one's own cognitive processes and products or anything related to them, e.g., the learning-relevant properties of information and data. For example I am engaging in metacognition (metamemory, metalearning, metaattention, metalanguage, or whatever) if I notice that I am having more trouble learning A than B; if it strikes me that I should double-check C before accepting it as a fact; if it occurs to me that I had better scrutinise each and every alternative in any multiple-choice type task situation before deciding which is the best one; if I sense that I had better make a note of D because I may forget it; if I think to ask someone about E to see if I have it right. In any kind of cognitive transaction with the human or nonhuman environment, a variety of information processing activities may go on. Metacognition refers, among other things, to the active monitoring and consequent regulation and orchestration of these processes in relation to the cognitive objects or data on which they bear, usually in the service of some concrete goal or objective. (p. 232)

Metacognition, therefore, includes knowing what one knows (*metacognitive knowledge*), what one can do (*metacognitive skills*), and what one knows about one's own cognitive abilities (*metacognitive experience*). The research shows clearly that "the most effective learners are self-regulating" (Butler & Winne, 1995, p. 245) and, more importantly, that training students in metacognition raises their performance (for example, Lodico, Ghatala, Levin, Pressley, & Bell, 1983) and allows them to generalize what they have learned to novel situations (Hacker, Dunlosky, & Graesser, 1998). However, these skills will be useful only if students are motivated to use them.

Motivation

Most people are familiar with the distinction between intrinsic and extrinsic motivation: whether the motivation for doing something comes from the fact that it is inherently interesting or enjoyable or because it

will lead to some other valued outcome (Ryan & Deci, 2000). If individuals undertake only those things that are inherently interesting or enjoyable, then they are unlikely to learn to read, write, or play a musical instrument. We are generally motivated to learn these things because we value the consequence, whether it is avoiding punishment such as that for not doing homework or reaching some external goal we have set for ourselves such as learning to drive or learning how to play a favorite song on the guitar.

In much writing about motivation in school, motivation is treated rather like a substance in students' brains. Some students have a lot of it, and others don't. When students fail to learn, we blame their lack of motivation. At the other extreme, there are those who believe that it is the teacher's job to motivate the students. If the students don't learn, it is because the teacher was not a sufficiently good motivator, so the cause of the failure to learn is the teacher.

There is another way to think about motivation—not as a cause but as a *consequence* of achievement. This way of thinking is particularly marked in the work of Mihaly Csikszentmihalyi, a psychologist at the University of Chicago. In his book *Flow: The Psychology of Optimal Experience*, Csikszentmihalyi (1990) described a number of situations in which individuals became completely absorbed in the activities in which they were engaged:

> A dancer describes how it feels when a performance is going well: "Your concentration is very complete. Your mind isn't wandering, you are not thinking of something else; you are totally involved in what you are doing. . . . Your energy is flowing very smoothly. You feel relaxed, comfortable and energetic."
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> A rock climber describes how it feels when he is scaling a mountain: "You are so involved in what you are doing [that] you aren't thinking of yourself as separate from the immediate activity. . . . You don't see yourself as separate from what you are doing."
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> A mother who enjoys the time spent with her small daughter: "Her reading is the one thing she's really into, and we read together. She reads to me and I read to her, and that's a time

> when I sort of lose touch with the rest of the world, I'm totally absorbed in what I'm doing."
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> A chess player tells of playing in a tournament: " . . . the concentration is like breathing—you never think of it. The roof could fall in and, if it missed you, you would be unaware of it." (pp. 53–54)

Csikszentmihalyi described this sense of being completely absorbed in an activity "flow." This sense of flow can arise because of one's intrinsic interest in a task, as with the mother reading to her daughter, but can also arise through a match between one's capability and the challenge of the task. When the level of challenge is low and the level of capability is high, the result is often boredom. When the level of challenge is high and the level of capability is low, the result is generally anxiety. When both are low, the result is apathy. However, when both capability and challenge are high, the result is "flow."

This way of thinking about motivation is radical because it does not locate "the problem" in the teacher or the learner but in the match between challenge and capability. In the traditional view of motivation, if the student is not motivated, it is the fault either of the teacher or of the student. But if we see motivation not as a cause but as an outcome, an emergent property of getting the match between challenge and capability right, then if the student isn't motivated, that's just a signal that the teacher and the learner need to try something different.

However, it will not be enough that an activity is absorbing if the cost of engaging in the task is seen by the student as being too high, whether this is in terms of the opportunity cost that attempting a task might take or negative consequences such as the risk to one's self-image if unsuccessful (Eccles et al., 1983). The goals that students actually pursue in classrooms will depend on complex trade-offs between cost and benefit.

We know that students are more motivated to reach goals that are specific, are within reach, and offer some degree of challenge (Bandura, 1986; Schunk, 1991), but when the goals seem out of reach, students may give up on increasing competence and instead avoid harm, by either focusing on lower-level goals they know they can reach or avoiding failing altogether by disengaging from the task, as we saw in chapter 5. It

might be assumed from this that competition is unhelpful, but focusing on increasing competence within teams to compete against other teams has been found to increase student achievement in math, provided the competition was focused on relative improvement among the groups (Linnenbrink, 2005).

It is also worth noting that while students' motivation and their belief in their ability to carry their plans through to successful completion—what Albert Bandura (1997) termed *self-efficacy*—tend to decline as students go through school, what the teacher does can make a real difference. A study of 1,571 students in eighty-four mathematics classrooms from fifth to twelfth grades found that students provided with positive constructive feedback by their teachers were more likely to focus on learning rather than performance (Deevers, 2006).

Integrating Motivational and Cognitive Perspectives

This discussion may appear to have brought us a long distance from classroom formative assessment, but fulfilling the potential of formative assessment requires that we recognize that assessment is a two-edged sword. Assessment can improve instruction, but it can also impact the learner's willingness, desire, and capacity to learn (Harlen & Deakin Crick, 2002). Although we don't yet know everything about the most effective learning environments, the existing research on cognition and motivation provides clear and strong evidence that activating students as owners of their own learning is an essential component.

When students are invited to participate in a learning activity, they use three sources of information to decide what they are going to do:

1. Their perceptions of the task and its context (for example, school, class, and so on)
2. Their knowledge about the task and what it will take to be successful
3. Their motivational beliefs, including their interest and whether they think they know enough to succeed

The student then weighs the information and begins to channel energy along one of two pathways, focusing on either growth or well-being. This, however, is dynamic and can change rapidly. For example, after giving some attention to well-being, a student may find a way to

lower the threat to self-image, thus allowing a shift of energy and attention back to the growth pathway.

The motivational and cognitive perspectives on self-regulated learning can be brought together within the dual-processing model developed by Monique Boekaerts (1993). The dual-processing model suggests that the most important thing is the creation of learning environments that encourage students to activate the growth rather than the well-being pathway. We cannot possibly anticipate all the factors that a student may take into account in deciding whether to pursue growth rather than well-being, but there are a number of things that can be done to tip the scales in the right direction:

1. Share learning goals with students so that they are able to monitor their own progress toward them.
2. Promote the belief that ability is incremental rather than fixed; when students think they can't get smarter, they are likely to devote their energy to avoiding failure.
3. Make it more difficult for students to compare themselves with others in terms of achievement.
4. Provide feedback that contains a recipe for future action rather than a review of past failures (a medical rather than a postmortem).
5. Use every opportunity to transfer executive control of the learning from the teacher to the students to support their development as autonomous learners.

And if you figure out a way to do all that, please let me know. The fact that we know what needs to be done is not the same as doing it. Continuously developing one's teaching is extraordinarily difficult. The good news is that you don't need to start from scratch but build on the achievements of other teachers who have already developed techniques, such as those in the next section.

EXAMPLES OF PRACTICAL TECHNIQUES IN THE BOOK

Practical Techniques

There is no doubt that activating students as owners of their own learning produces substantial increases in learning, but it is not a quick fix. Many teachers have found that students' first attempts at self-assessment are usually neither insightful nor useful. One teacher said, "It's like