

the puzzle. Each time the examiner would leave the room for eight minutes. The psychologists wanted to know whether and how long the subjects would play with the *Soma* while they were gone (they observed the students from behind a one-way glass).

One group of subjects never got any rewards for solving the puzzle and never lost interest. A second group received money part of the time and lost interest when the compensation ended. Deci and others have performed scores of such experiments, trying several arrangements to see what would happen; they have consistently found that most extrinsic motivators damage intrinsic motivation. They have also found that if they use "verbal reinforcement and positive feedback"—in other words, encouragement or praise—they can stimulate interest, or at least keep it from evaporating.<sup>5</sup>

How do we account for the differences, and what do those differences tell us about motivating students to learn? Deci, Richard deCharms, and others have theorized that people lose much of their motivation if they think they are being manipulated by the external reward, if they lose what the psychologists have called their sense of the "focus of causality" of their behavior.<sup>6</sup> In other words, if people see certain conduct as a way to get a particular reward or avoid a punishment, then they will engage in those activities only when "they want the rewards and when they believe the rewards will be forthcoming from the behavior."<sup>7</sup> If they do not want that particular payoff, or if the possibility of reward is subsequently removed, they will lose interest in that activity. By contrast, as Deci put it, "verbal reinforcement, social approval, and so on . . . are less likely to be perceived by the person as controlling" behavior.<sup>8</sup> The key seems to be how the subject views the reward.

Investigators have also found that performance—not just motivation—can decrease when subjects believe that other people are trying to control them. If students study only because they want to get a good grade or be the best in the class, they do not achieve as much as they do when they learn because they are interested. They

Bain, Ken. *What the Best College Teachers Do*. Harvard UP, 2004.

#### WHAT MOTIVATES? WHAT DISCOURAGES?

We found that highly successful teachers have developed a series of attitudes, conceptions, and practices that reflected well some key insights that have emerged from the scholarship on motivation.

For the last forty years or more, psychologists have studied what would happen if someone had a strong interest in doing something, and someone else offered them an "extrinsic" reward to bolster their "intrinsic" interest and then later withdrew that reinforcement. Would their fascination go up, stay the same, or go down? If, for example, students have a strong curiosity about what causes wars and we offer them extrinsic rewards in the form of grades to motivate their learning and then they later graduate, what will happen to their interests?

They actually go down. Research subjects tend to lose some or all of their intrinsic fascination once the extrinsic motivator is gone, at least under certain conditions. In one famous series of experiments, Edward L. Deci and his colleagues had two groups of students play with a block-construction puzzle called *Soma*. The subjects were brought to an examination room and asked to solve

will not solve problems as effectively, they will not analyze as well, they will not synthesize with the same mental skill, they will not reason as logically, nor will they ordinarily even take on the same kinds of challenges. They will usually opt for easier problems while those who work from intrinsic motivations will pick more ambitious tasks. They may become what some literature calls "strategic learners," focusing primarily on doing well in school, avoiding any challenges that will harm their academic performance and record, and often failing to develop deep understandings. Moreover, the effects seem to last. If students have been offered tangible extrinsic rewards to solve problems successfully and later lose those stimuli, they will continue to use less logical and efficient procedures than will students who never had the external incentive.<sup>9</sup>

Even certain kinds of verbal praise can be detrimental to learning. Young children who constantly hear "person" praise ("you're so smart to do this well") as opposed to "task" praise ("you did that well") are more likely to believe that intelligence is fixed rather than expandable with hard work. When they subsequently face setbacks after receiving person praise, their views of intelligence can cause them to develop a sense of helplessness ("I'm not as smart as I once thought I was"). When researchers asked these children to describe what made them feel smart, they talked about tasks they found easy, that required little effort, and that they could do before anyone else without making mistakes. In contrast, their peers who thought they got smarter by trying harder and learning new things said they felt intelligent when they didn't understand something, tried really hard, and then got it, or figured out something new. In other words, the children with the fixed view of intelligence and a sense of helplessness felt smart only when they avoided those activities most likely to help them learn—struggling, grappling, and making mistakes.<sup>10</sup>

These children are likely to have "performance goals." They want to achieve perfection or get the "right" answer to impress

other people because they want to appear to be one of the "smart people." They are afraid of making mistakes. They will often carefully calculate how much they need to achieve to win the proper praise and do no more than that, for fear that they might fail in the eyes of others. Some of these people do excel by some standards, but they still achieve primarily for the sake of that external recognition and fall short of where they might go. In contrast, students who believe that they can become more intelligent by learning (a "mastery orientation") often work essentially to increase their own competence (adopting "learning goals"), not to win rewards.<sup>11</sup> They are more likely to take risks in learning, to try harder tasks, and consequently learn more than children who are performance-oriented.<sup>12</sup>

What implications do these findings have for an academic culture that uses grades as a system of rewards and punishments? Is there a way to use grades that will not cause students to feel like they are being manipulated by the evaluation process? How can we best respond to students who develop a sense of helplessness? What do the best teachers do to keep students from becoming grade-grubbers and to stimulate an intrinsic interest in the subject?

In general, the people we investigated tried to avoid extrinsic motivators and to foster intrinsic ones, moving students toward learning goals and a mastery orientation. They gave students as much control over their own education as possible and displayed both a strong interest in their learning and a faith in their abilities. They offered nonjudgmental feedback on students' work, stressed opportunities to improve, constantly looked for ways to stimulate advancement, and avoided dividing their students into the sheep and the goats. Rather than pitting people against each other, they encouraged cooperation and collaboration. In general, they avoided grading on the curve, and instead gave everyone the opportunity to achieve the highest standard and grades.

Many of the best teachers do what Jeanette Norden does in her

medical school classes: grade students on the knowledge and abilities they have developed by the end of the class rather than on an average of accomplishments displayed throughout the term. For Norden and others, that means making each examination comprehensive, giving students multiple chances to demonstrate their comprehension. It also means constructing examinations with the greatest care to test the appropriate abilities comprehensively.

This practice of giving students many chances to demonstrate their learning parallels elements that Richard Light found in his study of the most intellectually satisfying classes at Harvard. Light and his colleagues interviewed thousands of current and former students, asking them about the qualities of the best courses they had taken at the university. In his 1990 initial report of findings, Light noticed that the “characteristics of highly respected courses” included “high demands” but “with plentiful opportunities to revise and improve their work before it receives a grade, thereby learning from their mistakes in the process.”<sup>13</sup>

Most important, our outstanding teachers generally avoided using grades to persuade students to study. Instead, they invoked the subject, the questions it raises, and the promises it makes to any learner. In doing so, they displayed their own enthusiasm for the issues contained in the material. “I believe that if you’ve chosen your field properly,” explained a professor of Slavic languages and literatures, “you’ve chosen it because it answers what I call the god inside of you—or if you like, the devil inside of you. If the students see you pursuing that, with all your heart, all your soul, and all your might, they’ll respond.”

This approach is apparent in a thousand little practices but probably most evident in the routine many outstanding teachers follow the first day of class. Rather than laying out a set of requirements for students, they usually talk about the promises of the course, about the kinds of questions the discipline will help students answer, or about the intellectual, emotional, or physical abili-

ties that it will help them develop. To be sure, they also explain what students will be doing to realize those promises—what many of us call the requirements—but they avoid the language of demands and use the vocabulary of promises instead. They invite, rather than command, and often display the attributes of someone inviting colleagues to dinner rather than the demeanor of a bailiff summoning someone to court.

The business of giving students some sense of control over their own education is no mean feat given that professors control both the curriculum and the questions that arise within each course. But our subjects managed to do it primarily by helping students see the connection between the questions of the course and the questions that students might bring to that course. Consider, for example, how we come to the questions and issues that currently drive our lives as scientists and scholars. Questions that interest us are usually important because of some previous inquiry, which, in turn, was significant because of some earlier question, which derived its own importance from some still earlier investigation, and so forth. We often live our scholarly lives focused on matters that lie several layers beneath the surface of topics that first intrigued us.

We saw teachers who dig back toward the surface, meet their students there, recapture the significance of those inquiries, and help people to understand why this question fascinates anyone. They do not simply call out from their position deep within the ground and ask students to join their subterranean mining expeditions. They help students to understand the connection between current topics and some larger and more fundamental inquiry, and in so doing find common ground in those “big questions” that first motivated their own efforts to learn. “How could you not be interested in organic chemistry?” David Tuleen asked. “It is the very basis of life itself.”