

Space for Notes



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Chapter 11

Hooked on Learning: the Roots of Motivation in the Classroom

If there is not an inherent attracting power in the material. then ... the teacher will either attempt to surround the material with foreign attractiveness, making a bid or offering a bribe for attention by "making the lesson interesting"; or else will resort to... low marks, threats of non-promotion, staying after school.... But the attention thus gained ... always remains dependent upon something external.... True, reflective attention, on the other hand, always involves judging, reasoning, deliberation; it means that the child has a *question of his own* and is actively engaged in seeking and selecting relevant material with which to answer it.

-John Dewey, 1915

THERE ARE PROFOUND DIFFERENCES between employees and teaching children, between bringing quality to the workplace and to the classroom. But there are also striking parallels, not only because of the Skinnerian framework they currently share, but also with respect to prescriptions for meaningful change. The steps I outline here for moving beyond behaviorism resemble those offered in the previous chapter; the three components of motivation--collaboration, content, and choice--will seem particularly familiar.

One specific similarity between work and school is that the same misconceived question is regularly posed in both places. Douglas McGregor reminded us that "How do you motivate people?" is not what managers should be asking. Nor should educators: children do not need to be motivated. From the beginning they are hungry to make sense of their world. Given an environment in which they don't feel controlled and in which they are encouraged to think about what they are doing (rather than how well they are doing it), students of any age will generally exhibit an abundance of motivation and a healthy appetite for challenge.

"How do I get these kids motivated?" is a question that not only misreads the nature of motivation but also operates within a paradigm of control, the very thing that is death to motivation. "I never use the expression 'motivate a child,'" says Raymond Wlodkowski, who specializes in the topic. "That takes away their choice. All we can do is influence how they motivate themselves."

But influence them we can--and must. The job of educators is neither to make students motivated nor to sit passively; it is to set up the conditions that make learning possible. The challenge, as two psychologists put it, is not to wait "until an individual is interested ... [but to offer] a stimulating environment that can be perceived by students as [presenting] vivid and valued options which can lead to successful learning and performance.") This chapter sketches some of the features of such an environment.

Remove the Rewards

Let there be no misunderstanding; if a teacher stops using extrinsic motivators tomorrow, dumps the stickers and stars and certificates in the garbage can and puts the grade book away, students are not going to leap out of their seats cheering, "Hooray! Now we can be intrinsically motivated!" ...

There are at least three reasons they will not do so. First, they were not consulted about the change. A teacher who makes unilateral decisions, regardless of their merit, is in effect saying that the classroom does not belong to the students but only to her; their preferences do not matter. People do not usually cheer when things are done *to* them. That is why teachers contemplating a new way of doing things ought to bring the children in on the process -in this case, by opening up a discussion with them (at a level appropriate to their age) about why people learn and what impact rewards really have.

Second, abandoning behaviorist tactics by no means guarantees that real learning will take place. The Structures that thwart motivation must be removed, but it is also necessary to establish the conditions that facilitate motivation, to create the right curriculum and the right school climate. The second half of this chapter is concerned with this process.

Finally, if students have spent years being told that the reason to read and write and think is because of the goodies they will get for doing so, and if the goodies themselves are appealing to them, they may resist the sudden withdrawal of rewards. Without pressing the metaphor too far, it might be said that students can become addicted to A's and other incentives, unwilling to complete assignments without them and also dependent on them for their very identity.

The signs of such dependence are questions such as "Do we have to know this?" or "Is this going to be on the test?" Every educator ought to recognize these questions for what they are: distress calls. The student who offers them is saying, "My love of learning has been kicked out of me by well-meaning people who used bribes or threats to get me to do schoolwork. Now all I want to know is whether I have to do it -and what you'll give me if I do."

The teacher who hears this message may not have caused the extrinsic orientation it bespeaks. He may also be limited in his ability to deal with the problem. But at least he should understand that it is a problem. The fact that students have come to see themselves as learning in order to get rewards means that the transition back to intrinsic interest can be a slow and arduous journey. But the more difficult it is to wean students off gold stars and candy bars, the more urgent it is to do so. The *teacher's* distress call-which can sometimes sound more smug than distressed -is the insistence that students won't bother to learn anything that isn't going to be graded. It would be absurd to respond to this by saying, "Oh, then, by all means -keep feeding them extrinsic motivators." The only sensible reply is "If they're that far gone, we haven't got a minute to waste in trying to undo the damage that rewards have done!"

Need We Grade?

For teachers and parents who are convinced by the evidence that rewards for learning are counterproductive, it is difficult enough to discard the stickers and stars, edible treats, and other incentives that have been dangled in front of students for so long. Getting rid of grades, however, presents a challenge of a different order of magnitude. Even if they had the power to do so, many people are likely to be more reluctant about giving up something so integral to our educational system that it is hard to imagine life without it. That

very reluctance suggests that we need to challenge ourselves with hard questions about the necessity and value of grading children.

To begin with, we might ask *why* grades are given. The answers that are typically offered mirror the reasons cited for the use of performance appraisals in the workplace. Grades are justified as follows:

1. They make students perform better for fear of receiving a bad grade or in the hope of getting a good one.
2. They sort students on the basis of their performance, which is useful for college admission and job placement.
3. They provide feedback to students about how good a job they are doing and where they need improvement.

Let's take these in order. I have spent the last 200 pages arguing that the first rationale is fatally flawed. The carrot-and-stick approach in general is unsuccessful; grades in particular undermine intrinsic motivation and learning, which only serves to increase our reliance on them. The significance of these effects is underscored by the fact that, in practice, grades are routinely used not merely to evaluate but also to motivate. In fact, they are powerful demotivators regardless of the reason given for their use.

Grades do serve a purpose of sorts: they «enable administrators to rate and sort children, to categorize them so rigidly that they can rarely escape.”⁴ Most of the criticism one hears of this process is limited to how well we are dividing students up, whether we are correctly dumping the right ones into the right piles. Some people contend that the major problem with our high schools and colleges is that they don't keep enough students off the Excellent pile. (These critics don't put it quite this way, of course; they talk about «grade inflation.”) Others argue that the categories are too rigid, the criteria too subjective, the tests on which grades are based too superficial. Thus, it is alleged, grades do not provide much useful information to businesses hiring workers or colleges admiring students on that basis.

I think the latter criticism is on the mark. Studies show that any particular teacher may well give two different grades to a single piece of work submitted at two different times; the variation is naturally even greater when the work is evaluated by more than one teacher. What grades offer is spurious precision, a subjective rating masquerading as an objective assessment. One writer wryly proposed that “a grade can be regarded only as an inadequate report of an inaccurate judgment by a biased and variable judge of the extent to which a student has attained an undefined level of mastery of an unknown proportion of an indefinite amount of material.”

But this criticism of grading is far too tame. The trouble is not that we are sorting students badly--a problem that logically should be addressed by trying to do it better. The trouble is that we spend so much time sorting them at all. In certain circumstances, it may make sense to ascertain the skill level of each student in order to facilitate teaching or placement. But as a rule the goal of sorting is simply not commensurate with the goal of helping students learn. “Faculties seem not to know that their chief instructional role is to promote learning and not to serve as personnel selection agents for society,” as one group of critics put it. In a highly stratified society--one composed, in turn, of highly hierarchical organizations -some people undoubtedly find it convenient to have students arrive having already been stamped PRIME, CHOICE, SELECT, or STANDARD. But if the sorting process makes it more difficult to educate, then we need to make up our minds about the central purpose of our schools.

The third justification for grades is that they let students know how they are doing. Indeed, students are currently led to rely on grades for information about their ability and competence, and that reliance increases as they get older.

There is nothing objectionable about wanting to get a sense, at least periodically, of how things are going. In fact, informational feedback is an important part of the educational process. But if our goal is really to provide such feedback, rather than just to rationalize the practice of giving grades for other reasons, then reducing someone's work to a letter or number is unnecessary and not terribly helpful. A B+ at the top of a paper tells a student nothing about what was impressive about the paper or how it could be improved. A substantive comment that does offer such information, meanwhile, gains nothing from the addition of the B+. In fact, one study suggests that the destructive impact of grades is not mitigated by the addition of a comment; the implication is that comments should replace rather than supplement grades.

If students want to know where they stand, then, grades do not provide them with usable information. But again we need to dig even deeper in assessing what is wrong with the status quo. The problem is not just that grades don't say enough about people's performance; it's that the process of grading fixes their attention *on* their performance. Teachers concerned with helping students learn, as [argued in chapter 8, will try to free them from a preoccupation with how well they are doing. At a minimum, such teachers will not intensify that preoccupation by taking students' academic temperature every day--or even worse, telling them how they rank relative to one another.

Grades are often based on tests, and tests are sometimes justified as a way for teachers to know how well their students are doing. While I'm not prepared to urge the abolition of all tests, I do think that there are usually other ways, less punitive and more informative, to meet this goal. (My premise here is that the reason we want to know how well students are doing is to help them learn more effectively in the future -the only legitimate purpose for evaluation.) Assuming that classes are kept at a reasonable size, a competent teacher has a pretty good sense of how each student is doing. Anyone who requires a formal test to know what is going on may need to reconsider the approach to instruction being used and whether he or she is talking too much and listening too little. Indeed, a series of interviews with fifty teachers identified as being superlative at their craft turned up a strikingly consistent lack of emphasis on testing, if not a deliberate decision to minimize the practice.

In particular, a classroom that feels safe to students is one in which they are free to admit when they don't understand something and are able to ask for help. Ironically, grades and tests, punishments and rewards, are the enemies of safety; they therefore reduce the probability that students will speak up and that truly productive evaluation can take place.

To summarize, grades cannot be justified on the grounds that they motivate students, because they actually undermine the sort of motivation that leads to excellence. Using them to sort students undercuts our efforts to educate. And to the extent we want to offer students feedback about their performance--a goal that demands a certain amount of caution lest their involvement in the task itself be sacrificed--there are better ways to do this than by giving grades.

The Straight-A Student: A Cautionary Tale

The advantages cited to justify grading students do not seem terribly

compelling on close inspection. But the disadvantages only become more pronounced the more familiar one is with the research and the more experience one has in real classrooms. In chapter 8 I cited evidence showing that students who are motivated by grades or other rewards typically don't learn as well, think as deeply, care as much about what they're doing, or choose to challenge themselves to the same extent as students who are not grade oriented.

But the damage doesn't stop there. Grades dilute the pleasure that a student experiences on successfully completing a task." They encourage cheating and strain the relationship between teacher and student. They reduce a student's sense of control over his own fate and can induce a blind conformity to others' wishes -sometimes to the point that students are alienated from their own preferences and don't even know who they are. Again, notice that it is not only those punished by F's but also those rewarded by A's who bear the cost of grades.

A few years ago I had the opportunity to address the entire student body and faculty of one of the country's most elite prep schools. I spoke, by coincidence, during the cruelest week in April, when the seniors were receiving their college acceptances and rejections. I talked to them about the desperate race they were joining. Already, I knew, they had learned to put aside books that appealed to them so they could prepare for the college boards. They were joining clubs that held no interest for them because they thought their membership would look good on transcripts. They were finding their friendships strained by the struggle for scarce slots in the Ivy League.

This they knew. What some of them failed to realize was that none of this ends when they finally get to college. It starts all over again: they will scan the catalogue for courses that promise easy A's, sign up for new extracurriculars to round out their resumes, and react with gratitude rather than outrage when professors tell them exactly what they need to know for exams so they can ignore everything else. They will define themselves as premed, prelaw, prebusiness--the prefix pre- indicating that everything they are doing now is irrelevant except insofar as it contributes to what they will be doing later.

Nor does this mode of existence end at college graduation. The horizon never comes any closer. Now they must struggle for the next set of rewards so they can snag the best residencies, the choicest clerkships, the fast-track positions in the corporate world. Then come the most prestigious appointments, partnerships, vice presidencies, and so on, working harder, nose stuck into the future, ever more frantic. And then, well into middle age, they will wake up suddenly in the middle of the night and wonder what happened to their lives. (If the feeling persists, the graduate of a good medical school will write out a prescription for them.)

To be sure, a fate even more dismal probably awaits those who must struggle to keep their heads above water financially as well as psychologically. But a treadmill appears under any student's feet when the first grade appears on something she has done. This treadmill produces motion without movement for those who struggle for rewards as well as for those who struggle to avoid punishments: either way, it is a race that cannot be won.

All of these things I said to this prep school audience, sweating profusely by now and sounding, I began to fear, like an evangelist. But I felt I also needed to offer a message for the teachers and parents present. If you know from experience what I am talking about, I said, then your job is to tell these students what you know and help them understand the terrible costs of this pursuit -not to propel them along faster. They need from you a sense of perspective about what is taking over their lives far more than they need another tip about how to burnish a college application or another reminder about the importance of a final exam.

Where do children learn to be grade-grubbers? From this: "You'd better listen up, folks, because this is going to be on the test." And from this: "A B-minus? What happened, Deborah?" And from this: "I take pride in the fact that I'm a hard grader. You're going to have to work in here." The fact is that faculty members have it within their power to reduce this pernicious and distorting aspect of educational practice that often seems to work against learning. If faculty would relax their emphasis on grades, this might serve not to lower standards but to encourage an orientation toward learning.

But teachers have not created this sensibility single-handedly. I have seen students desperate to get into the most selective universities since before they were born. I have followed that urgency back to its source. I have watched entire childhoods turned into one continuous attempt to prepare for Harvard (a process I eventually came to call "Preparation H"). I have met parents who did all this with the best of intentions--and also parents whose real objective was to derive vicarious pleasure from the successes of their children, to trump their friends when the talk turned to whose kids had made good. In both cases, I have seen the desiccated lives that result.

When I had finally finished speaking, I looked out into the audience and saw a well-dressed boy of about sixteen signaling me from the balcony. "You're telling us not to just get in a race for the traditional rewards," he said. "But what else is there?"

It takes a lot to render me speechless, but I stood on that stage clutching my microphone for a few moments and just stared. This was probably the most depressing question I have ever been asked. Here, I guessed, was a teenager who was enviably successful by conventional standards, headed for even greater glories, and there was a large hole where his soul should have been. It was not a question to be answered (although I fumbled my way through a response) so much as an indictment of grades, of the endless quest for rewards, of the resulting attenuation of values, that was far more scathing than any argument I could have offered.

From Degrading to De-Grading

When something is wrong with the present system, you move on two tracks at once. You do what you can within the confines of the current structure, trying to minimize its harm. You also work with others to try to change that structure, conscious that nothing dramatic may happen for a very long time. If we move exclusively on the latter track, such as by mobilizing people to dismantle grading systems, we may not be doing enough to protect our students, our children, from the destructive effects of the grades and other rewards with which they are going to be controlled in the meantime. But -and this point can be more difficult to recognize--if we simply reconcile ourselves to the status quo and spend all our time getting our children to accommodate themselves to it and play the game, then nothing will change and they will have to do the same with their children. As someone once said, realism corrupts; absolute realism corrupts absolutely.

If there is no reason to grade students, students should not be graded. But until we can make the grades disappear (at least from our own schools), we can take small and, yes, realistic steps in the right direction. Here is the way to do that, reduced to its essence: teachers and parents who care about learning need to do everything in their power to help students forget that grades exist.

Following this advice requires a revolution in the way we think about school and deal with students. We will have to reconsider what learning is about, where it comes from, and whether we are serious about promoting it. But the changes it requires, and the practical difficulties it may create, need to be weighed against the current emphasis on grades, which, however

comfortably familiar, has been documented to be destructive. (Sometimes in evaluating a proposal for change, we weigh its risks and flaws as if the alternative, the way things are at present, were flawless.)

However radical are its implications, this is advice we can put into effect immediately. For parents, it means first of all thinking carefully about one's motives for pushing children to get better grades. After reading the evidence and weighing the arguments, it makes sense for parents to consider putting aside grades and scores as indicators of success and to look instead at the child's interest in learning. This is the primary criterion by which schools (and our own actions) should be judged.

Concretely, I would suggest that parents stop asking what a child got on a paper and stop making a fuss over report cards. This doesn't mean we don't care: it means we care enough about learning to stop doing what gets in its way. It means we care enough about our children to think about the subtler implications of what we are doing to them. The social psychologist Morton Deutsch argues that when a father offers his daughter ten dollars if she gets an A on a math test, this

communicates a variety of possible messages to the girl ... about her own motivation (for example, "I am not strongly motivated by my own desires to do well in math; I need external incentives"), about math ("It is not the sort of subject that people like me would find interesting to study"), about her father ("It's important to him that I get a good grade; does he care about what is important to me"), and so on. Further, the incentive will tend to focus attention on the potential reward (the ten dollars) and the most pleasant, direct, and assured means of obtaining it. Thus, attention will be focused on getting the A rather than on studying and learning math; this may lead to cheating or to special methods of study oriented toward test performance rather than acquisition of enduring knowledge.

In general, parents might replace conversation about grades with other sorts of questions: "What did you do in school today that was really fun?" "Did you hear or read something that surprised you?" "What does it feel like when you finally solve a tough math problem?" "Why do you think the Civil War started?" Keep in mind, though, that what we say (or don't say) isn't enough: if good grades still fill us with delight, and bad grades with despair or rage, our reactions will give us away.

For teachers, the effort to minimize the salience of grades is more challenging. Here are seven suggestions:

1. Even if you must come up with a grade at the end of the term, **limit the number of assignments for which you give a letter or number grade, or better yet, stop the practice altogether.** Offer substantive comments instead, in writing or in person. Make sure the effect of abolishing grades isn't to create suspense about what students are going to get on their report cards, which would defeat the whole purpose. Some students will experience, especially at first, a sense of existential vertigo: a steady supply of grades has defined them, and now their bearings are gone. Offer to discuss privately with any such student the grade he or she would probably receive if report cards were handed out that day. With luck and skill, the requests for such information will decrease as students get involved in what is being taught.
2. If you feel you must not only comment on certain assignments but also give them a mark, at least **limit the number of gradations.** For

example, switch from *A/B/C/D/F* to check-plus/check/check-minus. Or ...

3. Reduce the number of possible grades to two: A and Incomplete.

The theory here is that any work that does not merit an A isn't finished yet. Anyone concerned about educational excellence should adopt this suggestion enthusiastically because its premise is that students should be doing their very best. It has the additional advantage of neutralizing the effect of grades. Most significant, it restores proper priorities: helping students improve becomes more important than evaluating them; learning takes precedence over sorting.

4. Never grade students while they are still learning something;

even more important, do not reward them for their performance at that point. Pop quizzes and the like smother the process of coming to understand. They do not give students "time to be tentative." If you're not sure whether students feel ready to show you what they know, there is an easy way to find out: ask them.

5. Never grade for effort.

Grades by their very nature make students less inclined to challenge themselves (see chapter 8). The result, a school full of students indifferent to what they are being asked to learn, sometimes prompts educators to respond with the very strategy that helped cause the problem--specifically, by grading children's effort in an attempt to coerce them to try harder. The fatal paradox, though, is that while coercion can sometimes elicit resentful obedience, it can never create desire. A low grade for effort is more likely to be read as "You're a failure even at trying." On the other hand, a high grade for effort combined with a low -grade for achievement says "You're just too dumb to succeed." Most of all, rewarding or punishing the child's effort conveniently allows educators to ignore the possibility that the curriculum or learning environment may just have something to do with his or her lack of enthusiasm.

6. Never grade on a curve.

Under no circumstances should the number of good grades be artificially limited so that one student's success makes another's less likely. "It is not a symbol of rigor to have grades fall into a 'normal' distribution; rather, it is a symbol of failure -failure to teach well, failure to test well, and failure to have any influence at all on the intellectual lives of students."

7. Bring students in on the evaluation process

to the fullest possible extent. This doesn't mean having them mark their own quizzes while you read off the correct answers. It means working with them to determine the criteria by which their learning can be assessed, and then having them do as much of the actual assessment as is practical. This achieves several things at once: it makes grading feel less punitive, gives students more control over their own education, and provides an important learning experience in itself. Students can derive enormous intellectual benefits from thinking about what makes a story interesting, a mathematical proof elegant, or an argument convincing. Mark Lepper and a colleague have noted that to a considerable extent one's "perception of competence at an activity will depend [on] ... whether one has to succeed by his or her own standards or by someone else's."

Just as students should be brought in on the evaluation process, so

should they be included in a discussion about all these changes. The rationale for moving away from grades should be explained, and students' suggestions for what to do instead and how to manage the transitional period should be solicited.

Finally, a few words for school administrators. Asking teachers to reduce the salience of grades by changing their daily classroom practices is a stopgap measure. Ideally, end-of-term grades can and should be dispensed with as well. Moreover, when teachers are left to deemphasize grades on their own, and only a few attempt to do so, students may be left with the message that the nongraded subject or class is less important than others where they are still marked. As with most other kinds of educational reform, change must be made at a schoolwide (if not district-wide) level.

The abolition of grades may upset some parents, but one reason so many seem obsessed with their children's grades and test scores is that this may be their only window into what happens at school. If you want them to accept, much less actively support, the move away from grades, these parents must be offered alternative sources of information about how their children are faring. Plenty of elementary schools function without any grades, at least until children are ten or eleven. One way to implement such a change is to phase out letter grades one grade level at a time, starting with the youngest classes.

It is more ambitious, but by no means impossible, to free high school students (and teachers) from the burden of grades. * Probably the major impediment to doing so is the fear of spoiling students' chances of getting into college. Contrary to popular belief, however, admissions officers at the best universities are not eighty-year-old fuddy-duddies, peering over their spectacles and muttering about "highly irregular" applications. Often the people charged with making these decisions are just a few years out of college themselves and, after making their way through a pile of interchangeable applications from 3.8-GPA, student-council-vice-president, musically accomplished hopefuls from high-powered traditional suburban high schools, they are desperate for something unconventional. Given that the most selective colleges have been known to accept home-schooled children who have never set foot in a classroom, it is difficult to believe that qualified applicants would be rejected if, instead of the usual transcript, their schools sent along several thoughtful qualitative assessments from some of the students' teachers, together with a form letter explaining how the school prefers to stress learning rather than sorting, tries to cultivate intrinsic motivation rather than a performance orientation, and is consequently confident that its graduates are exquisitely prepared for the rigors of college life. Indeed, admissions officers for two of the country's most prestigious universities confirm that they do receive, and seriously consider, applications that contain no grades.

Learning as Discovery

One of the reasons extrinsic motivators such as grades are so destructive of interest and achievement is that they focus students' attention on their performance. If we don't do things to students that compel them to think constantly about how well they are doing, we have taken the first step toward helping them learn. To take the next step, we need to think about instruction in terms of affirmatively helping them become engaged with tasks.

The available research shows that encouraging children to become fully involved with what they're working on and to stop worrying about their performance contributes to "a motivational pattern likely to promote long-term and high-quality involvement in learning." This strategy does wonders for students who are anxious about schoolwork or who have stopped trying. But it also seems to help those who are high achievers: a survey of students attending

an academically advanced high school found that the more they described a class as one in which the teacher emphasized understanding, improvement, trying new things, and risking mistakes (as opposed to emphasizing grades and competition), the more they liked the class, the more learning strategies they reported using, and the more they preferred challenging tasks.^{3D}

Bruner likes to talk about the teacher's role as helping students approach what they are doing with a mind to "discovering something rather than 'learning about' it." The benefit of that, he continues, is that "the child is now in a position to experience success and failure not as reward and punishment, but as information." This is a critical distinction. Feedback indicating that a student "is on the right track ... [or] the wrong one" is what produces improvement, and teachers need to make sure students get plenty of it. But the capacity to see success and failure as feedback is even more important, and that requires teachers (and parents) to stress the task itself, not the performance.

How do we tap children's motivation and create that sense of discovery? Several writers have addressed the topic at length, and their work should be consulted for a more detailed discussion. In the meantime, here are five suggestions:

- **Allow for active learning.** Not only small children but also adults generally learn most effectively when they can see and touch and do, not just sit at a desk and listen. Active, hands-on activities are not just breaks between the real lessons; done correctly, these are the real lessons.

- **Give the reason for an assignment.** If a task isn't heuristically valuable, it probably shouldn't be assigned. (Unhappily, teachers don't always get to make that judgment.) If a task is valuable, its value should be explained to those being asked to do it. One study found that "a major reason for the students' low quality of engagement in assignments was teacher failure to call attention to their purposes and meanings." If we expect children to want to learn something, we have to give them a due as to why they should be motivated. Besides, it is a simple matter of respect to offer such explanations.

- **Elicit their curiosity.** People are naturally curious about things whose outcome they can't guess or, once the outcome is known, about things that didn't turn out as expected. Adults who read stories to young children often have an intuitive understanding of this principle: they stop in the middle and ask, "What do you think is going to happen next?" or "Why do you think she did that?" This is the heart of intrinsic motivation, and the skillful exploitation of this fact pulls older students too into tasks. Why would a character in a story who seems so normal not be able to remember when his mother died? How can something that seems so much like water stay at temperatures this low without freezing? What do you think happened when these people refused to back down but also refused to use violence?

- **Set an example.** A teacher ought to let children hear her talk about what she finds enjoyable about teaching and let them see her reading or engaging in other intellectual pursuits for pleasure. (Parents too can set an example by how they describe their own work. Kids, who hear Mom or Dad groaning about having to get back to the grind on Monday learn something about motivation.) Teachers can also set an example by admitting when they don't know something, by demonstrating tenacity in the face of failure, by questioning the conventional wisdom, and by showing how they make sense of a piece of writing that is hard to understand.

- **Welcome mistakes.** MISTAKES ARE OUR FRIENDS, announces a sign seen on some classroom walls. Experienced teachers watch and listen closely for when students get things wrong. They don't become defensive, because they know mistakes don't necessarily reflect poor teaching. They don't become angry, because they know mistakes don't necessarily reflect sloppiness or laziness. (If they do, the challenge is to figure out why a student is being

sloppy or lazy and work together to solve the problem.) Mistakes offer information about how a student thinks. Correcting them quickly and efficiently doesn't do much to facilitate the learning process.³ More important, students who are afraid of making mistakes are unlikely to ask for help when they need it, unlikely to feel safe enough to take intellectual risks, and unlikely to be intrinsically motivated.

The Three C's Again

One of the most disquieting things about American education is the emphasis placed on being quiet. If we attend to all that is not being said by students, we realize that the absence of children's voices occurs by design and is laboriously enforced. Talking is called "misbehaving," an indication of lack of self-control or self-discipline, except under highly circumscribed circumstances, such as when a pupil is recognized by the teacher for the purpose of giving a short answer to a factual question. Most of the time students are supposed to sit quietly and listen. Teachers who depart from this norm by letting them talk more freely are said to have lost control of their classrooms (a marvelously revealing phrase).

Like most features of our schools, the demand for silence issues from a theory of learning that is largely invisible, despite the scope of its influence. That theory sees the teacher (or book) as a repository of information that is poured, a little bit at a time, into the empty vessel known as the student. The student's job is to passively retain this information -and now and then, to regurgitate some of it on command so we can be sure enough of it got in. To facilitate the process we employ rewards for success, punishments for failure, and an elaborate scoring system to keep track of the transfer. Glasser put it well:

Teachers are required to stuff students with fragments of measurable knowledge as if the students had no needs -almost as if they were things. Education is defined as how many fragments of information these "student-things" can retain long enough to be measured on standardized achievement tests.

It's all of a piece, really -the sort of curriculum that lends itself to being poured or stuffed into students' heads, the fact that students themselves have very little to say about the process, the discipline required to keep them silent and separate, the view of learning as a transmission of information, and the view of children (and ultimately all organisms) as inert objects that must be motivated to learn from the outside with the use of reinforcements and threats.

At the risk of sounding melodramatic, I believe we will never know what real education is until we have shaken off this sterile, discredited model. To do so, to help students learn, we have to do more than avoid using rewards. The foundation of an alternative approach can be described, once again, in terms of the three C's of motivation introduced in the previous chapter.

Collaboration: Learning Together

American schools offer two basic modes of instruction. In the first, children are set against each other, competing for artificially scarce grades and prizes, struggling to be the first with the right answer. The subliminal lesson is that everyone else should be regarded as potential obstacles to one's own success. In the second, children are seated at separate desks, taught to ignore everyone else, reminded not to talk, told that the teacher wants to see "what

you can do, not what your neighbor can do," given solitary seatwork assignments followed by solitary homework assignments followed by solitary tests. The subliminal lesson is "how to be alone in a crowd."

This is the extent of most teachers' repertoires: pit students against each other or pry them apart from each other. The only problem with these arrangements is that neither is particularly conducive to learning. As thinkers such as Piaget and Dewey have explained, learning at its best is a result of sharing information and ideas, challenging someone else's interpretation and having to rethink your own, working on problems in a climate of social support. (Note that all these things usually require talking.) Understanding and intellectual growth are derived not only from the relationship between student and teacher, or between student and text, but also from the relationship between one student and another.

One of the most exciting developments in modern education goes by the name of cooperative (or collaborative) learning and has children working in pairs or small groups. An impressive collection of studies has shown that participation in well-functioning cooperative groups leads students to feel more positive about themselves, about each other, and about the subject they're studying. -Students also learn more effectively on a variety of measures when they can learn with each other instead of against each other or apart from each other. Cooperative learning works with kindergartners and graduate students, with students who struggle to understand and -students who pick things up instantly; it works for math and science, language skills and social studies, fine arts and foreign languages.

This is not the place for an exegesis of the research on cooperative learning, for explaining why the practice works and under what Conditions and how to implement it, or for describing the different versions of classroom teamwork and how they differ. My purpose here is' mostly just to affirm that anyone thinking about learning and motivation, anyone interested in educational reform, must attend to the relationships among students in the classroom and consider the importance of collaboration.

The opportunity to collaborate ought to be the default condition in the classroom--the arrangement that is used most of the day except when there is good reason to do things another way. (On occasion, for example, teachers will want to make some time for individualized study.) Clustered around tables rather than seated at separate desks, students should be helped to get in the habit of turning to each other to check out an idea or answer a question.

David and Roger Johnson, two of the country's leading proponents of cooperative learning, have offered a delicious suggestion for turning customary practice on its head: principals might wander through the halls of their schools, listening at each classroom door. Whenever they hear nothing, they ought to make a point of asking the teacher, "Why isn't any learning going on in here?" Indeed, a classroom where collaboration is taken seriously is a place where a visitor has trouble finding the teacher (since he is usually wandering around the room, serving as a resource for teams, rather than stationed behind a desk) and also has trouble hearing him (since his voice rarely rises above and overpowers the voices of students).

The evidence of real classroom experience converges with the evidence of rigorous research to support the use of cooperative learning. However, as vital as it is to break out of the traditional individualistic and competitive frameworks, I have come to believe that it is even more important to move past the behaviorist model of instruction. If we do the former without the latter, we remain shackled to the same theories of learning and motivation currently in effect -and also committed to most of the same practices. The single exception is that we are now bribing groups rather than individuals to learn. In particular, the use of certificates, grades, and other extrinsic motivators to

induce children to work together has the effect of taking away with one hand (for all the reasons described in this book) what we have just given with the other (by letting children work together). Fortunately, I believe an increasing number of people within the cooperative learning movement are coming to recognize this.

Content: Things Worth Knowing

Even an elementary school student could tell you that how much work people do, or how long they do it, is less important than what they are doing. ("It is not enough to be busy; the question is, what are we busy about?" is how Thoreau put it.) This point, however, seems to be lost on critics who think the most important way to improve our educational system is to increase the length of the school year (or the school day) or to pile on more homework. What they fail to grasp, what a ten-year-old might tell them, is that their efforts would be better spent trying to improve the content of the curriculum that fills those hours and notebooks.

Right now, a good deal of what students are required to do in school is, to be blunt, not worth doing. The tasks they are assigned involve very little creative thought and very much rote learning. These tasks have no apparent connection to children's lives and interests. In fact, there is no apparent connection between any two sentences on a worksheet, between any two tasks, between any two courses. As Mark Lepper and a colleague have observed,

Information is presented in an abstract form, dissociated from the contexts in which it might be of obvious, everyday use to children. Topics are presented when the schedule calls for them, not when particular children are especially interested or "ready" to learn about them.

In a word, learning is decontextualized. We break ideas down into tiny pieces that bear no relation to the whole. We give students a brick of information, followed by another brick, followed by another brick, followed by another brick, until they are graduated, at which point we assume they have a house. What they have is a pile of bricks, and they don't have it for long.

Students are instructed to fill in the missing letters or words on a concatenation of sentences, to work one multiplication problem after another, to learn the chief exports of Peru; to memorize the difference between a metaphor and a simile, to read chapter 11 and answer the even-numbered questions that follow, to keep busy until the bell sets them free. After school they must trudge to the library to copy down some facts from the encyclopedia about Dickens or the division of labor or the digestive system, facts that will be recopied more neatly and handed in as a report. The result of such requirements is not, contrary to claims of traditionalists, intellectual rigor; it is closer to rigor mortis. We lose children as learners because they are turned off by the whole process. Even the best students do what they have to do only because they have to do it -and then they put it out of their minds.

Why do schools coerce children to learn things of such little value? Setting aside the fact that there is room for disagreement about what is valuable, I think there are several reasons:

- For generations, students have been drilled until their minds went to sleep; it is easiest to keep doing what has always been done. It is easier yet to avoid even questioning its value.

- Interesting lessons often take more work to prepare and to teach. "Read chapter 3" requires only that a teacher read chapter 3. Multiple-choice tests can be graded quickly.

- A curriculum geared to the needs of learners requires of the teacher an enormous amount of flexibility, a high tolerance for unpredictability, and a willingness to give up absolute control of the classroom. Control is easier to maintain when teaching becomes a simple transfer of disconnected facts and skills. Indeed, "many teachers ... maintain discipline by the ways they present course content."

- The current curriculum lends itself nicely to standardized testing and sorting of students. Instead of figuring out what is worth teaching and then devising an appropriate means of assessment, we start with the imperative to evaluate.

Whatever the explanation, it is in the context of an unappealing, if not intellectually bankrupt, curriculum that we wonder why our students are not motivated, why they drop out of school, why they underachieve. We become angry when they daydream or create distractions to amuse themselves* or fail to finish their work on (our) schedule. We wave the grade book out of desperation, write children's names on the blackboard to warn them, send them to study hall. In short, we place the responsibility squarely on the children instead of on a curriculum that few members of our species would find intrinsically motivating. As Brophy and Kher put it, "Many of the tasks that students are asked to do seem pointless or unnecessarily boring, so that in these cases, finding better tasks is a more sensible response to low motivation than attempting to stimulate interest in such tasks." When a teacher complains that students are "off-task" -a favorite bit of educational jargon -the behaviorist will leap to the rescue with a program to get them back "on" again. The more reasonable response to this complaint is to ask, What's the task?

Not surprisingly, this way of framing the problem meets with considerable resistance on the part of many educators. More than once I have been huffily informed that life' isn't always interesting, and kids had better learn to deal with this fact. The implication here seems to be that the central purpose of school is not to get children excited about learning but to get them acclimated to doing mind-numbing chores. Thus is the desire to control children, or the unwillingness to create a worthwhile curriculum, rationalized as being in the best interests of students.

Another response to these ideas is to turn them into a caricature, the better to wave them away. "Let kids do only what they find interesting? Why don't we just let them read comic books instead of literature?" We can respond to this by affirming that an engaging, relevant curriculum is not one that is watered down to win over students. Reading literature is a terrific idea; the problem is that too many children are forced to make their way through workbooks instead. Educational excellence comes from motivation, and "the goals toward which activities [are] directed must have some meaning for students in order for them to find the challenge of reaching that goal intrinsically motivating."

Does this mean we abandon basic skills? No. It means that these skills are nested in real-life concerns. The learner's interest is the focal point. Children are curious about how fast they are growing: here is the context for a lesson on addition or decimals: They want to write a story about how a spaceship carries them away: here is where we introduce the basics of punctuation they'll need. They ask to hear about the Vietnam War: here is our reference point for bringing in earlier historical events. Contrast this approach with having to convert a set of twenty decimals into fractions, answer the questions about semicolons in the textbook, listen to a lecture on something called the Progressive Era. "

When things are taught in isolation, they are harder to understand and harder to care about. Thus, our question is not merely, What's the task? but, How does the task connect to the world that the students actually inhabit? As

Dewey put it, "the number 12 is uninteresting when it is a bare, external fact," but the solution is not "to offer a child a bribe" to manipulate naked numbers. Rather, we take our cue from the fact that a number already

has interest ... when it presents itself as an instrument of carrying into effect some dawning energy or desire -making a box, measuring one's height, etc.... The mistake, once more, consists in overlooking the activities in which the child is already engaged, or in assuming that they are so trivial or so irrelevant, that they have no significance for education.

The premise of this entire discussion is that children are people who have lives and interests outside of school, who walk into the classroom with their own perspectives, points of view, ways of making sense of things and formulating meaning. What we teach and how we teach must take account of these realities. This is the basis for a school of thought known as "constructivism," derived largely from the work of Dewey and Piaget, which stands in crisp relief to the premises of behaviorism. It holds that

people learn by actively constructing knowledge, weighing new information against their previous understanding, thinking about and working through discrepancies (on their own and with others), and coming to a new understanding. In a classroom faithful to constructivist views, students are afforded numerous opportunities to explore phenomena or ideas, conjecture, share hypotheses with others, and revise their original thinking. Such a classroom differs sharply from one in which the teacher lectures exclusively, explains the "right way" to solve a problem without allowing students to make some sense of their own, or denies the importance of students' own experiences or prior knowledge.

This approach provides the framework for the growing movement to teach children to read by starting them out with things worth reading, as well as for hands-on mathematics lessons and other curricular innovations that are billed as "learner-centered." It stands behind the injunction that the teacher should be "the guide on the side, not the sage on the stage."

Even apart from that radical reconstruction of the teacher's role, there are features of educational content that should be considered by anyone concerned about whether learning takes place in a classroom. For one thing, we need to think about the difficulty level of what children are assigned. At least one social scientist has built a career on the observation that people do their best when the tasks they are working on are neither so easy as to be boring nor so difficult as to cause anxiety and feelings of helplessness.

The point should be self-evident, but apparently it isn't. Some teachers, wanting to help students feel good about themselves, give them easy assignments and plenty of positive reinforcement on successful completion. The strategy fails to create a desire for more challenging work. Other teachers, scornful of "dumbing down" the curriculum, pride themselves on giving students assignments that are way beyond their reach. This is a good way of making students feel stupid. Something in the middle makes a lot more sense. In fact, students not only react well to moderate challenge but actually seek it out: experimental work has shown that children "appeared to be intrinsically motivated to engage in those tasks which were within their reach but developmentally just beyond their current level."

Intrinsic motivation also flourishes when students are not always doing the same thing. Moreover, a variety of kinds of tasks, each requiring different

skills, has an additional advantage: it helps to reduce the glaring disparities in status in the classroom. If, by contrast, all assignments demand verbal fluency, children may come to look down on their peers who lack this one particular facility.

Tasks can be varied not only from one day to the next but also from one student (or team) to the next at any given time. Give students "several alternative assignments from which they can choose," and competition in the classroom will likely decline. After all, if not everyone in the room is doing the same thing, the social comparison that can degenerate into competition is less likely to occur.

When these two suggestions are combined--that is, while teachers use a variety of assignments that offer the right amount of challenge--students are given the opportunity to feel a sense of accomplishment. That feeling of having worked at something and mastered it, of being competent, is an essential ingredient of successful learning. And, as one researcher notes, "classrooms that provide a variety of concrete activities for many ability levels do not need reward stickers or praise to encourage learning."

Finally, learning tasks can sometimes be embellished and embedded in a context that heightens their appeal. Many educators are concerned about "sugar-coating" activities--a justifiable concern in some cases, since these efforts may lack intellectual nourishment. But carefully designed programs, such as fantasy contexts in computer-based learning, have been shown to lead to "increased learning and retention of the material, greater generalization of that learning, heightened subsequent interest in the subject matter, enhanced confidence in the learner, and improvements in the actual process of learning." As long as these efforts do not distract us from the more important task of making sure the primary subject matter is meaningful and connected to children's real-life experiences, they can play a role in enhancing the motivation to learn.

Choice: Autonomy in the Classroom

Every teacher who is told what material to cover, when to cover it, and how to evaluate children's performance is a teacher who knows that enthusiasm for one's work quickly evaporates in the face of control. Not every teacher, however, realizes that exactly the same is true of students: deprive children of self-determination and you deprive them of motivation. If learning is a matter of following orders, students simply will not take to it in the way they would if they had some say about what they were doing.

The rationale for giving children choice is threefold. First, it is intrinsically desirable because it is a more respectful way of dealing with others. Second, it offers benefits for teachers. Their job becomes a good deal more interesting when it involves collaborating with students to decide what is going to happen. As one fifth-grade teacher in upstate New York says,

I've been teaching for more than 30 years, and I would have been burned out long ago but for the fact that I involve my kids in designing the curriculum. I'll say to them, "What's the most exciting way we could study this next unit?" If we decide their first suggestion isn't feasible, I'll say, "Okay, what's the next most exciting way we could study this?" They always come up with good proposals, they're 'motivated because I'm using their ideas, and I never do the unit in the same way twice.

Teachers also benefit in other ways from allowing students to be active participants in their learning. One group of researchers notes that in this situation, the teacher is "freed from the chore of constantly monitoring and

supervising the children's activity and [is] able to give her full attention to ... interacting with the children" as they work.

The third reason to make sure that students have some say over what they do all day--the reason that will be my primary focus here--is that it works better:

- When second graders in Pittsburgh were given some choice about their learning, including the chance to decide which tasks they would work on at any given time, they tended to "complete more learning tasks in less time."

- When high school seniors in Minneapolis worked on chemistry problems without clear-cut directions -that is, with the opportunity to decide for themselves how to find solutions -they "consistently produced better write-ups of experiments" and remembered the material better than those who had been told exactly what to do. They put in more time than they had to, spending "extra laboratory periods checking results that could have been accepted without extra work." Some of the students initially resisted having to make decisions about how to proceed, but these grumbles later "took great pride in being able to carry through an experiment on their own."

- When preschool-age children in Massachusetts were allowed to select the materials they used for making a collage, their work was judged ,more creative than the work of children who used exactly the same materials but did not get to choose them.

- When college students in New York had the chance to decide which of several puzzles they wanted to work on, and how to allot their time to each of them, they were a lot more interested in working on such puzzles later than were students who were told what to do.

- When teachers of inner-city black children Were trained in a program designed to promote a sense of self-determination, the children in these classes missed less school and scored better on a national test of basic skills, than those in conventional classrooms.

- Fourth-, fifth-, and sixth-grade students who felt they were given personal responsibility for their studies had "significantly higher self-esteem and perceived academic competence" than children who felt controlled in their classrooms.

- When second graders who spent the year in a constructivist math classroom, one where textbooks and rewards were discarded in favor of an emphasis on "intellectual autonomy"--that is, where children, working in groups, took an active role in figuring out their own solutions to problems and were free to move around the classroom on their own initiative to get the materials they needed--they developed more sophisticated higher-level reasoning skills without falling behind on basic conceptual tasks.

The evidence goes on and on. At least one study has found that children given more "opportunity to participate in decisions about schoolwork" score higher on standardized tests. They are more likely than those deprived of autonomy to continue working even on relatively uninteresting tasks. They are apt to select assignments of the ideal difficulty level so they will be properly challenged (assuming there are no rewards involved). There is no question about it: choice works.

The different versions of choice represented in these studies remind us that there is more than one way to put the idea into effect. Some are more modest in scope than others, but all involve substantive decisions about learning. I am not talking here about perfunctory matters such as letting older students choose which of three essay questions they will address in their final papers; I am talking about giving students of all ages considerable discretion about things that matter in the classroom.

Every day ought to include at least one block of time in which children can decide what to do: get a head start on homework, write in their journals,

work on art projects, or read library books. Creative writing assignments offer plenty of opportunity for decisions to be made by the writers themselves. The same is true of selecting stories not only for individual reading but when the class reads together. ("Here are five books that the supply store has in stock," a fourth grade teacher may say to the class. "Why don't you flip through them during your free time this week and we'll decide together on Friday which one we'll read next.") In expressing an idea or responding to a lesson, children sometimes can be allowed to decide what medium or genre they will use--whether they want to write a poem, an essay, or a play, make a collage, a painting, or a sculpture. Mathematics lessons can be guided by quantitative issues of interest to students. In fact, the entire constructivist tradition described in the last section is predicated on the idea of student autonomy. The same can be said about some (but by no means all) versions of cooperative learning.

Notice that in each of these examples, the teacher offers guidelines or broad parameters within which children can choose. It is not necessary for a teacher to turn over all pedagogical responsibilities to students in order for them to be involved in their education--nor, as Dewey pointed out; is it desirable for teachers to do so. Different teachers will, and a different balance between telling students what to do (or limiting their choices) and letting them decide; this will depend on the age of the students, constraints placed on the teacher," and the teacher's need for control, among other factors.

In any case, the teacher will need to help students learn the skills with which they can make the best use of their freedom. "Opportunities to develop self-management and self-regulatory strategies must accompany the assignment of responsibility," says Carole Ames. We want to avoid situations in which a teacher lets children decide what to do and how to do it, discovers that the children are unable to plan a major project over a period of time, and reverts to a controlling approach.

I have heard teachers give it up after a single attempt, saying, "Children cannot behave responsibly," then remove all further opportunity for students to practice and grow in their responsible behavior. I have also heard teachers say, "Children cannot think for themselves," and proceed thereafter to do children's thinking for them. But these same teachers would never say, "These children cannot read by themselves," and thereafter remove any opportunity for them to learn to read.

One last point: the idea of choice appears to many of us as a dichotomous affair --"Either you make it or I do"; either students get to decide something, or it's determined by the teacher. This perspective overlooks various possibilities, all--of which should have a place in an educator's repertoire. Sometimes a decision about what to read, say, or how to spend time is made by each student individually; sometimes it is made by each cooperative learning group; sometimes it is made by the whole class. Moreover, the responsibility to choose does not have to be thought of as turned over to students or kept by the teacher: some choices can be negotiated together. The emphasis here--is on shared responsibility for deciding what gets learned and how the learning takes place. That negotiation can become a lesson in itself --an opportunity to make arguments, solve problems, anticipate consequences, and take other people's needs into account--as well as a powerful contribution to motivation.

Children start out enthusiastic and skillful learners. Helping them to stay that way through school is partly a matter of what we give them to learn. In the section on content, I argued that boring assignments ought to be scrutinized and those that cannot be justified should be discarded. Unlike tedious jobs, at

least some of which have to be done, there is no reason that anyone should have to do something that doesn't contribute to a meaningful education.

Still, not everything we think children ought to learn is highly motivating in itself. I want to make clear that the suggestions offered in this chapter do not presume that every lesson plan will hook children on its own. Thus, when students do successfully learn material that is not immediately appealing to them, it is worth attending to the factors that help that happen.

I offer a modest example from my own days as a student. When I was in high school, I memorized every element on the periodic table, from actinium to zirconium. This is not an inherently interesting thing to do, so the circumstances in which I did it may be relevant here. First, the decision to learn them was my own; no one told me I had to or rewarded me when I succeeded. Second, I roped a couple of friends into doing it with me; apart from the help people can offer each other to facilitate learning, most tasks are simply more pleasant with social support. Third, the challenge became less tedious (and to be frank, less difficult) because what we actually did was memorize a song: the satirist Tom Lehrer had already set the names of the elements to music. This made the task seem rather like a game. I'm not sure which of these factors was the most decisive, but I do know that a couple of decades later I can still recite the entire periodic table. By contrast, all I remember from an entire year of advanced placement European history is the phrase "warm-water ports."

No one ought to be required to memorize the elements -or for that matter, the state capitals. But there are aspects of learning that require hard work, and it is here that talented teachers really shine. They arrange for students to be part of a community of learners who help each other do their best. They embed the task in a question or context to which students resonate, and they help make the connections to the questions clear. They give students choice about how they will approach a task and a reasonable rationale for what they are being asked to do.

And, to bring this discussion back full circle, skilled teachers remove obstacles to interest, such as rewards. For critics of our educational system who despair that we can ever get past behavioral manipulation, I dose with a few hopeful findings. In chapter 7, I noted that while many employees have been battered with extrinsic motivators to the point of becoming dependent on them, most people still say they are more concerned about doing interesting work than about how much money (and how many rewards) they can collect. The same thing may be true of students. When about 350 high schoolers were asked about their objectives, "reaching a personal goal" was ranked number one, whereas extrinsic rewards, such as being publicly recognized for an achievement, were seen as much less important. "Winning a contest," in particular, showed up at the very bottom of the list. In a striking parallel to the data on employee goals, teachers who were asked what motivated students incorrectly assumed that extrinsic motivators were more important to students than they actually were.

As for teachers' beliefs about learning, there is obviously a wide range of assumptions and practices to be found. It is impossible to wish away the pervasiveness of Skinnerian techniques in American schools. But a recent national survey of elementary school teachers found fairly widespread understanding, that rewards are not particularly effective at getting or keeping students motivated. Such strategies as awarding special privileges to those who do well or publicly comparing children's achievement were seen as less successful than giving students more choice about how to learn or letting them work together. The fact that extrinsic tactics are frequently used despite this knowledge may reflect pressure to raise standardized test scores or to keep control of the class. If teachers understand that rewards are not helpful for promoting motivation to learn, perhaps this is not the overriding goal of

educators. If so, then a renewed call to emphasize the importance of motivation is what we need. We can get children hooked on learning -if that is really what we are determined to do.

Questions for Review

1. Compare and contrast performance appraisals and report cards.
 2. What are the three reasons that abolishing rewards will not cause students to cheer, "Hooray"! Now we can be intrinsically motivated!" Can you think of a fourth?
 3. The author's argument that much of our curriculum is intellectually "bankrupt" appears in Chapter 11. Do you think this is a coincidence?
 4. What are the chief exports of Peru?
- Extra credit: What do you think the author would say about extra credit?