Capturing and Directing the Motivation to Learn

Effort is felt only where there is a conflict of interests in the mind. The idea A *may be intrinsically exciting to us. The idea* Z *may derive its interest from association with some remoter good.* A *may be our sweetheart,* Z *may be some condition of our soul's salvation. Under these circumstances, if we succeed in attending to* Z *at all it is always with an expenditure of effort.*

William James, *The Principles of Psychology*

As an academic quarter begins, most instructors at Stanford don't dwell much on the idea of motivating students. After all, students here are bright and inquisitive, and have excelled in academic pursuits in large part, it seems, because they know how to focus their energies and attend to business. And the start of a new quarter always brings with it a buzz of enthusiasm and adrenaline, in class and out. But as the quarter progresses and courses settle into a comfortable routine, student interest can appear to flag—and it's at this point that the urge to reenergize students comes to the fore and instructors begin to ask how they can motivate their students to perform better.

Novelty, of course, provides its own power to focus our attention (if only briefly) on appealing long-range goals and the paths mapped out to reach them. The effort involved in fulfilling intentions, however, once faced on a daily basis, is somewhat less enticing—as anyone who has ever struggled to fit a new exercise program into their daily routine or redouble their efforts to watch calories knows. The idea of "Z," in James' comparison, doesn't hold the same sway as more idealistic and romantic images, of others or of a more perfect self.

Given the complex interaction between rationality and emotion in sustaining our efforts toward long-range goals, the task of motivating students is far from simple. As Alfred North Whitehead notes in *The Aims of Education*, "It is the unfortunate dilemma that initiative and training are both necessary, and that training is apt to kill initiative." But what is also clear is that training and initiative are not necessarily at odds if we can discover teaching strategies that sustain motivation while communicating the necessary fundamental knowledge of a discipline. Whitehead discussed the balance as one between "the rhythmic claims of freedom and discipline," or between the need for exploration, creativity, interest, and joy in learning, with the need to acquire a mastery of technique and definite truths. Though university education focuses principally on mastery of skill and

theory, without opportunities to experience some kind of personal control in learning, students' enthusiasm will often fade.

What We Know About Motivation

While the subject of motivation is complex, and can be approached from a variety of theoretical perspectives, some basic aspects of student motivation for learning can be culled from the numerous studies done on the subject. According to Barbara McCombs, "Research has shown that for students to be optimally motivated to learn, they must:

1. See schooling and education as personally relevant to their interests and goals.
2. Believe that they possess the skills and competencies to successfully accomplish these learning goals.
3. See themselves as responsible agents in the definition and accomplishment of personal goals.
4. Understand the higher level thinking and self-regulation skills that lead to goal attainment.
5. Call into play processes for effectively and efficiently encoding, processing, and recalling information.
6. Control emotions and moods that can facilitate or interfere with learning and motivation.
7. Produce the performance outcomes that signal successful goal attainment."

Translating these seven aspects of personal motivation into components of teaching takes some careful consid-

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eration, not just in thinking about specific teaching techniques or strategies, but also in designing a course and conceiving of the structure by which students will be led to achieve course goals. The important thing to keep in mind is that students bring with them a variety of motivations, and tapping into them will promote better learning. As McCombs notes, "Motivating learning is largely dependent on helping to bring out and develop students' natural motivations and tendencies to learn rather than 'fixing them' or giving them something they lack." Below are some ways of incorporating methods of motivation into courses and connecting with students' already existing natural desire to succeed.

Define Course Goals and Help Students Think About Personal Learning Goals

Instructors who have taught in their discipline for many years sometimes assume that the importance of a course and the rationale for the structure of knowledge in that discipline are transparent to their students—and thus that the preliminary rigors of getting the necessary basics under control will also naturally appear to have meaning. But we know that this is far from the truth, and that students in basic introductory courses often feel overwhelmed by memorization or what can seem like disconnected rote work. This can be especially the case in introductory courses or in required 'general education' courses. Helping students understand why the course is important, how it is structured, and how they can successfully complete it can be as simple as taking time in the early part of a quarter to provide students with a context for information and to outline how and why certain kinds of basic knowledge are necessary for specific applications in other courses, in future employment, or in everyday life. An outline of the objectives of a course in the syllabus and a discussion of course goals in the first meetings of the class will go a long way toward helping students reflect on their personal goals for the course.

Your explanation of goals for the course can include not only a summary of the knowledge you expect students to master, but expectations for their own participation. As Barbara Davis points out, "Research has shown that a teacher's expectations have a powerful effect on a student's performance," so that demonstrating enthusiasm, setting realistic content goals, and clarifying expectations about the degree of commitment the course will require help students plan for their participation and measure their progress. Let students know what specific steps they can take to succeed in the course.

It is important to recognize that student motivation can be maintained if learning goals are challenging but not overwhelming; both course goals and personal goals must be set at an appropriate level. Students' interest will remain high if the challenge seems realistic and the path to success is made clear to them. Getting early feedback, through homework and informal assessment can help you judge the appropriateness of challenges and, if necessary, provide extra support for students. As Forsyth and McMillan point out, "When you include help sessions, study sheets, review sessions, and workshops on study skills in your teaching, students are more likely to feel that even moderately difficult goals can be achieved."

Make Use of Students' Interests and Background Knowledge

We know that students enter our classes with differing degrees of knowledge in the discipline and with different interests. To capitalize on what exists in our students, we must take the time to discover what students are actually bringing to the course. One technique used by instructors is simply asking, at the start of the quarter, for information from their students—information on their level of preparation, the kinds of courses they have already taken in the field, and why they are taking the course. A slightly more sophisticated version of this is a form of classroom assessment, called a 'background knowledge probe,' or a series of specific questions about the content of the course. As Angelo and Cross explain, the questionnaire focuses on "specific information or concepts the students will need to know to succeed in subsequent assignments, rather than on personal histories or general knowledge." The advantages of getting such information at the outset are that it can "provide useful data not only about students' knowledge of the topic but also about their skills in communicating what they know" and that "by building on specific background knowledge . . . the instructor can give students a familiar starting point, a 'hook to hang new information on'."

An instructor can help students become reflective about their interests and knowledge, and ask them to relate or adapt course information to their concerns in their assignments and in the classroom. Nelée Langmuir, instructor in French, explains that "without relevant student engagement, new material cannot be learned or mastered." In her own classes she always invites students to "make the material their own" and she tries to enable them to adapt new material to personal contexts and interests: "Many students take my French classes for very different reasons, and so I try to be aware of their diverse interests and gear my presentations accordingly. Their motivation to learn and ultimate mastery of the language depend largely on their ability (and mine) to try to make the French language their own while studying it."

Engaging students' interests is fundamental to learning in that "Interest is a directive force. It is able to explain students' choice of an area in which they strive for high levels of performance or exhibit intrinsic motivation" (Schiefele). But building on this natural motivation is crucial for another reason: "interest is an important motivator for the use of learning strategies that facilitate deep processing." For students to go beyond surface knowledge, or the memorization of information without a conceptual understanding of its significance or application, connecting course work to students' interests is essential. Often, instructors can highlight their own interest in a topic and, through their own enthusiasm or fascination, generate heightened interest in their students.

Show the Relevance of Material

Students usually take a required course simply because they know it is necessary for their degree program—without taking time to consider specific ways in which the course content is relevant to their educational goals. In pointing out the broader significance of course content and skills the course develops, or in finding real-world examples to illustrate concepts or theories, instructors can capture students' attention and help them begin to connect course material to their interests. According to a math TA "students in calculus don't always think about how necessary what we're learning is to what they want to major in. Once we talk in class about specific ways math is important in engineering or science, they are much more willing to keep putting in effort."

Sometimes, illustrating the significance of the course to students' goals can focus primarily on the skills they are developing. Cheri Ross, Associate Director of the Area One Program, explained that while students in the Great Works sequence "loved the discussions," they were often less excited about going to lectures. "After we started working with the students to analyze the lecture as a text, with a structure, argument, and style, it became easier. For motivation, I tried always to foreground for the students who might not end up humanists the applicability of the skills they were learning to other courses and other fields."

Making material relevant can also mean using real-world examples to illustrate the application of principles and theory. Professor Sam Chiu, of EES & OR, redesigned his course on Probabilistic Analysis when he realized that textbook examples often provided students with cleanly designed problems which required the mechanics of problem solving but ignored the messier stage of understanding how to set up problems in the first place. He decided to ask students to find, in magazines or newspapers, everyday examples to illustrate modeling techniques for probabilistic situations. Having to find and analyze examples provides students with an immediate sense that principles learned in the course call into question intuitive solutions and help deepen students' understanding of problem design and problem solving.

Teach Students Skills for Independent Learning

As many discussions of motivation point out, maintaining motivation depends on a feeling of control over challenges in order to progressively master required skills. This feeling of control is more likely to occur if skills are introduced gradually, if timely feedback on the use of skills is offered, and if students are encouraged to apply their skills in active problem solving. The teacher's role can be to provide training not just in what to acquire, but in how to find and master knowledge outside the classroom in independent projects. By offering students opportunities to develop learning skills through application of course content to research projects or papers, instructors can encourage students to examine their goals, motivational methods, and learning methods. In assigning projects, instructors should provide clear guidelines and suggestions about how to proceed and what the outcome should consist of. As one group of researchers in the field of project-based learning notes, "teachers should scaffold instruction by breaking down tasks; use modeling, prompting, and coaching to teach strategies for thinking and problem solving; and gradually release responsibility to the learner. The result of such an approach to teaching is that learners are motivated to persist at authentic problems, meld prior knowledge and experience with new learning, and develop rich domain-specific knowledge and thinking strategies to apply to real-world problems" (Blumenfeld, et al.).

"Students who learned text material in order to put it to use reported more intrinsic motivation for learning and showed greater conceptual understanding than did students who learned the material in order to be tested."

Deci, et al.

To have a lasting effect on the quality of students' intellectual lives, teachers must be able to help students understand and incorporate principles of independent learning into their academic work. In contemporary terms, this aspect of education is often termed "self-regulated learning," which, according to Paul Pintrich, "involves the active, goal-directed, self-control of behavior, motivation, and cognition for academic tasks by an individual student." Teaching, insofar as it has long-lasting effects, should aim to help students "become more aware of their own behavior, motivation, and cognition by reflecting on these aspects of their learning." Instructors can do this by employing teaching strategies that help students become more reflective about how they approach their academic work, how they learn best, and how they can sustain motivation. In common sense terms, what teaching which promotes self-regulated learning does is introduce or reinforce effective habits which themselves provide the groundwork for creative and meaningful academic achievement.

The emotional dimension of motivating oneself—the habits of mind students bring to their academic endeavors—are rarely included in an analysis of working methods; yet when instructors ask for reflection on research projects, in the form of journal entries, for example, students can examine their attitudes toward their abilities and skills to see if they are themselves setting roadblocks in their path to success. Menec and Perry show that we can distinguish students who attribute their poor performance to lack of ability and those who attribute it to lack of effort or inadequate study strategies—and that the former clearly are at risk, academically, since they have adopted self-defeating approaches toward certain disciplines or skills. These students need to examine what may be long-held beliefs about their ability to succeed in certain fields, and work individually with instructors to overcome the sense that they are

"simply not good" at, for instance, writing or math. But even students who recognize that their failure may be due to lack of effort or insufficient learning strategies need help in altering their attitude toward academic work, since they may have adopted this strategy—called by Garcia "self-handicapping"—in order to protect their sense of self worth. Students accustomed to success in high school may find getting Bs or Cs demoralizing enough to begin to question their own ability—and resort, therefore, to procrastination and simply studying less, in order to have an excuse for poor performance. "The low effort shown by self-handicappers may produce poor achievement outcomes but may also produce a win-win situation in terms of affective outcomes, for failure following low effort may be attributed to that low effort, whereas success following low effort can only imply high ability." Putting in less effort can take many forms, including "taking on too many projects and spreading oneself too thin or waiting until the last moment to write a term paper or to study for an exam." This self-defeating behavior can be altered with the attention brought to study habits in ongoing classwork or projects that require reflective commentary for the instructor or discussion among peers.

Give Helpful and Frequent Feedback

The effort students put into their work outside of class needs to be acknowledged with sufficient feedback to make them feel that the effort was worthwhile in moving them toward their goals. The more immediate the response to homework and examinations, the more likely it is to help students reflect not only on their knowledge of the material, but on their learning strategies. And while grades can be highly motivational, it is the commentary on work which assists students most in improving their skills; this means that instructors who mark what is wrong should also suggest specific ways in which students can improve their performance in the future.

Such feedback need not, of course, be limited to comments on problem sets, papers, or exams. Professor Philip Zimbardo of Psychology regularly sends letters at the end of the quarter to students who have done particularly well in his course, praising their work and encouraging them to continue in their study of psychology. With email, personal memos about students' performance—either with positive feedback or specific advice for developing skills—can be quickly composed and sent. Positive feedback in class can also be rewarding and motivational for students: share good student work with the class by, for example, allowing students time to present talks on their projects. By helping students to appreciate the satisfaction of having mastered material, instructors can help them focus on learning as a goal, rather than simply on the grade at the end of the course.

And finally, *asking* for feedback from students about the course, especially in the early or middle weeks of the quarter, demonstrates to them your interest in their learning, and often generates renewed enthusiasm because students feel that they can help shape the course in ways that also help them achieve their goals.

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