

**Learning and Motivation
in the Postsecondary
Classroom**

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DEDICATION

This book is dedicated to my husband, Jay, who convinced me that I had something to say and should get on with it.



MOTIVATING STUDENTS TO LEARN

Great teachers are often said to be those who can motivate their students to do their best work. Certainly that's what the students think, because when I ask groups of students to talk about their best teachers, motivation is almost always the number one quality listed. I find this a bit mystifying because I've certainly seen a lot of highly motivated students who didn't seem to learn very much, and I've been able to learn in the absence of any apparent motivation. Perhaps motivation is half the battle; if you've got that, learning at least becomes less onerous. But what is it about motivation that influences learning?

There is much of speculation in the literature about what motivation does for learning. Here are some of the ideas that have been offered:

- 1) Motivation directs the learners' attention to the task at hand and makes them less distractible. We know from the cognitive model that attention to the key variables is the first step to learning, so anything that focuses learner attention is bound to help learning.
- 2) Maybe motivation changes what learners pay attention to. As in item 1, attention is the focus here, but rather than dealing with the vigilance aspect of attention, here motivation influences what the learners focus on rather than that they simply pay more attention in general.

- 3) Motivation helps the learners persist when they encounter obstacles. This particular set of qualities is often referred to in the literature as volition rather than motivation, but they go together. Volition keeps the behavior going after motivation has gotten it started (Corno, 2000). Learning cannot occur unless learners are willing to engage the task.
- 4) Motivation in the form of goals may serve as benchmarks that the learners can use to monitor their own learning and recognize when they're making progress and when they've finished a task. So motivation may support the kind of metacognition controlling learning that was discussed in Chapter 5.

These different interpretations of what motivation is and does can help us think about what we do to support or frustrate those effects.

ALTERNATIVE THEORIES OF MOTIVATION

There is no grand unifying theory of motivation in the psychological literature. Instead, bits and pieces of a theory have accumulated over the years. The recent ascendance of cognitive theory in the learning realm is being accompanied by a similar focus on thinking in the motivational realm.

Early Theories

Early theories of motivation depicted it as an inner force driving external behavior. Motivation was increased when some type of imbalance or deficit in needs was felt by the learners. Subsequent behaviors were then directed at rebalancing the system without much conscious action on the part of the learners. One early theory of motivation known as drive theory asserted that organisms were motivated to maintain a physiological balance. So for example, if something in their bodies was out of whack, such as a lack of water or food, the organisms would direct their behavior toward actions that would correct the imbalance. Initially, the deficits were focused on physical needs, but eventually the scope was expanded to include psychological needs, such as needs for approval, achievement, and affiliation. There was even a theory that held that humans had a

need to keep their thinking and behavior in balance. When the two were at odds with one another, the condition was called "cognitive dissonance," and the behavior of the individual experiencing it was directed toward realigning thoughts and behaviors. Although the original theory is no longer around, the cognitive dissonance concept is a useful one and has remained in the repertoire of most psychologists and educators.

Behaviorally Based Theories

Most of us are more familiar with what passes for motivation in behavior theories. A strict behaviorist would not acknowledge the existence of motivation because the very idea implies some sort of cognitive planning or interpretation. Motivation comes before behavior. But a behaviorist would say that what influences behavior is what comes after it, not before it. A behaviorist would say that reinforcement and punishment cause behavior. We motivate an individual by reinforcing or punishing the target behaviors.

This strategy certainly is found in education at all levels. We praise students for their efforts, reward them with points and grades, scholarships and honors, and punish them with bad grades or points taken off when they don't learn fast enough or thoroughly enough. It would be foolish to think that these policies and practices would or should ever be abandoned, but things are never as simple and straightforward as these strategies would imply. What reinforces or punishes one student is not always reinforcing or punishing to another. We will continue to use these strategies because they work, but we will use them more effectively if we understand why they work or don't work and when, which brings us to cognitive theory.

Cognitive Theory

The advent of cognitive theory in the last part of the twentieth century spilled over into motivation theory. Psychologists began to shift the focus away from internal, pre-existing, semi-autonomous drives and needs, and started talking about motivation being a function of how learners interpret a situation. This was an important shift in focus because it placed motivation into the minds and hands of the learners. It was the learners' interpretation of a situation that determined whether they would be

motivated by it. As an example, think about two children who receive new computers at Christmas. One of the children is happy with the gift. The other looks glum and depressed. What happened? It's the same computer; shouldn't the effects be the same? The difference here is in the perception of the computer by the child. The first child thinks of the computer as something to be used for fun, to play games, and surf the Internet. For the other child, the computer represents another tool for doing more schoolwork, thus not nearly as exciting. The perceptions of the two children make the computer a success or a failure at motivation. Paradoxically, this cognitive interpretation of motivation may make it seem like influencing motivation is beyond the reach of the instructor; it's the learner's interpretation that affects motivation. In a way that's true, but if we have a useful model about what influences learner perception, we also may be able to see how the environment influences those perceptions. In a sense, the source of motivation resides in both the learner and the environment; each influences the other. This is the basis of social cognitive theory, the latest and probably most complete theory about the sources and effects of motivation.

An Amalgamated Theory

For our purposes as instructors, the models of motivation that focus on learner perceptions are more interesting and more likely to suggest ways for us to intervene to enhance learner motivation than the old deficit models. To make your life a little easier, I have assembled into one diagram all the motivational theories currently being researched, based loosely on the model of motivation that I think is most useful (see Figure 7.1). The various components of this amalgamated model can suggest factors for instructors to consider in designing instructional methods to motivate students. The amalgamated model is based on three of the most prominent theories about motivation in use today. The first is the expectancy value model as refined by Wigfield and Eccles (2000), the second is Bandura's (1997) social cognitive model, and the third is the goal orientation model (Dweck & Leggett, 1988). A lot of the other models of motivation can be woven into this one amalgamated model.

As shown in the figure, the best way to think about motivation is to think about it as aiming at a specific goal, because much recent work

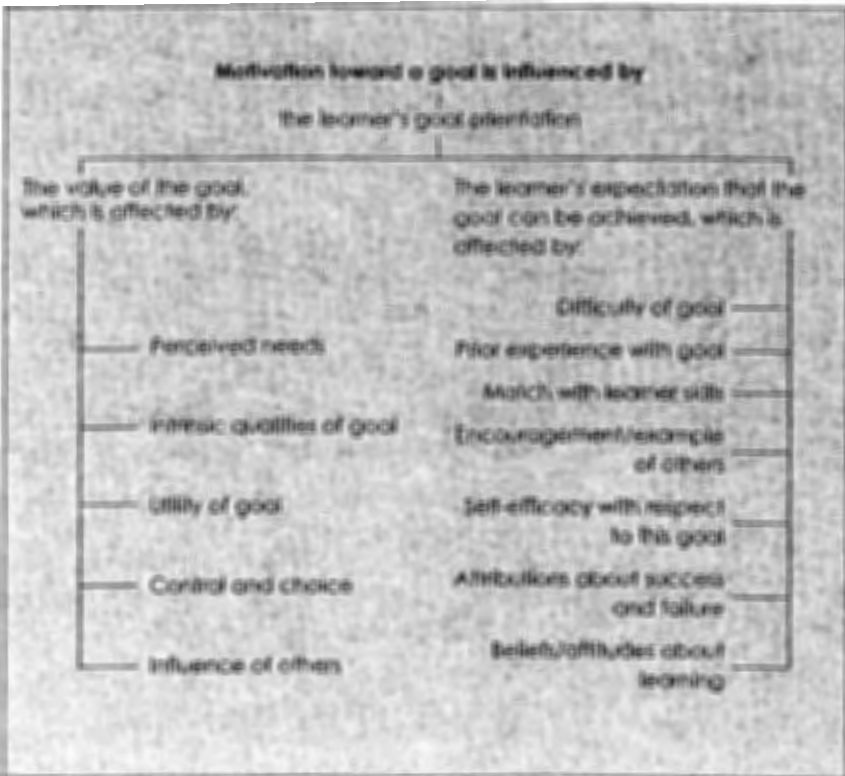
approaches motivation through this avenue (Wentzel, 2000). The strength of the motivation is then a function of the type of goal selected, the value of the goal being pursued in relationship to other goals, and the learners' beliefs in their own ability to achieve the goal. These three aspects work together in a compounding fashion to create the motivational effectiveness and direction of a given goal.

To put that in everyday language, let's say that I am being asked to chair a departmental committee on academic integrity. How motivated would I be to accept this assignment? The theory says that part of the strength of my motivation would come from my orientation toward this goal. Am I thinking that this is a good way to develop myself and to make some change in the department? Or am I concerned about how competent I will appear to my colleagues and others in influential positions? Then I will factor in my perceptions of the value of chairing this committee. Is it something that I'm interested in? Will it be sufficiently challenging to be interesting? Or will it be too challenging and frustrating? Is it something that is needed by the department? Will the people on the committee be fun to work with? Will this add to my own value in the department, thus making tenure more secure? How much control will I have over the committee and its findings? Will my colleagues thank me for doing this and breathe a sigh of relief that the assignment wasn't given to them, or will they resent not being chosen? How would this goal compare with other goals I'm currently working on, either professional, personal or social? These are the kinds of questions that would assess the value of chairing this committee. Obviously the answers will influence my motivation.

But there is another set of considerations: How likely is it that I will be able to succeed with this committee? Are the people on the committee dedicated workers who will contribute to the task? Do I have enough time in my already crowded schedule to give it the attention it needs? If the committee issues recommendations, will they be accepted by the chair or the dean? And will they have any real impact on the students? No matter how valuable the committee's work might be, if there's no chance of getting it done or of it having any effect, I am less likely to be willing to spend my time on it. If I think that it is a good area to explore and that I can do it successfully such that the college benefits, my motivation to be the chair is increased.

Motivation involves a constant balancing of these two factors of value and expectations for success. Both must be present for motivation to occur, but their relative contributions will vary from situation to situation. Students perform this same balancing act as they approach the task of studying. They weigh the value of coming to class with estimates of whether they'll learn anything once they get there. They are constantly evaluating their chances for an A and making studying choices accordingly. Is there anything we as instructors can do to influence those choices? I believe so and now turn the discussion to each of the components of the amalgamated model shown in Figure 7.1 and how we as instructors might use this model to think of interventions to keep student motivation high.

Figure 7.1
An Amalgamated Model of Motivation



The Value of the Goal

Let's begin on the side of value. We obviously think our course is the most valuable one that any student is taking, but we may have to convince the students. There are many factors that influence how valuable a course is perceived to be by the students.

Value from expected outcome. The most obvious value of a goal comes from the outcomes of achieving it. What does the learner get if he or she is successful? The outcome might be a good grade, a higher salary, tenure, the satisfaction of a job well done. Actually this is what most people think of when we talk about motivation: the reward at the end of the line. Certainly this was how behaviorists interpreted motivation; it was the manipulation of rewards and punishments. And these are the easiest things for teachers to control. We give grades, we give praise, we give privileges, or we take them away. Most of the things that we can control, however, fall under the category of extrinsic motivators, things that exist outside the learner and the task. Extrinsic motivators are pretty good at getting a behavior going and keeping it going as long as they are in effect, but over the long haul, some intrinsic motivators are needed to keep learning strong and fresh. Intrinsic motivation also frees the instructor from having to constantly supervise and reinforce the learners. Students eventually need to be on their own.

There is an argument in the literature about the detrimental effects of extrinsic motivators on intrinsically motivated behavior (Pintrich & Schunk, 1996). The argument asserts that if you provide extrinsic motivation for a behavior that was initially already intrinsically motivating, you kill the intrinsic motivation and leave the learner dependent on the extrinsic motivator. Let me give an example. Let's imagine that you have a student who loves to study and enjoys working in the lab. Since his enthusiasm is so obvious, he would make a perfect lab assistant. So you hire him to work in the lab and help everyone else with their problems. Initially, this is a good thing for him, and he enjoys coming to work and helping others. Over time, however, the lab becomes a job rather than the fun activity that it used to be. He has to be there at specific times and he has to accomplish specific tasks whether he wants to or not. His enjoyment turns to annoyance and resentment. Theory says that what is happening has to do with perceptions of control. Once an extrinsic motivator (pay for the job) is in place, control over the behavior shifts from

the learner to the person who is providing the extrinsic motivator, and that is a bad thing for motivation.

Extrinsic motivation has long been the staple of education, even though we say we want students to learn for the love of learning. Some students do love to learn; we professors were probably like that at least for courses in our majors. It's hard for us, then, when students aren't as fascinated by our subject as we are. However, reverting too strongly to a dependence on points, extra credit, or threats only compounds the problem. Those (minus the threats, please) can form a foundation of motivation to get learning started, but it is the intrinsic motivators that will keep it going over the long haul.

As instructors, we should find ways to enhance students' intrinsic motivation for the course by showing them the connection between the course and their own interests. Bringing things from their outside life into the course has many uses, only one of which is building on the intrinsic motivation of the students. Of course, we have to give grades, but the best way to lessen the influence of grades per se on student behavior is to have such clear expectations for grading that control over the grade is essentially in the hands of each individual student. They know what they have to do and if they do it, they get the grade. In the meantime, you make the rest of the course as intrinsically motivating as possible in hopes of successfully competing with their concerns about a grade.

Value from satisfying a need. Harkening back to the discussion of early models of motivation, we can glean from them some useful thoughts along these lines. Although it is unlikely that student physical needs (like food, water, and shelter) are being met by our courses, there is an association between a college degree and the eventual ability of students to purchase these necessities. Helping students understand how your course will give them an edge in the world of work increases the value of the course content in their eyes.

In terms of affiliative needs (the need to be accepted by a group), one thing that can influence motivation in a course is the degree to which the class becomes a community of learners. When students feel they are part of the social group of the class and are working with others in the class to achieve similar ends, their motivation to participate is enhanced. There is a lot of social psychological literature about the importance of others in shaping our behavior both on a daily basis and over time. Establishing

rapport with the students and using that rapport to make them feel part of a bigger community can increase their willingness to come to class and participate in learning.

A related need that we might consider is the impact of approval (or lack of it) on behavior. Early theorists asserted that people had an inborn need for approval and would work to get it. I can give you a lot of other, simpler possible explanations for this phenomenon, but it can be useful to remember that approval is a powerful incentive. Extrinsic approval, such as praise from the instructor or other students, is something we can easily interject into our teaching. There is also a sense of something like internalized approval that most adults have developed. We have internalized the values of our social group, and we can assess our behavior in light of those values, even if no one else is around. This kind of self-approval based on internalized values is a powerful tool. To an instructor, it suggests that we should be overt in modeling and communicating the values of our classroom to the students: appropriate behavior, attitudes and behaviors we value in students or in thinking adults in general. Students who then adopt those values can provide self-reinforcement beyond the classroom.

Also dominant in the literature both in early theory and more recent cognitive theory is the need for achievement. Being successful at a task or in general appears to be something that motivates us. Actually, the basic value of need for achievement has been modified to say that, for some individuals, this is manifested as the need to succeed, while for others it is the need to avoid failing (Atkinson & Raynor, 1978). These two goals result in very different behaviors. I'll discuss this very interesting area later in the chapter when we talk about learning versus performance goals. As teachers, we can influence the possibilities for success by the way we set up and respond to the assignments we give students. Students will factor in our influence with that from other sources—their peers, their parents, and society—in determining what achievement means to them.

A broader need to feel competent or to have high self-worth can also influence motivation. We need to believe that what we do is valued by others and that our success at it reflects well on all aspects of our self, not just this particular instance. In this area, we are not simply trying to maintain an image of self-worth; we are also driven to enhance that self-

image whenever possible. Instructors who help students see their strengths and how those fit into the larger picture of learning are making it easier for students to build a sense of self-worth based on important characteristics rather than shallow, immediately obvious qualities. For example, some students may be seduced by the idea that being able to do things quickly is the mark of worth in a field. While this might work for some situations (like game shows), in many cases a more valuable quality is an ability to do things accurately on the first try (like brain surgery). Instructors can help students focus on qualities that are valued in a particular setting or show how those qualities that a student already has have a place in the field. The most obvious instance of this misplaced source for self-worth in our society is appearance. Especially with girls and women, the equating of worth with standards of beauty does great harm. Turning their attention to other qualities as a source of worth is a wonderful way to counteract society's messages.

An interesting corollary to the work on students' need to protect or enhance their image of self-worth is research done on maladaptive strategies that some students use. Remember that the goal is to be considered competent. One inappropriate way that a lot of students do this is "self-handicapping" (Covington, 1992), in which learners sabotage their own chances for success by engaging in counterproductive behavior. For example, students who stay out all night before a big test can laugh off their poor showing as a result of their being such "party animals." If under these conditions they fail the test, they can protect their image by attributing that failure to their lack of preparation rather than their ability or understanding. And in the unlikely event that they do the same thing and pass the test, they can enhance their image as being so smart that they don't need to study. Either way their self-image is intact. Self-handicapping has been shown to take many forms. The one just described might be thought of as the reckless model of handicapping. Some students accomplish the same ends through procrastination. Putting things off and then rushing at the end provides an excuse for not doing your best work. Others take on too much responsibility and give themselves an excuse for failing by having too much to do. Whether this handicapping is deliberate or conscious is hard to say, but the effect is the same.

Another version of these attempts to protect self-worth is called "defensive pessimism." A defensive pessimist spends a lot of time worrying about and predicting failure, even when they have no history of failure to support their concerns. This can have two positive outcomes. For some students, the excess worry spurs them to study harder and therefore increases the probability of succeeding in the long run. For others, it protects them in case they do fail, for they have already prepared themselves for the pain of failure and can console themselves because their prediction was accurate.

A final motivational need is cognitive in nature but not in process. It is associated with some theories that have since given way to other more powerful explanations of behavior. Yet a kernel of this "need" remains in other forms in other theories and I think it has some useful implications for teaching. This is the need for cognitive balance mentioned earlier. The original notion was that individuals need their beliefs and behaviors to be consistent with one another. An imbalance leads to cognitive dissonance (in cognitive consistency theory). This is similar to the disequilibrium proposed as the mechanism for growth in Piagetian and other developmental theories. Individuals who run into situations they can't explain using their current world views or behavior systems engage in behaviors to bring perceptions and behavior back into balance. This is an important idea in explaining how students develop new world views, the conceptual change process.

The implications for instruction are obvious. When learners hold beliefs or misconceptions about a field, one of the best ways to get them to change is to confront them with the inconsistency between their views and reality. While this dissonance may not be totally capable of changing an individual's behavior or beliefs (there are some other factors operating as well), it can start the process of getting the individual to question his or her existing beliefs that the dissonance created.

As mentioned earlier, the concept of motivation as arising from the need to undo an imbalance or fill a need is a fairly old way of thinking about motivation. Yet, I believe it has some value in helping us think about ways to influence how students look at and react to the learning situation. We can make it physically pleasant and comfortable, a social group to which our students want to belong, a source of approval and achievement in a safe environment, a way to build their feelings of self-

worth. And we can disrupt those feelings of safety and balance as a way of encouraging them to develop cognitively.

Value from intrinsic qualities of the task. This may sound simplistic, but some things are just more interesting than others. For example, I used to teach introductory psychology in the days when introductory psychology texts were completely text based—no pictures, no sidebars with interesting details, no biographies of the psychologists. They were, to put it mildly, capable of making a very interesting topic very boring. Then along came the textbook put out by *Psychology Today*. It was full of interesting details, pictures, graphs, stories, and so on. Students actually enjoyed reading it. Although students had learned from the old texts, the new models were much more likely to be read. Psychology textbooks haven't been the same since, thank heaven. So the presentation of material can be manipulated to enhance its motivational value by making it more interesting.

This particular source of value is one half of what we normally think of as intrinsic versus extrinsic sources of motivation. Richard Ryan and Edward Deci (2000) provide an updated look at this type of motivation. What is interesting about their discussion is that they propose that there is almost a continuum of motivation states, from totally intrinsic based on the type of enjoyment and inherent satisfaction that we usually associate with intrinsic motivation to what they call amotivation, or no motivation. In between are degrees of internality/externality of motivation. For example, external motivation in their system is what we normally think of as external, something imposed from the outside. Next is motivation that is internal to the learner but imposed from the outside. So when we do things to obtain the approval of others or to avoid censure, we are experiencing what they call introjected motivation. At the next level, the individual still is reacting to outside norms but has accepted those as important for him or her and so to some degree the individual identifies with the principle on which the motivation is based. Students who study content that might be relevant for their future are experiencing identification motivation. And one step beyond that is what Ryan and Deci call "integrated regulation," when the individual has fully accepted the principles that originated from the outside and no longer sees them as imposed on him or her. Most of our beginning students are still responding to outside pressure and are therefore extrinsically moti-

vated to a degree. Majors and graduate students have probably integrated the motivation of learning the discipline into their value system and don't see it as imposed from the outside, so they'll work more autonomously. For a few, the activity of studying the discipline itself is motivating and we can experience that intense intrinsic motivation that comes from it.

Another source of intrinsic motivation derives from novelty and variety of the materials. Curiosity that arises from incongruity or change is an example of this type of motivational source. Posing questions and citing paradoxes are two ways for instructors to invoke the curiosity that is a natural characteristic of most learners. It is a mistake to hide the incongruities of our fields from students. The most interesting things are those that happen in the cracks between disciplines or those that turn out differently than predicted. That's where real learning occurs. Exposing students to the questions that still remain in the field is also a way to help them develop epistemologically. They move beyond what is safe and sure to what is still under development, and as a result they can vicariously participate in that development.

Another characteristic of the task that appeals to intrinsic sources of motivation is challenge. In fact, a whole area of research is devoted to the kind of motivation that arises from pitting the challenge of the task against the skill of the individual. When these two qualities are high and in balance, the individual will frequently experience "flow," the ultimate state of intrinsic motivation. This phenomenon was first studied in individuals who engaged willingly in very dangerous sports like sky diving and rock climbing. The researcher (Csikszentmihalyi, 1990) found that these individuals described their experiences in similar terms. They spoke of losing touch with their surroundings as they focused totally on their task. Time seemed to both shrink and expand because they lost track of it. They felt some danger, but a lot of control. The whole experience was a highly motivating one. Csikszentmihalyi went on to study other instances in which extremely intense focus was a characteristic of the condition and found the same sort of descriptions applied across situations and individuals. This area of intense intrinsic motivation is being studied for clues about how to produce it in more mundane circumstances. Although sometimes students almost seem to be in flow during a really stimulating class discussion, a fascinating experiment, or a difficult

but doable assignment, I don't think we can produce it regularly. I'm not sure we'd even want that kind of intense experience on a regular basis, but it would be nice to be able to induce it when we want to.

What we can do to take advantage of this branch of the motivation model is to organize activities that challenge our students within their capacity to respond. We can use interesting examples and materials that relate to the interests that the students have or are experiencing outside the classroom. We can use a range of instructional methods and materials to keep the learning fresh. And we can help our students recognize and pursue their own interests as they relate to the course content.

Value derived from utility. A lament of many students is that they don't see any reason for learning important concepts. It's hard for novices to appreciate the value of foundational concepts unless they have a way of relating to them in a more concrete way. Two of the most useful ideas about influencing motivation revolve around this idea of giving students a reason to care about the concepts. They both deal with the functionality of the material, but one is immediate and the other is long range.

The immediate functionality arises when students learn things just in time, that is, right before they need the information or skill. In Chapter 4 I noted that this disconnect between what students are learning and when they are going to use the information is a possible source of failure to transfer ideas from the classroom to the real world. Lack of motivation is another reason why we should be better at timing when students are asked to learn things. In my experience as a psychology undergraduate and graduate student, I had to take a lot of statistics courses, something that is not my forte. I studied hard and learned what I needed to pass the tests but forgot most of it until I was working on my dissertation. Then, I had a functional need for statistics. I learned more statistics in the year I was working on my dissertation than I had in all the formal courses I had taken. My motivation to learn statistics was very high; I couldn't be distracted or discouraged. I had to do it. This is a cautionary tale for all of us who teach: Students who have an immediate need for something are more likely to learn it. As you think about when and how to introduce different skills and concepts, think about the natural flow of interdependence of topics and skills and design your curriculum accordingly. If you are going to have a guest speaker from the writing center talk about the process of writing, schedule that talk when students are about to start

writing their papers. The same is true for presentations on library research or practical considerations in laboratories. There may be a similar interdependence of topics in your course. Juxtapose those that will best be learned in contrast to one another so that the immediate need to understand is underscored.

The second use issue has to do with longer range goals. It is difficult for novices in an area to understand how the minutiae of the immediate relate to their overall goals. They simply do not have the bigger picture to help them make the connections between what they are learning now and where they intend to be in five to ten years. You, on the other hand, may recognize this relationship. If so, you should make a point of drawing the connections for the students. In the undergraduate class I teach, I have education majors, nutrition majors, and speech therapist majors. Throughout the semester, whenever I get the chance I talk in terms of what they will be doing in later life and how it is supported by what we're doing in class. I try to give examples from all the fields often in class so the students can make the connection between now and the future. In fact, the final assignment is a "future uses" paper, in which students must select two or three ideas from the class and relate them to their future careers. I have had many papers begin with the statement, "when I started in this course, I didn't realize how many connections there would be for me as a . . ." Other colleagues have the students start the semester with a reflection on why they might be required to take this class. By example and content we instructors need to help students start thinking about the course content as a natural component of their future plans.

Value from choice and control. A strong source of motivation, negative or positive, comes from learner perceptions of self-determination and control (Deci & Ryan, 1987). The desire to be in control of our lives and fates is a strong source of motivation for most individuals. Students in classes in which there is little freedom of choice can easily abdicate responsibility for their own behavior; they're not in charge. When students have the opportunity to make decisions for themselves, they are most vested in the outcomes of those decisions and therefore more likely to invest the effort necessary to make the outcomes happen. Students who have made choices are also more likely to make the connection between their own behavior and the environmental consequences. This is an important developmental step toward adulthood. In fact, in some

programs that work with juvenile offenders, the most common failure of these young people is an inability (not a reluctance) to make the connection between their choices and the outcomes. Some of the most successful programs for these individuals are those that force them to see that connection.

In a different part of the population, self-determination opportunities allow learners to develop more self-confidence and feelings of competence. If they are given a chance to determine either the process or product of their efforts, they take more ownership of the outcome, and when it's a success they experience it as affirmation of their self-worth. Research has shown that self-determination results in more creativity on the part of students and a willingness to take greater risk. This makes sense in terms of feeling in control; if you feel you are in control, you will be able to decide how much risk to take and when to get out. If you have that control, you are more willing to accept a challenge.

How do instructors allow students choice and control? There are almost always alternatives from which students can choose. They might not be able to choose the type of paper they need to write, but they can choose the topic and the schedule. Or if the topic is decided for them, perhaps they could choose the medium in which to express the learning. Instructors also can avoid excessive rules that seem to regiment or supervise student behaviors too closely. It is best to keep the rules to a few really important ones. It is even better to involve the students in determining the rules, which gives them much more control over what happens to them. If you as the instructor must make rules for safety or ethical reasons, explain the reasoning to the students. They'll usually understand and feel less like they are being controlled and more like they are being respected as thinking adults. And speaking of respect, respecting student opinions and questions is another way of giving them some control over their own fate. They know they can express those feelings without fear of ridicule or censure. Obviously, students can't control all that happens in a course, but to the degree that you can share control with them, you will have a more compliant audience.

Value that derives from the influence or opinion of others. When others appear to value a goal, learners will often adopt that value as their own, even in the absence of the qualities just listed. Something that everyone wants is something that we want, too. This probably works

because of a combination of affiliation and approval, but it means simply that what society values will be valued by our students. Unfortunately, this sometimes leads to placing value on some fairly superficial things, like possessions or surface cleverness. This also can work against us as teachers when our students yield to social pressure and place value on counterproductive behaviors, such as binge drinking or slacker-type attitudes about work.

How do we overcome this? Fortunately, learners are also susceptible to influence by us as models and the things we value. When we show enthusiasm about a subject or a task, students will look at it in a different light. "If she thinks this is interesting, maybe it is," they might think to themselves. Certainly if it appears that we place no value on a particular behavior or outcome, students are likely to follow our lead. As noted in the chapter on modeling, teachers are models of much more than knowledge of the subject. Through our behavior we indicate what we value, and our students will take that into consideration as they are deciding on the value of various things we ask them to do. For example, I place a high premium on students coming to class prepared to work. That means that they will have read the assignment and thought about the questions in the textbook and possibly some of their own. I always come to class prepared to work with them, and what happens in class is always based on what they were to have read. This consistent behavior on my part speaks to them about what I value and what I think they should value. They can hardly be expected to put a premium on preparedness if I don't.

In summary on value. Helping to increase the value of a goal for students is the easier part of motivating them. As instructors we can intervene at just about every point as they decide how valuable a goal is and how much they're willing to do to obtain it. If you're having trouble with unmotivated students, trying to determine if and how they value what you're asking of them is the first step in motivating their best work.

The Expectancy That a Goal Can Be Achieved

Now that we've explored half of the motivation equation, increasing the value of the goal in the students' eyes, we can turn to the other half, increasing their belief that they will be successful at reaching the goal. This half is a little more difficult because we have less access to and ability to manipulate the bases for student expectations for success. These

are internally generated by the learners rather than responses to qualities of the goal. Nevertheless, we can know something about why and how students think about their chances for success, and possibly help them develop healthy attitudes and strategies for building their self-efficacy with respect to our content.

Expectations based on learner self-efficacy. Self-efficacy refers to learners' beliefs that they have and can engage in the skills necessary to be successful at a task (Bandura, 1997). This doesn't necessarily mean they will be successful, but rather that they believe they have the capacity to be successful. In research on student achievement, self-efficacy is one of the strongest contributors to success (Zimmerman, 2000). In addition to influencing motivation, self-efficacy is itself influenced by most of the qualities below, but it would not be appropriate to equate self-efficacy with expectations of success. Research on self-efficacy and its influence on achievement has been growing lately as social cognitive theory has become more influential in psychology (Snow, Corno, & Jackson, 1996; Zimmerman, 2000). An implication of its importance is that, as instructors, we should adopt instructional strategies that help students make accurate estimates of their potential for success. A sample teaching strategy to enhance student self-efficacy would be to provide clear prerequisite statements that students could use to assess what they know and can do with regard to the content. This paired with information on ways to remediate one's skills or knowledge would help students plan their work and make them more confident about their ability to succeed at it.

Expectations based on difficulty of the goal. I said earlier that challenging goals are more motivating than easy goals. There is a balance here that has to be considered, however. Challenge is good, but too much challenge and you bump up against the learners' expectations for success. Let me give an example. I play tennis and because I am an average player, it is very motivating for me to be scheduled to play someone who is better than I am (high task value due to challenge). In that match I will have an opportunity to test myself, to try things that I haven't done before, and to evaluate my level of play. But suppose the person I'm scheduled to play is Venus Williams. In this case, my expectancy for success in the match is less than zero. I'd be lucky to get off the court without hurting myself. So, while playing Venus would be really exciting, I have no motivation to do so because I know I'd fail miserably. I'd be far more motivated to play

someone who is slightly better than I am; that challenge would be doable. It would represent the best combination of challenge and expectations for success. (Think back to flow.) As instructors, we need to make our assignments challenging but doable if we want to motivate students to attempt them honestly.

Expectancy based on prior experience. One of the yardsticks learners use to decide on the probability of success at a task is their prior experience with it or related tasks. If students have been successful at math in the past, their estimates about success in a new math goal are likely to be high and therefore their motivation to pursue the goal is high as well.

Prior experience doesn't necessarily have to be with the exact task that is being considered at the moment. Expectations can be influenced by similar tasks. The problem is that a lot of students don't make the connection between what they have done before and their current task. It may fall to the instructor to point out those similar experiences to the students. Sometimes we even have to point out that they were successful in the past in addition to pointing out successful at what.

As instructors we can manipulate this aspect of expectancy for success by the way we structure the learning sequence. If goals early in the sequence are structured to produce student successes, later goals can be made more difficult without losing student enthusiasm. If we start the learning sequence with success, student motivation to continue will increase. Of course, it is important not to cultivate unreal expectations, so you want to quickly get the students to the right challenge level.

Expectancy based on skill matching. Sometimes the tasks we have for students are ones that they have not done before as a whole. But it is seldom that we ask our students to take on a totally new task. Most of the skills in education are built on previous skills, and there is the expectation that students will transfer what they have learned before to this new situation. Once again, however, students may not be able to recognize how a new skill derives from what they already know. It may be necessary for the instructor to help them analyze the requirements of the new task and find the component skills that they already have. Let me give an example. I frequently work with non-profit organizations in their training divisions. On one occasion I was charged with helping a group of mid-level managers develop teaching skills. The group members were very skeptical about their own abilities to take on this new set of skills, and

they were quite nervous about it. I could see the link between their managerial skills and their teaching skills, but they didn't. So I first asked them to imagine that they had just been promoted and they had to hire their replacement. They had to analyze what skills they would look for in that applicant. There was a lot of consensus about what skills would be paramount. Then I had them think about a training session that they had attended that was really successful. I asked them to think about the person who led the session and what qualities that person had. When we compared the two sets of lists, we discovered that most of the skills that they already had as successful managers were closely related to the skills of a successful trainer. It was a definite "aha" experience for them. Their concerns about their abilities to succeed as trainers lessened considerably in light of the evidence that they already had many of the key skills.

The same might be true for your students. They might be approaching every class, every content area, as a brand new situation with nothing they can transfer in. You can help them see the connection between the skills and knowledge that they have and the kinds of goals that are going to be pursued in your course. This could dramatically increase their expectancy for success and therefore their motivation.

Expectancy based on the encouragement and modeling of others. A theme running through the previous discussion is that what you say to students influences their expectations for success. There is a wonderfully telling and famous piece of research that demonstrated that teacher expectations for students were more influential in the level of achievement reached than most other factors (Rosenthal & Jacobson, 1968). In this study teachers were led to believe that students were either about to bloom or not, even though students were chosen at random to be identified as bloomers. In subsequent classes, those students who had been randomly identified as bloomers did much better than the rest of the students. The researchers attributed the difference to the expectations of the teachers and how that influenced their treatment of the students. While this is a controversial study and replicating it has been a problem, it certainly makes sense that what you believe your students can do and how you communicate those beliefs to them will influence their motivation.

Usually the influence is a positive one. If you say, "This is a good class, and I know that you have the capacity to excel on this test," the

students will respond positively. Of course, we have all heard and maybe even experienced a case where an instructor has motivated a group by telling them that there was no way they were going to succeed. The students then band together to show the instructor that he was wrong. I suppose this is the stuff of entertaining drama, but it is not the stuff of good teaching. You will get a far more motivated class when you set them a challenge and then tell them that you believe they have the ability to meet it.

There is another, less direct form of expectations based on the influence of others. It derives from the social learning theory discussed in Chapter 3 and deals with the influence of models. Learners' beliefs about success are strongly influenced when they see someone like themselves succeed. It's the case of, "if he can do it, then so can I." From an instructional perspective, this suggests that having other students demonstrate their own successes or their attempts at reaching the goal will influence all the students' beliefs about their own success probabilities. Alternatively, instructors can talk about their experiences of working toward similar goals, including the failures, false starts and attitudes they experienced. This is one strategy that may serve as a basis for the success of group learning methods. The opportunity to see other students in the group working with the same problems and succeeding serves as a source of motivation for everyone.

Expectancy as influenced by learner beliefs. One thing about expectancy beliefs is that they are strongly influenced by learners' other beliefs. This notion is less useful for teachers as designers of instruction, but more useful for teachers as interpreters of student behavior. Although there are ways to intervene with student beliefs, it's very difficult for any one instructor to have a large impact on a single student's deeply held beliefs. Nevertheless, understanding what some of them might be and how they might influence learner behavior is worthwhile.

A student's general self-confidence as a learner: Rightly or wrongly, some students are very confident about their own abilities to cope with anything we can throw at them. Students who have such high self-confidence are likely to believe that they can be successful at almost anything. Such students are also often fairly resilient and able to bounce back from failure. In the literature, a distinction is made between general self-esteem as a global trait and situation specific-confidence, which is the

self-efficacy I described earlier (Ormrod, 1999). I can think that in general I am a good student, but have doubts about my ability to do well on high stakes tests, for example. The latter would be an indication of lower self-efficacy with regard to testing.

There isn't much you can do about most students' self-esteem, but you can help them make accurate appraisals of their abilities with regard to a specific task—that is, their self-efficacy. This won't hurt or help those with high general self-confidence, but it could help localize the confidence of those who have low general self-confidence. You can help them to see that, just because they haven't been successful overall, they have the possibility of being successful in this instance.

A student's beliefs about the nature of ability: There is a very interesting area of research that studies how student beliefs about the nature of intelligence and ability can influence their reactions to learning situations (Dweck & Leggett, 1988). The essence of the research revolves around whether an individual believes that ability is fixed or malleable. Students who hold the fixed perspective believe that one is born with a certain level of ability in an area and it cannot be changed. They are likely to say things like, "I'm just not good at math and never will be." These individuals will accept their failure at a goal or even their having to expend effort on a goal as evidence of the hopelessness of their situation. Why try if you are destined to fail? The flip side are the students who think they don't have to try because they've "always been an A student."

Students who hold the malleable perspective on ability believe that you may start out with a given level of some ability, but you're not stuck with that level for the rest of your life. Through hard work and effort, you can improve. You may not ever be the best at something, but you can always be better. These students interpret failure as a local phenomenon, something that indicates where they need to focus, and not as a condemnation of them personally.

Obviously, we would like our students to adopt the malleable attitude. Can we change student beliefs about ability? Yes, through modeling and through the way that we talk about student effort. If we focus on what can be done and on effort rather than focusing on some inborn ability, we are both modeling an appropriate belief and encouraging students to reframe their thinking.

A student's beliefs about the origins of success and failure is a very rich and growing area of theory and research. The theory associated with this area is called attribution theory, and it deals with how individuals explain what happens to them. Each individual has an "explanatory style," a way of thinking about why things happen. Of the several manifestations of this style, one primary manifestation is whether individuals believe that they are responsible for what happens to them (an "internal locus of control") or that forces outside their control are responsible (an "external locus of control"). Students who have an internal locus of control believe that it is something about them that determines the outcome of their effort. So, for example, a healthy internal locus of control statement is, "I can succeed if I am willing to put in a sufficient amount of effort." Students with an external locus of control place the responsibility for outcomes outside themselves. Someone with an external locus of control might say, "I got a good grade because I was lucky" or "I got a bad grade because the test was too tricky."

In most cases, it might seem that we would want students to develop an internal locus of control, to take responsibility for their own fate. But in reality, that is not always the case. What we really want is for students to make appropriate attributions about locus of control. Sometimes the test really is too hard, and no one is able to succeed at it. If that is the case, students shouldn't be blaming themselves and lowering their self-efficacy. However, when they do something or fail to do something and it results in their failure, they should be able and willing to accept that responsibility and make a change for the next time.

Can we as instructors influence student attributions for success and failure? Yes, at least within the context of our courses. The best strategy for attribution retraining (the technical name for it) is to put the learners in a situation in which they have to make choices and experience the consequences of those choices. If the instructor or some other force outside the students is always calling the shots and telling them what to do and how to do it, when things go wrong, students are very justified in pointing the finger at the instructor. "I was only following orders." If, however, the students make some of the choices about how to accomplish a goal and then monitor their progress (as in journaling), they are more likely to be able to recognize when their action leads to a particular outcome. This might help students make appropriate attributions, at

least in that situation. For example, I have been very successful at getting students to think about the connection between their study behavior and the outcomes on their tests by having them write a learning analysis paper right after the first exam. In the paper, they describe how they studied for the exam and then analyze the exam performance itself. They look for commonly occurring errors, both in content and in the way they thought about and responded to the questions. For example, they sometimes discover on reflection that the questions they made the most mistakes on were those that called for application of concepts. Tying that back to their study strategies might show that they need to generate more of their own examples during studying. It doesn't work for everyone or for every kind of error, but for some of the students it's the first time they've ever analyzed what happened on an exam beyond just looking at the grade.

An interesting area of research related to attributions is the study of learned helplessness (Peterson, Maier, & Seligman, 1993). This phenomenon is characterized by a learner's belief that there is nothing he or she can do to affect the outcome of any situation, and as a result he or she simply stops trying. The literature in this area suggests that this is a learned response (as opposed to a personality trait) that came about by some past experiences in which the learner indeed had no control and could not predict the outcome of any behavior. They "learned" that they were helpless, and that situation then expanded to the rest of their functioning. Individuals who display learned helplessness are generally apathetic, indecisive, passive, and very susceptible to control by others. Some of these same characteristics are also common in people with depression, leading some researchers to speculate on the interrelatedness of the two phenomena. We may be seeing a learned helplessness syndrome in students who have a long history of failure in the school system. Because nothing they have done in the past has been successful, they simply stop trying and start believing that they never will be able to succeed. Working with students like this is particularly difficult, but some success can be achieved by starting with small goals that are achievable in a short span of time. If students see themselves as successful with these small goals, they might break out of the belief that they cannot do anything to help themselves. Certainly this is something we hope for any students caught in that downward spiral.

A Hybrid Source of Influence: Goal Orientation

Another interesting area of research on motivation is the idea of goal orientation (Dweck & Leggett, 1988; Pintrich, 2000). It's hard to say whether this concept is related more to value or expectancy, but it appears to be very influential in determining learner behavior, so I'm putting it here by itself to emphasize its importance and unique nature. This research says that there are different general types of goals that lead to different learner behaviors. When originally proposed, this theory divided goal orientations into two types: learning goals and performance goals. (There are actually several different manifestations of this theory using different terms, but these are my preferences.) When an individual is oriented toward learning goals, he or she wants to learn a new skill or content no matter what has to be done to reach the goal. The purpose is to master the skill eventually, even if there are wrong turns on the road. When an individual is oriented toward performance goals, he or she is interested in demonstrating competency in comparison to others. The purpose is to show how well you can perform the skill rather than how much more you can learn about it. These two orientations have been shown to lead to very different behavior patterns.

Individuals who are operating with learning goals are focused on improvement. They are willing to take risks and try new strategies if there is a chance that those changes will lead to better learning. They interpret mistakes as learning opportunities, and they are interested in getting as much feedback as possible so they can improve. On the other hand, individuals who are operating with performance goals are focused on demonstrating competence. They are not willing to take risks because risk taking could lead to failure, which they want to avoid. They will practice in private so that others don't see their mistakes and only make their performance public when they know it will be better than everyone else's. They are interested in monitoring what others are doing, but not sharing what they themselves are doing.

When this theory was initially suggested, these two types of orientations were essentially thought to be related to some personality variables and somewhat particular to the individual. That proved not to be a good representation of the data. Instead, the theory has changed to say that individuals can have both learning and performance goals even within the same task. For example, back to the tennis court. I can have two

goals when I step on to the court. I can want to get better (a learning goal), and I can want to avoid looking foolish (a performance goal). The former would encourage me to try new shots and to be adventurous. The latter would encourage me to stick to what I know best. These warring tendencies will be balanced against one another and go more to one side or the other probably depending on how the match is going. If I'm winning or doing well, I might be encouraged to try new things. If I'm struggling, it's back to basics—just get the ball over the net and into the court. This is probably a realistic description of what learners do all the time. But in classes, where learning is supposed to be key, we should be encouraging students to adopt learning goals because that's what they need to do in order to learn.

How do we as instructors encourage students to adopt learning goals? Carol and Richard Ames (1991), two prominent researchers, have studied this question with younger students, but I think their ideas hold for college-level students as well. The first admonition is to make the classroom a safe place to take risks. If students know that they will be supported if they try new things, they are more likely to do so. Instructors who berate students for making mistakes are pushing them toward performance goals; instructors who accept mistakes as a part of learning are making it possible for students to adopt learning goals. One way to decrease risk is to provide alternative ways of achieving the same goal and allowing or even assisting students to choose the alternative that best fits their strengths.

Instructors also can make a class less risky by not pitting students against one another in terms of performance. Rather than competing with the other students in the class for the highest grade, students should be competing with themselves, with their previous performance, or with an absolute standard that is achievable. Researchers recommend downplaying public comparisons and emphasizing self-reflection as ways of encouraging learning goal orientation.

The instructor can model the kinds of behaviors that are associated with learning goals. For example, if instructors welcome new ideas and are open to working problems out in front of the class, mistakes and all, they show the students the kind of attitude that supports a learning orientation.

SYNTHESIS

To guide your thinking, I've summarized below the ideas about motivation presented in this chapter. I'm not guaranteeing that if you follow them all your students will never experience a lagging motivation again, but I think these suggestions have a sound basis in the literature and are not difficult to implement.

Svinicki's Seven Strategies for Enhancing Student Motivation

- 1) Be a good role model of appropriate motivation.
- 2) Choose learning tasks with utility, challenge, and interest value.
- 3) Encourage accurate student self-efficacy about the course.
- 4) Base evaluation on progress or absolute level achieved to produce a mastery goal orientation.
- 5) Encourage attributing success to effort and interpreting mistakes as learning opportunities.
- 6) Provide choice and/or control over goals or strategies to the learner.
- 7) Communicate high expectations that are in line with student capabilities.

OTHER ATTEMPTS AT THEORY SYNTHESIS

The above discussion has been focused very tightly on cognitive models of motivation, which I think are most useful for faculty in higher education. They offer fairly straightforward ways for instructors to look at their students' motivation and do something about it. There are, however, other really excellent syntheses of the literature that are aimed at higher education environments. I mention them here to point you toward further reading on this very complex topic.

One motivational model that has found much of support in the realm of technology-enhanced learning is the ARCS model proposed by John Keller (1999). In this model, instructors are encouraged to consider four aspects of learning represented by the four letters in ARCS: 1)

attention, 2) relevance, 3) confidence, and 4) satisfaction. Note the relationship between this model and the amalgamated model described in this chapter. Both deal with value (attention, relevance, and satisfaction) and expectancy (confidence). Keller has primarily worked in distance learning and other technology areas, but the principles are very much the same across the board. An interesting tangent in the research using this model was the development of a motivationally adaptive approach to instruction (Song as reported in Keller, 1999), in which learners' motivation levels were sampled periodically during learning, and the amount of motivational intervention by the instructor varied according to their current levels. The theory was that if you already had a motivated learner, it would be either unnecessary or even counterproductive to interrupt learning to motivate them further. Instead, learners received motivational intervention during learning only when their intrinsic motivation appeared to be diminishing. Keller reported that, under these adaptive conditions, learners' levels of motivation and performance were much higher than those who received continuous motivational support and those who received none. This one study fits with the notions of self-determination and the negative influence of outside interference.

Wlodkowski and Ginsberg (1995) have proposed the Motivational Framework for Culturally Responsive Teaching as a synthesis of theory and research on motivation across cultures. Their model lists four motivation-enhancing conditions that need to be present to enable students to do their best work:

- 1) Inclusion—students and teachers must feel respected and connected.
- 2) Favorable attitude toward learning—students experience personal relevance and choice.
- 3) Meaningfulness—learning experiences are challenging and thought provoking and are based on learners' perspectives and values.
- 4) Competence—students feel they can succeed.

As you can see, these elements are very consistent with the model proposed in this chapter.

A synthesis of motivational models was presented by Michael Theall and Jennifer Franklin (1999). This contribution summarizes the ideas of 13 authors writing about motivation in higher education. When all the terms, constructs, and research results were compared, Theall and Franklin settled on six key motivation terms that all the theories had in common:

- 1) Inclusion
- 2) Attitude
- 3) Meaning
- 4) Competence
- 5) Leadership
- 6) Satisfaction

The first four terms came primarily from an initial model of motivated learning proposed by Wlodkowski and Ginsberg, and the meanings attributed to them were similar to those proposed by Wlodkowski and Ginsberg. The other two terms were drawn from the remaining theorists represented in the book and are described as follows:

- 1) Leadership—high expectations (from the authority), structure, feedback, and support
- 2) Satisfaction—rewards

These terms also seem to be in tune with the amalgamated model proposed in this chapter, although the additional aspect of inclusion goes somewhat beyond self-determination to include others, and leadership speaks to the role of the instructor more than the learner. Nevertheless, the synthesis presented by Theall and Franklin affirms the importance of value and efficacy in motivating learners.

The theory you choose to make motivational decisions is a matter of personal conviction, because so many of the same constructs occur in each version. The important point of this chapter is to recognize that, in cooperation with your learners, you can create an environment in which students will value what they are learning and believe that they can be successful at it, which will be the cornerstones of their motivation.

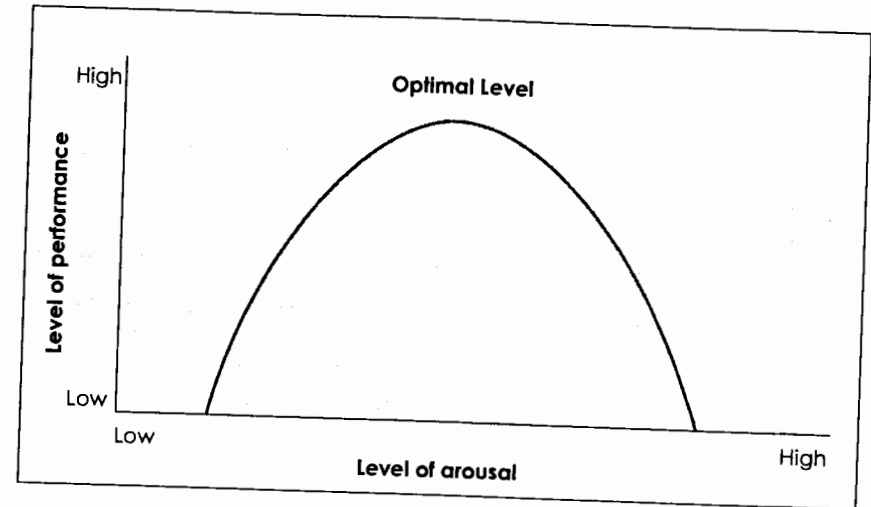
FOR THOSE WHO WANT TO GO BEYOND THE BASICS

As I have in other chapters, I'll devote the last part of the chapter to some of the more speculative or less well documented ideas that may play an interesting role in instructional concerns in the future.

The first of these is emotion or affect and its relationship to learning. This is not a new area, but it has revived recently as new findings from physiology are raising interesting possibilities in explaining some previous findings. First, however, I should say that the more standard discussions of the role of emotions in learning center around anxiety. This is a fairly well-researched area (Ormrod, 1999), and so some pretty safe statements can be made about how anxiety and performance are related. Although there's some question about the way a particularly prominent description of this phenomenon, called the Yerkes-Dodson curve, has been expanded beyond its origins, it does have a lot of face validity for anyone in education. The Yerkes-Dodson curve (Figure 7.2) relates an individual's level of arousal by a situation to his or her measured level of performance. In general, at low levels of stimulation or arousal, an individual will not perform well in terms of quantity or quality. As the level of arousal increases, the quality and quantity of the performance increases until it hits an optimum. From then on, increases in arousal or stimulation are accompanied by a decrease in performance. The hypothesized cause for this bell curve is interference with performance at high levels of arousal. This essentially means that some tension or arousal is good, but too much is bad. For example, this is frequently seen in students in the form of test anxiety. Students who under practice conditions (which are not especially anxiety arousing) perform quite well will fall apart when the actual test is given. Their minds go blank and they have trouble concentrating. One proposed explanation is that they use up working memory and attention capacity by dwelling more on what is going wrong than on actually addressing the task at hand. Eventually, their capacity is exceeded and they shut down. Allegedly, this relationship would hold with positive arousal as well, but I expect that we will seldom see that level of arousal in the classroom.

Can we as instructors do anything about this problem? Most institutions that have student study help centers have programs to teach students how to cope with test anxiety. Although we're often not capable of intervening with an individual student, there are things we can do for a

Figure 7.2
The Yerkes-Dodson Curve Relating Arousal to Performance



class in general. For example, providing a lot of information about the test situation, its format, the type of questions, the time limits, acceptable behavior, and so on well before the test can alleviate some of the unknowns that are often sources of the anxiety. Practice tests which make the question formats familiar are really appreciated by students. Try to avoid high stakes testing in which the students' grades depend on only one or two test scores. More measures of student learning are not only better for their test anxiety, but also make for more accurate measurement. Students especially appreciate the opportunity to drop a low test score, and I appreciate it because I don't have to allow and arrange make-up tests or listen to all the reasons why a student couldn't take the test.

During the test itself, keeping interruptions or disruptions to a minimum is important so as not to damage student concentration. Be sure that you've proofread the test and had someone else do it as well, so you don't have to make corrections during the exam. If you can, give students a lifeline in case they get confused. For example, with my multiple choice tests, students are allowed to write an explanation of their answer on a special page if they are struggling over a particular question. Not all students take advantage of this, but it does make them feel less anxious. Another similar anxiety reducing strategy that also influences learning is

to allow students to earn back a portion of the points they have missed on a test by redoing or reflecting on those items. The first time I instituted this practice, a student said to me afterward, "Gosh, I guess you really do care whether we learn this or not." I was pleased to be able to tell her that I did and to have my policies and procedures back it up.

There are other aspects of emotion and learning that are a little bit farther out on the cutting edge. There is a lot of speculation and some research being conducted around the impact on memory of emotion at the time of learning (Haskell, 2001). One proposal is that memories have an emotional tag attached to them reflecting their importance at the time of learning (LeDoux, 2002). During recall, that emotional tag serves as part of the retrieval process along with the memories. This had been suggested earlier in the form of state-dependent learning. The research at the time indicated that returning to the state you were in when first experiencing some event will increase your chances of remembering its details. I like to think of an example of this in the context of having a fight with your significant other. As tempers flair, all the things that that person has ever done to irritate you come flooding back and are interjected into the argument, thereby escalating it further. What does this say to us as instructors? It might be telling us that emotion in the classroom has a positive function and can support learning and memory. For example, humor evokes emotion, thereby possibly tagging the content of the joke as something worth remembering. Conversely, negative emotions could be tagged to particularly painful learning episodes, causing them to be avoided and repressed. There is some indication in the literature that "happy" or positive emotions facilitate interconnections and integration of material, a strong component of learning (Isen & Daubman, 1984).

Recent advances in our ability to understand brain structure and function have given a tantalizing hint about a physical reason for the close tie between emotion and memory. The structures in the brain associated with emotion lie very close to those associated with the formation of memories (LeDoux, 2002). And the neural processes connecting these two areas suggest that information passes through the emotion center before going on to the site of long-term memory, the neocortex. It is safe to say that the emotional tone present during learning and performance have a definite impact on the learning that takes place.

A related area has been explored by Antonio Damasio (1994) in *Descartes' Error: Emotion, Reason, and the Human Brain*. This time emotion is related to decision-making. Damasio gives some very convincing evidence about the importance of emotion in the rational decision-making process by showing how individuals with damage to emotional centers of the brain frequently have difficulty making decisions.

This is also related to the area of conceptual change and hot cognition. A lot of original theories about concept formation and change portrayed the learner as a cool and rational evaluator of the evidence—like a scientist who takes in new information, evaluates it carefully, and makes changes based on the evidence. This implies that when we are trying to change a student's mind about some misconception he or she has, all we need do is produce the facts, and the student will adopt the new ideas. However, plenty of research evidence and personal anecdotes say that people frequently hold on to misconceptions in the face of data. I recommend *How We Know What Isn't So* by Thomas Gilovich (1991) or Carl Sagan's *The Demon-Haunted World* (1995) for wonderful discussions of why even intelligent people persist in their beliefs.

This impact of motivation on cognition and conceptual change suggests to instructors that we need to be aware of how different aspects of motivation might assist or inhibit learning. A comprehensive article by Pintrich, Marx, and Boyle (1993) lists seven areas of motivation that have been shown to impact conceptual change. We've discussed many of them already, but they include such things as whether a learner has mastery goals versus performance goals. Obviously, mastery goals make a learner more open to conceptual change. The sources of task value such as personal interest and utility influence the degree to which a learner will expose himself or herself to data that might cause conceptual change. Self-efficacy beliefs and epistemic beliefs about the nature of knowing influence a learner's assessment of the difficulty of changing. And from the conceptual change literature, Pintrich et al. point to the need for a learner to experience disaffection with his or her current beliefs before change is considered.

Another area of advanced interest is the differentiation between motivational behaviors, like goal setting, and volitional behaviors, like persisting in the face of difficulty. One of the first to suggest the multiple nature of motivation was Kuhl (1985), who proposed two distinct stages of motivation. The first was predecisional and was involved in makin

the decision to engage in some action. This is what we generally think of as motivation, the force that impels us forward toward a goal. The second was post-decisional and was focused on keeping the momentum in the face of obstacles. This is now what we generally think of as volition. Once the learner has crossed the Rubicon between decision and action, the behaviors required are different; this is now thought of as the Rubicon model of motivation/volition (Heckhausen & Kuhl, 1985). On the decision side are such things as the intrinsic motivation or extrinsic motivation associated with the goal plus the tendencies for action. These are the kinds of things that I've been discussing in this chapter. On the implementation side are things like those discussed in the chapter on self-regulation. They have more to do with actions that allocate resources, adaptive strategy use, and emotional control. There is some evidence that learners are susceptible to different influences depending on which side of the decision they're currently on (Corno, 1993). For example, prior to making the decision to engage in a task, learners can be easily influenced by arguments about its usefulness. Once they cross over to implementation, they become much more focused and less susceptible to arguments from others. However, they are susceptible to the conditions they find on the other side, like unanticipated difficulties.

Corno (1993) provides interesting examples of the kinds of volitional control strategies that students use. For example, under motivational control she lists things like setting contingencies for performance, meaning establishing rewards and punishments to implement depending on how the learning goes. She also lists "visualize doing the work successfully," a sort of mental cheerleading for yourself. Under emotional control, she lists "count to ten in your head," a common technique to avoid reacting too quickly in an emotional situation. She also lists "visualize doing the work successfully and feeling good about that." Notice how this differs from the motivational version; here the point is the feeling/emotion associated with success.

Why is volition important? For one thing, procrastination is a major problem in academic life, and the desire to find a solution for it impels a lot of research. Some researchers have pointed to volition as the source of procrastination for a lot of students (DeWitte & Lens, 2000). In studying procrastinators and non-procrastinators, these researchers have found no differences in intentions or abilities, but they do show a difference in the strategies associated with volition. For example, procrastina-

tors have difficulties remembering their initial intentions to achieve a certain goal (Oettingen, Honig, & Gollwitzer, 2000). If the learner formulated a plan for a goal, fantasized himself or herself following that plan and achieving that goal, and, perhaps most important, having contingency plans in case something went wrong, the learner was more likely to follow through on the plan later. Oettingen and her colleagues said this was particularly true for naïve students, although more advanced students also benefited from imagining future successes. The skill here seems to be the ability to mentally contrast the current situation with future possibilities. This ability to imagine a possible future self may be one of the important developmental steps in moving toward better volitional strategies.

This issue of volitional strategy use is an important step forward in helping students progress. I've made quite a point of saying that we have to help students over the initial hump of making the decision to learn our content, and I still think that's crucial. If they never make that step (over the Rubicon), they won't need anything else. But once we do convince them to tackle the learning involved in our course, we should perhaps help them develop some strategies for coping with the obstacles they might face.

I said earlier that one possible strategy for helping students learn is to provide a coping model, an example of someone who runs into difficulty and overcomes it. This is one of the ways we can teach volitional strategies to our students. When they see how we cope with uncertainty or how other students react to failure, they are being exposed to volitional control ideas. However, just seeing the model may not be enough. Just as I suggested in Chapter 4 that learning a skill by watching a master needs to be accompanied by an articulation of the thought processes behind the skill, I believe the same applies here. When modeling coping or volitional strategies, an instructor should be very explicit about what he or she is doing. Including comments about affective states in the midst of a cognitive demonstration might help students see that it is normal to feel frustrated or irritated when things go wrong. It doesn't mean that they are inadequate to the task; everyone feels that way now and again. It's what they do in the face of those feelings that counts. The combination of being told that it's normal to feel frustrated (or excited or angry or whatever) and suggestions about how to deal with those feelings (take a dee-

breath, count to ten) and obstacles (take a break, take a different perspective, brainstorm without editing) could be just as valuable to the learners as specific suggestions about learning the content itself.

This area of volition is very close in feeling to the self-regulation strategies that I discussed in Chapter 6. The research and theories in these two areas overlap, as you might have noticed. In general we might think about these two areas as metacognition dealing with content learning and metaconation (conation is the technical term for the affective aspects of learning) as dealing with motivation/emotion. They are almost inseparable in terms of producing success in learning. But as instructors we tend to favor working only with the cognitive issues and leaving the conative issues to the touchy-feely disciplines. That would be a very short sighted and unproductive stance to take. Perhaps this discussion about helping students take strategic control of the conative side of their learning will inspire you to move from the decision/planning side of the Rubicon of motivational teaching to the implementation side.

8

WHAT TO DO ABOUT INDIVIDUAL DIFFERENCES IN LEARNING

Sometimes I wonder if the students in my class all come from different planets. I can conduct the same class for the entire group and get a doze different reactions, different interpretations, and different levels of understanding from different students. Of course, psychology has known that for a long time. In fact, it's one of the biggest impediments to progress that research in the area faces: Humans are very complex organisms with lots of variables impacting their behavior, which makes it very difficult to get any semblance of order out of the data.

Obstinately, we try our best to create some order out of this chaos, to identify patterns of responding and types of students so we can tailor our teaching to their needs. It's only logical, right? Yes, it's logical, it's appealing, and it's impossible. To try to reduce the complexity of human responding into two, three, or even 16 neat categories can't be done. Psychologists have tried and failed (if you read the research critically). But I can testify as an experienced faculty developer that whenever we talk with faculty about students, the desire to type students comes up. If you could just understand what type of students we're dealing with, maybe you could figure out why they are or are not learning and do something about it. But it is just not that simple. We can't identify X types of students and if even if we could, what would that really tell us? What could we do with the information?

The purpose of this chapter is to discuss this concept of individual differences among students. I want to dispel some of the misconceptions