CHAPTER 1

Understanding Your Students and How They Learn

Whenever we prepare an oral presentation, a publication, or even a letter, the first issue we consider is our audience. The person or people for whom we intend our message influence our content, format, organization, sentence structure, and word choice. The same holds true in teaching. The nature of our students—their academic preparation, aspirations, and cognitive development—affects our choices of what and how to teach. We need to think of our job not as teaching art, biology, English, history, math, psychology, and so on but as teaching *students*.

Yet another consideration, this one unique to teaching, is how the human mind learns. For any given subset of knowledge, some types and styles of delivery are simply more effective means of communication than others—that is, they make it easier for people to attend to, grasp, and remember. Yet in spite of the fact that we are all responsible for encouraging human minds to learn, it seems that only cognitive or educational psychologists know how the human mind works.

Knowing both who your students are and how their minds learn is the starting point for teaching at its best.

YOUR UNDERGRADUATE STUDENT BODY PROFILE

If you're not already familiar with your student audience, or your experience tells you that its composition has changed, your institution's admissions or student affairs office can provide the type of student data you need. At a minimum, you should find out the distributions and percentages on these variables: age; marital and family status; socioeconomic background; race and ethnicity; full-time and part-time employed; campus residents versus commuters; native versus international; geographical mix; and special admissions. If your students are primarily young, on-campus residents, for instance, you can afford to make more collaborative out-of-class assignments. You might also benefit from finding out about the

leadership positions and activities that individuals in a given class engaged in when they were in high school.

You also need to know your students' level of academic preparation and achievement. You can assess your institution's selectivity by comparing the number of applicants each year with the number of those accepted (a two-to-one ratio or above is highly selective). For each entering class, you can find out about its average scholastic test scores (SATs, ACTs), the percentage ranked at varying percentiles of their high school graduating classes, the percentage of National Merit and National Achievement Finalists (over 5 percent is high), and the percentage that qualified for Advanced Placement credit (over a third is high). For several hundred American colleges and universities, almost all of this information is published every summer in the "America's Best Colleges" issue of *U.S. News & World Report*.

Another question you might want to answer is where your students are headed in life. Your institution's career center should have on file the percentage of students planning on different types of graduate and professional educations, as well as the immediate employment plans of the next graduating class. Often departments and colleges collect follow-up data on what their students are doing a few years after graduation.

HOW PEOPLE LEARN

Whatever your student body profile, certain well-researched principles about how people learn will apply:

- People are born learners, beginning from infancy with an insatiable curiosity and an increasing awareness of their learning. They absorb and remember untold billions of details about objects, other people, their language, and things they know how to do (Bransford, Brown, & Cocking, 1999; Spence, 2001).
- People learn through elaborative rehearsal, which means connecting new knowledge to what they already know and believe (Bransford et al., 1999; Tigner, 1999).
- People learn what they regard as relevant to their lives (Svinicki, 2004).
- People learn socially by constructing knowledge in a group (Stage, Kinzie, Muller, & Simmons, 1999), but they otherwise learn one-on-one and on their own (Spence, 2001).
- People learn when they are motivated to do so by the inspiration and enthusiasm of other people in their lives (Feldman, 1998b).
- People don't learn well when their major learning context is teacher centered—that is, when they passively listen to a teacher talk. Rather, they learn when they are actively engaged in an activity, a life experience. The human brain can't focus for long when it is in a passive state (Bligh, 2000; Bonwell & Eison, 1991; Hake, 1998; Jones-Wilson, 2005; McKeachie, 2002; Spence, 2001; Svinicki, 2004).
- People learn best when they receive the new material multiple times but in different ways—that is, through multiple senses and modes that use different parts of their brain (Kress, Jewitt, Ogborn, & Charalampos, 2006; Tulving, 1985; Vekiri, 2002).
- People learn when they actively monitor their learning and reflect on their performance—a mental operation called *metacognition* or *self-regulated learning* (Bransford et al., 1999).
- Relatedly, people learn less by reviewing material and more from being tested or testing themselves on it, as the latter involves greater cognitive processing and practice retrieving (Dempster, 1996, 1997; Roediger & Karpicke, 2006).
- People learn better when the material evokes emotional and not just intellectual or physical involvement. In other words, a lasting learning experience must be moving enough to make the material memorable or to motivate people to want to learn it. This learning pattern mirrors the biological basis of learning, which is the close communication between the frontal lobes of the brain and the limbic system. From a biological point of view, learning entails a change in the

brain: the establishment of desirable new synapses (Leamnson, 1999, 2000; Mangurian, 2005).

These key learning principles have some complementary teaching principles, and they echo through the rest of this book:

- Hold your students to high expectations. But be reasonable, and don't use yourself as the standard. Very few students will learn your field as quickly as you did or choose the life of the mind as you have.
- Start where your students are. Find out what they already know and don't know and what they believe to be true, and become familiar with their lifestyles. Then relate the new content, skills, and abilities you are helping them learn to what is familiar to them, both cognitively and experientially. Use examples and analogies out of their lives and their generational experience.
- Make the material relevant to the students' lives, which for today's concrete learners means connecting your material to their day-to-day experience, future careers, or real-world problems.
- Demonstrate enthusiasm and passion for your subject and for teaching it, as these are contagious emotions. If these don't come naturally to you, learn how to use your voice and body to convey them.
- Assign creative, inventive, and challenging tasks to small groups and more routine learning tasks, such as first-exposure reading and standard problem sets, as individual homework. Some students will need tutoring after their individual attempts at learning, which you, a teaching assistant (TA), or group members can provide. Reflection and writing are also individual learning activities, even though they can be very challenging and creative.
- Use active learning techniques, and when you do lecture, do so interactively—that is, with frequent breaks for student activities.
- When possible, use experiential methods: those that place students in real-life problem-solving situations, simulated or genuine.
- Teach in multiple modalities. Give students the opportunities to read, hear, talk, write, see, draw, think, act, and feel new material into their system. In other words, involve as many senses and parts of the brain as possible in your teaching and their learning. If, as is commonplace, the students are reading or listening to the material, have them take notes on it, discuss it in pairs or groups, concept- or mind-map it, freewrite about it, solve problems with it, complete a classroom assessment exercise on it, or take a quiz on it.
- Teach your students how to learn your material, and build in assignments that make them observe, analyze, and assess how well they are learning.
- Build into your course plenty of assessment opportunities, including low-stakes quizzes, practice tests, in-class exercises, and homework assignments that can tell students how much they are really learning, as well as provide them with retrieval practice.
- Motivate and reinforce learning with emotions. Make a learning experience dramatic, humorous, surprising, joyous, maddening, exciting, or heart-wrenching. Integrate engaging cases and problems to solve, simulations and games, role plays, service-learning, and other experiential learning opportunities into your courses. Let students reflect, debate, consider multiple points of view, write down their reactions to the material, and work cooperatively in groups. Any emotion will aid learning by inducing more enduring changes—that is, the generation of new, lasting synapses—in the brain.

HOW STRUCTURE INCREASES LEARNING

Structure is so key to how people learn and has such far-reaching implications for teaching that it deserves an entire section of its own. In fact, without it, there is no knowledge.

Students are always talking about "information" when they refer to what they are learning. After

all, this is the "information age," and abundant information is constantly available. It's a snap to find people's phone numbers, the capitals of countries, the years of events, directions from one place to another, an area's major industries, economic figures, political leaders, and election results, to name just a few common pieces of information. But all of these are only facts: isolated bits of information that do not add up to any generalizations or conclusions about the way the world works.

What isn't so available is knowledge, that is, organized bodies of knowledge, which is what we academics have to offer that information-packed websites do not. Knowledge is a structured set of patterns that we have identified through observation, followed by reflection and abstraction—a grid that we have carefully superimposed on a messy world so we can make predictions and applications (Kuhn, 1970). Knowledge comprises useful concepts, agreed-on generalizations, well-grounded inferences, strongly backed theories, reasonable hypotheses, and well-tested principles and probabilties. Without knowledge, science and advanced technology wouldn't exist.

Unfortunately, our students come to our courses, and usually leave them, viewing our material as a bunch of absolute, disconnected facts, supplemented by technical terms—about as well organized, meaningful, and memorable as a phone book. These facts and "things" were out there. Human beings "discovered" them; we didn't construct them. From this perspective, memorization is the only learning strategy that makes sense.

Students are not stupid; they are simply novices in our discipline. They lack a solid base of prior knowledge and may harbor misconceptions and faulty models about the subject matter (Svinicki, 2004). Being unable to identify the central, core concepts and principles (Kozma, Russell, Jones, Marx, & Davis, 1996), they wander somewhat aimlessly through a body of knowledge, picking up and memorizing what may or may not be important facts and terms and using trial-and-error to solve problems and answer questions (Glaser, 1991). They do not see the big picture of the patterns, generalizations, and abstractions that experts recognize so clearly. As a result, they have trouble figuring out how to classify and approach problems at the conceptual level (Arocha & Patel, 1995; DeJong & Ferguson-Hessler, 1996).

Without that big picture, students face another learning hurdle as well. The mind processes, stores, and retrieves knowledge not as a collection of facts but as a logically organized whole, a coherent conceptual framework, with interconnected parts. In fact, it requires a big picture. That framework is what prior knowledge is all about. New material is integrated not into an aggregate of facts and terms but into a preexisting structure of learned knowledge. Without having a structure of the material in their heads, students fail to comprehend and retain new material (Anderson, 1984; Bransford et al., 1999; Rhem, 1995; Svinicki, 2004).

The mind structures knowledge based on patterns and relationships it recognizes across observations. In fact, it is driven to generalize about and simplify reality. If it did not, we would experience repetitive events as novel every time they occurred and would learn and remember nothing from them. No doubt, we would find reality too complex to operate within and would perish. Animals too have the need and capacity to recognize patterns. They learn to obtain what they need and survive not just by instinct but by learning—for instance, learning to hide, judge distances, time their strikes, and fool their prey—and they get better with practice. The behaviorists call learning by pattern recognition *operant conditioning,* and they have demonstrated that mammals, birds, reptiles, and probably fish learn this way.

Human thinking is so wired to seek and build structure that we make up connections to fill in the blanks in our understanding of phenomena if we don't already have a complete explanatory "theory" handy. Some of these made-up connections that pan out under scrutiny are elevated to science. Charles Darwin, for example, did not observe mutations happening in nature; rather, he hypothesized their occurrence to fill in the explanatory blanks for species diversity. No one was around to watch the big bang,

but the theory fills in quite a few missing links in cosmology. Astronomers have never observed what they believe to make up 30 percent of the universe: dark matter. This term refers to undetectable matter or particles that are hypothesized to account for unexpected gravitational effects on galaxies and stars. Scientists have inferred its existence to explain anomalies in calculations of the total mass of a galaxy cluster. In these calculations, the total mass of the composite galaxies can be determined by comparing their dynamic mass (dispersion speeds) with their luminous mass, which is calculated from the amount of light the cluster emits. These two measurements of total mass should be similar, but the dynamic mass, which is affected by gravity, is often hundreds of times larger than the luminous mass. Dark matter "explains" this otherwise inexplicable finding.

Not all imagined connections, however, stand the test of time or science. Superstitions and prejudice exemplify false patterns. The belief of many people, including many of our students, that one's intelligence is fixed and immutable also fails under careful study.

Faculty are now recognizing and beginning to address the misconceptions about natural and social phenomena that students bring into their science and social science courses. Consider the now-classic videotape, *A Private Universe* (Schneps & Sadler, 1988). It dramatically shows that Harvard graduates and even professors carry around incorrect theories about the causes of the seasons and the phases of the moon if they have not deep-processed the scientific explanation. It also shows that a sharp, young, presumably open mind has a hard time abandoning and replacing a flawed but familiar explanatory structure with a new and better one. The new one has to be easy to grasp, plausible, more useful, and convincing enough to make the learner see the failures of the old one (Baume & Baume, 2008; Posner, Strike, Hewson, & Gertzog, 1982).

The kind of deep, meaningful learning that moves a student from novice toward expert is all about acquiring the discipline's hierarchical organization of patterns, its mental structure of knowledge (Alexander, 1996; Anderson, 1993; Carey, 1985; Chi, Glaser, & Rees, 1982; Reif & Heller, 1982; Royer, Cisero & Carlo, 1993). Only then will the student have the structure on which to accumulate additional knowledge. By their very nature, knowledge structures must be hierarchical to distinguish the more general and core concepts and propositions from the condition specific and derivative. Experts move up and down this hierarchy with ease.

What are the odds that a learner will develop such a structure of knowledge on his or her own in a few weeks, months, or even years? How long did it take us? Most, if not all, of our time in graduate school—or longer? People require years of specialized study and apprenticeship to internalize the structure of the discipline and become expert. Unfortunately, many, if not most, of our students pass through our discipline for only a term or two—not nearly enough time to notice its patterns and hierarchical structure. Yet without having a mental structure for organizing what they learn, they process our course content superficially and quickly forget it. Is it not our responsibility as teaching experts to help our students acquire a structure quickly, so our short time with them is not wasted? Should we not make the organization of our knowledge explicit by providing them an accurate, ready-made structure for making sense of our content and storing it?

What then are the complementary teaching principles to the central role that structure plays in learning?

- Very early in the term, give students activities and assignments that make them retrieve, articulate, and organize what they already know (or think they know) about your course material. Then identify any evident misconceptions and address in class how and why they are wrong.
- Again, very early, give students the big picture—the overall organization of your course content. The clearest way to show this is in a graphic syllabus (see Chapter Three). Carry through by presenting your content as an integrated whole, that is, as a cohesive system of interpreting phenomena—not as an aggregate of

small, discrete facts and terms. Keep referring back to how and where specific topics fit into that big picture.

- Give students the big picture of their learning process for the term—that is, the logical sequencing of your learning outcomes for them. A flowchart of the student learning process for a course is called an *outcomes map* (see Chapter Two).
- Help students see the difference between information and knowledge. The previous discussion of the topic, as well as the next section of this chapter, supplies some useful concepts and vocabulary for explaining the difference.
- Teach students the critical thinking structures that your discipline uses—for example, the scientific method, the diagnostic process, the rules of rhetoric, basic logic (the nature of fact, opinion, interpretation, and theory), and logical fallacies. Where applicable, acquaint them with the competing paradigms (metatheories) in your field, such as the rational versus the symbolic interpretive versus the postmodern perspectives in English literature, pluralism versus elitism in political science, functionalism versus conflict theory in sociology, and positivism (or empiricism) versus phenomenology in social science epistemology.
- Design exercises for your students in pattern recognition and categorical chunking to help them process and manage the landslide of new material. These thinking processes will help them identify conceptual similarities, differences, and interrelationships while reducing the material to fewer, more manageable pieces. The fewer independent pieces of knowledge the mind has to learn, the more knowledge it can process and retain. Cognitively speaking, less is more.
- In addition to showing your students a graphic syllabus and outcome map of your course, furnish them with graphic representations of theories, conceptual interrelationships, and knowledge schemata—such as concept maps, mind maps, diagrams, flowcharts, comparison-and-contrast matrices, and the like—and then have them develop their own to clarify their understanding of the material. Such visuals are powerful learning aids because they provide a ready-made, easy-to-process structure for knowledge. In addition, the very structures of graphics themselves supply retrieval cues (Svinicki, 2004; Vekiri, 2002). Chapter Twenty-Six deals with this topic in more detail.

THE COGNITIVE DEVELOPMENT OF UNDERGRADUATES

No matter how bright or mature your students may be, do not expect them to have reached a high level of cognitive maturity in your discipline. Almost all students, especially freshmen and sophomores, begin a course of study with serious misconceptions about knowledge in general and the discipline specifically. Adult learners are no exception. Only as these misconceptions are dispelled do students mature intellectually through distinct stages. As an instructor, you have the opportunity—some would say the responsibility—to lead them through these stages to epistemological maturity.

Psychologist William G. Perry (1968, 1985) formulated a theory of the intellectual and ethical development of college students. In its simple four-stage version, students begin college with a dualistic perspective and may, depending on their instruction, advance through the stages of multiplicity, relativism, and commitment (definitions are given below). The research supporting it accumulated rapidly, making Perry's the leading theory on the cognitive development of undergraduates. Baxter Magolda's (1992) four levels of knowing—absolute, transitional, independent, and contextual—roughly parallel Perry's, with most females following a relational pattern and most males the abstract. Table 1.1 displays both models.

While Perry's framework of development applies across disciplines, a student's level of maturity may be advanced in one and not in another. So we shouldn't assume, for example, that a sophisticated senior in a laboratory science major has a comparable

Table 1.1 Stages/Levels of Student Cognitive Development

Perry's Stages of Undergraduate Cognitive Development	Baxter Magolda's Levels of Knowing
3. Relativism: All opinions equal • Standards of comparison	Independent Knowing
1. Duality: Black and white thinking; authorities rule • Uncertainty	Absolute Knowing
2. Multiplicity: Poor authorities or temporary state • Uncertainty as legimate, inherent	Transitional Knowing
4. Commitment (tentative) to best theory available	Contextual Knowing

understanding of the nature of knowledge in the social sciences or the humanities.

The more elaborate version of Perry's theory posits nine positions through which students pass on their way to cognitive maturity. (The stages in Perry's simpler model are italicized.) How far and how rapidly students progress through the hierarchy, if at all, depend largely on the quality and type of instruction they receive. It is this flexible aspect of Perry's theory that has made it particularly attractive and useful. The schema suggests ways that we can accelerate undergraduates' intellectual growth.

Let us begin with position 1, the cognitive state in which most first-years arrive. (Of course, many sophomores, juniors, and seniors are still at this level.) Perry used the term *dualism* to describe students' thinking at this stage because they perceive the world in black-and-white simplicity. They decide what to believe and how to act according to absolute standards of right and wrong, good and bad, truth and falsehood. Authority figures, like instructors, supposedly know and teach the absolute truths about reality. Furthermore, all knowledge and goodness can be quantified or tallied, like correct answers on a spelling test.

At position 2, students enter the general cognitive stage of *multiplicity*. They come to realize that since experts don't know everything there is to know, a discipline permits multiple opinions to compete for acceptance. But to students, the variety merely reflects that not all authorities are equally legitimate or competent. Some students don't even give these competing opinions much credence, believing them to be just an instructor's exercise designed ultimately to lead them to the one true answer. As they advance to position 3, they accept the notion that genuine uncertainty exists, but only as a temporary state that will resolve itself once an authority finds the answer.

Entering position 4, which marks the broader stage of *relativism,* students make an about-face and abandon their faith in the authority's ability to identify "the truth." At this point, they either consider all views equally valid or allow different opinions within the limits delineated by some standard. In brief, they become relativists with no hope of there ever being one true interpretation or answer.

Students at position 5 formalize the idea that all knowledge is relativistic and contextual, but with qualifications. They may reserve dualistic ideas of right and wrong as subordinate principles for special cases in specific contexts. Thus, even in a relativistic world, they may permit certain instances where facts are truly facts and only one plausible truth exists.

At some point, however, students can no longer accommodate all the internal inconsistencies and ambiguities inherent in position 5. They may want to make choices but often lack clear standards for doing so. As a result, they begin to feel the need to orient themselves in their relativistic world by making some sort of personal commitment to one stance or another. As this need grows, they pass through position 6 and into the more general cognitive stage of *commitment*. When they actually make an initial, tentative commitment to a particular view in some area,

they attain position 7. Next, at position 8, they experience and examine the impacts and implications of their choice of commitment. That is, they learn what commitment means and what trade-offs it carries.

Finally, at position 9, students realize that trying on a commitment and either embracing or modifying it in the hindsight of experience is a major part of personal and intellectual growth. This process is, in fact, a lifelong activity that paves the road toward wisdom and requires an ever open mind.

ENCOURAGING COGNITIVE GROWTH

Nelson (2000), a leading authority on developing thinking skills, contends that we can facilitate students' progress through these stages by familiarizing them with the uncertainties and the standards of comparison in our disciplines. He and many others (Allen, 1981, in the sciences, for example) have achieved excellent results by implementing his ideas. (Kloss, 1994, offers a somewhat different approach tailored to literature instructors.)

Exposure to uncertainties in our knowledge bases helps students realize that often there is no one superior truth, nor can there be, given the nature of rational knowledge. This realization helps lead them out of dualistic thinking (position 1) and through multiplistic conceptions of knowledge (positions 2 and 3). Once they can understand uncertainty as legitimate and inherent in the nature of knowledge, they can mature into relativists (positions 4 and 5).

Instructive examples of such uncertainties include the following: (1) the range of viable interpretations that can be made of certain works of literature and art; (2) the different conclusions that can be legitimately drawn from the same historical evidence and scientific data; (3) a discipline's history of scientific revolutions and paradigm shifts; (4) unresolved issues on which a discipline is currently conducting research; and (5) historical and scientific unknowns that may or may not ever be resolved.

Our next step is to help students advance beyond relativism through positions 6 and 7, at which point they can make tentative commitments and progress toward cognitive maturity. To do so, students need to understand that among all the possible answers and interpretations, some may be more valid than others. They must also learn why some are better than others—that is, what criteria exist to discriminate among the options, to distinguish the wheat from the chaff.

Disciplines vary on their criteria for evaluating validity. Each has its own metacognitive *model*—that is, a set of accepted conventions about what makes a sound argument and what constitutes appropriate evidence. Most students have trouble acquiring these conventions on their own; they tend to assume that the rules are invariable across fields. So Nelson advises us to make our concepts of evidence and our standards for comparison explicit to our students.

By the time students reach position 5, they are uncomfortable with their relativism, and by position 6, they are hungry for criteria on which to rank options and base choices. So they should be highly receptive to a discipline's evaluative framework.

To encourage students to reach positions 7 and 8, we can provide writing and discussion opportunities for them to deduce and examine what their initial commitments imply in other contexts. They may apply their currently preferred framework to a new or different ethical case, historical event, social phenomenon, political issue, scientific problem, or piece of literature. They may even apply it to a real situation in their own lives. Through this process, they begin to realize that a commitment focuses options, closing some doors while opening others.

We should remind students that they are always free to reassess their commitments, modify them, and even make new ones, but with an intellectual and ethical caveat: they should have sound reason to do so, such as new experiences or data or a more logical organization of the evidence—not just personal convenience. With a clear understanding of this final point, students achieve position 9.

Bringing Perry's and Nelson's insights into our courses presents a genuine challenge in that students in any one class may be at different stages, even if they are in the same graduating class. Almost all first-year students fall in the first few positions, but juniors and seniors may be anywhere on the hierarchy. It may be wisest, then, to help students at the lower positions catch up with those at the higher ones by explicitly addressing knowledge uncertainties and disciplinary criteria for selecting among perspectives and creating opportunities for students to make and justify choices in your courses.

Keep your students' cognitive growth in mind as you read this book. If you use the outcomes-centered approach to designing a course (see Chapter Two), you may want to select a certain level of cognitive maturity as a learning outcome for your students.

You will find more strategies for teaching uncertainty and alternative explanations in later chapters. Chapter Twenty-Four on teaching your students to think and write in disciplinary contexts revisits the notion of metacognitive models and examines some crucial differences in argumentation and evidence across major disciplinary groups.

TEACHING THE MILLENNIAL GENERATION

If you are teaching traditional-age students, you need to know some basics about this generation, which has come to be called generation Y, the Net generation, the NeXt generation, and most commonly, the millennial generation. A great deal has been written about it, and this section provides a quick synthetic summary (Bureau & McRoberts, 2001; Carlson, 2005; Featherstone, 1999; Frand, 2000; Hersch, 1998; Howe & Strauss, 2000; Levine & Cureton, 1998; Lowery, 2001; Nathan, 2005; Oblinger, 2003; Plotz, 1999; Raines, 2002; Strauss & Howe, 2003; Taylor, 2006; Tucker, 2006). The generalizations seem to apply to at least the bulk of middle- and upper-middle-class millennials.

This generation comprises children born between 1982 (some say 1980) and 1995 to the late baby boomers. These parents kept their children's lives busily structured with sports, music lessons, club meetings, youth group activities, and part-time jobs. In their spare time, young millennials spent many hours on the computer, often the Internet, interacting with peers, doing school work, playing games, shopping, and otherwise entertaining themselves. Unless they attended private or college-town schools, they received a weaker K–12 education than previous generations. Still, they flooded into colleges and universities starting around 2000. Their combined family and school experience, along with their heavy mass media exposure, made them self-confident, extremely social, technologically sophisticated, action bent, goal oriented, service or civic minded, and accustomed to functioning as part of a team. On the flip side, they are also impatient, demanding, stressed out, sheltered, brand oriented, materialistic, and self-centered. They use—and abuse—alcohol and prescription drugs more than street drugs. Although skeptical about authority, they tend not to be particularly rebellious, violent, or promiscuous. With so much activity in their lives as well as frequent interaction with friends and family (much on computers and cell phones), they have little time or inclination for reflection, self-examination, or free-spirited living. Another feature of this generation, one that distinguishes it from so many preceding ones, is that millennials do not hunger for independence from their parents. Quite the contrary, they stay close to the parents through college (and often beyond) and turn to their parents for help when organizations don't meet their needs. These parents have earned the descriptor of "helicopter parents" for hovering over their grown children to ensure their well-being and competitive advantage in life.

For college faculty, this generation can be challenging to deal with. Millennials view higher education as an expensive but economically necessary consumer good, not a privilege earned by hard work and outstanding performance. They (or their parents)

"purchase" it for the instrumental purpose of opening well-paying occupational doors on graduation, so they feel entitled to their degree for the cost of the credits. As many of them did little homework for their good grades through high school, they anticipate the same minimal demands in college and are often resentful about the amount of reading, research, problem solving, and writing that we assign them and about the standards that we hold for their work. Those whose grades slip in college feel their self-esteem threatened and may react with depression, anxiety, defensiveness, and even anger against us. In addition, they hear a lot a "bad news" from us in their classes: that they didn't learn enough in high school to handle college, that knowledge bases are full of holes and unsolved mysteries, that their beliefs and values are subject to question and debate, and that both college and the real world demand that they work and prove their worth.

Not only are we bearers of bad news, however inadvertently, but we are also very different from them and difficult to fathom and identify with. We prize the life of the mind, we love to read, and we work long hours for relatively little money. We must remember that this generation values money and what it can buy. Aside from the materialism that their parents and the mass media promoted, these young people face the prospect of being the first generation, at least in the United States, that cannot afford a standard of living comparable to that of their parents, let alone higher. So while some observers call millennials hopeful, others point to their economic anxiety (Levine & Cureton, 1998).

In any case, our modest material status, coupled with all our education, does not inspire a great deal of their respect. To them, we render customer service, a somewhat menial calling, to a society that doesn't value abstraction, intellectual discourse, or knowledge for knowledge's sake. There's just no money in them. Therefore, if they are dissatisfied with our services (usually workload, grades, or our responsiveness to their desires), they complain to our "bosses," often involving their parents to bolster their power. They sense they have the upper hand: that instructors are subject to being disciplined or even fired at administrative will and that institutions want to retain students and keep them happy. In this quasi-corporate model, the customer is always right, whether she is or not. So millennials can be demanding, discourteous, impatient, time-consuming, and energy sapping. For the same reason, colleges and universities have been upgrading their residence halls, food services, recreational and workout facilities, tutoring programs, computing, and teaching (with an eye toward boosting student ratings).

Despite the difficulties millennials may present, this generation can be easy to reach if we make a few adjustments. After all, they have career goals, positive attitudes, technological savvy, and collaborative inclinations. In addition, they are intelligent enough to have learned a lot, even if it is not the knowledge that we value. Our adjustments need not include lowering our own standards.

Although millennials are understandably cynical about authority (so are we) and don't assume we have their best interests at heart, they value communication and information and respond well when we explain why we use the teaching and assessment methods we do. We can "sell" them on the wisdom of our reading selections, assignments, in-class activities, and rubrics, reinforcing the fact that we are the experts in our field and in teaching it. As experts, we *should* have solid, research-based reasons for our choices. Why not show our students the respect of sharing these reasons?

Millennials also want to know that we care about them. Remember that they are still attached to their parents and not far from the nest. They are also accustomed to near-constant interaction, so they do want to relate to us. Showing that we care about their learning and well-being—by calling them by name, asking them about their weekend, promising we will do whatever it takes to help them learn, stating how much we want them to be successful, and voicing our high expectations of them—will go very far in earning their loyalty and trust.

Finally, having led a tightly organized childhood and adolescence and not being rebellious, they respond well to structure, discipline, rules, and

regulations. If you set up or have them set up a code of classroom conduct (see Chapter Seven), they will generally honor it. If you promise that you will answer their email at two specific times each day and you follow through, they will not expect you to be available 24/7. Whatever course policies your syllabus states, as long as they are clear and airtight, the students will generally respect them, though a few may try to pressure you to bend your rules. Even their parents will usually withdraw their demands for grade information if you clearly explain any applicable restrictions under the Family Educational Rights and Privacy Act. What millennials consider unprofessional is an instructor's (apparent) disorganization, ill preparation, or inability to stick to her own syllabus.

Of course, blanket statements about an entire generation always apply to only a portion of its members. Biggs (2003) has another take on it. He describes an undergraduate profile applicable to both the British Commonwealth nations and the United States, and he puts a face on it—two faces, actually. There is "Susan," the archetypal "good" student—intelligent, well prepared, goal oriented, and motivated to master the material. Susan came to college with solid thinking, writing, and learning skills. While about three-quarters of today's college students were like her in 1980, only about 42 percent are like her today (Brabrand & Andersen, 2006). The rest (almost 60 percent) are like "Robert," who is much less academically talented, college ready, and motivated to learn (Brabrand & Andersen). He just wants to get by with the least amount of learning effort so he can parlay his degree into a decent job. He will rely on memorizing the material rather than reflecting on and constructing it. "Good teaching," according to Biggs, is "getting most students to use the higher cognitive level processes that the more academic students use spontaneously" (p. 5)—that is, changing Roberts into Susans.

When you divide the student population the way Biggs does, the millennial generation doesn't look so monolithic, and no matter where we teach, we find both types of students in our classes. A sizable minority of them are interested in learning and know something about how to do it, even if they are also materialistic, tied to their parents, and on Facebook. While we can generalize about millennials, we must not forget that they are the most diverse generation—economically, politically, ethnically, racially, and culturally—that North American institutions of higher learning have ever welcomed.

THE ADULT LEARNER

Adults learn the same way as traditional-age students, but they respond somewhat differently to certain instructor behaviors, teaching strategies, and content emphases. They are less forgiving about an instructor's shortage of experience, expertise, teaching savvy, and suitable supplementary materials. For good reason, they value their own life experience and want to share and apply it in class, assignments, and group work. They know the world to be complex, and therefore they expect to learn multiple ways of solving problems and to have discretion in applying the material. They need the opportunity for reflection after trying out a new application or method. Rote learning just won't work with them. Finally, adult learners are practical and usually quite disinterested in theory. They demand that the materials have immediate utility and relevant application (Aslanian, 2001; Vella, 1994; Wlodkowski, 1993). None of this implies that they are difficult learners. In fact, they are often highly motivated, eagerly participatory, and well prepared for class.

INCLUSIVE INSTRUCTING

Age is but one variable on which students vary. Add gender, race, ethnicity, national origin, sexual orientation, and religion. Time was when only well-to-do white males attended college in the United States. But now over 60 percent of all undergraduates are female, and in 2003–2004, only 63.7 percent were white, 14.1 percent African American, 11.9 percent Hispanic, 5.4 percent Asian American,

0.9 percent Native American, 0.5 percent Pacific Islander, and 2.1 percent multiracial. In addition, 11.3 percent had a disability ("Profile of Undergraduate Students, 2003–4," 2007).

While all people learn by the same basic processes described earlier, some of these groups educationally thrive under circumstances that are not always typical in the American classroom. In addition, they often share distinctive values, norms, background experiences, and a sense of community that set them apart and make them feel set apart—and not always in a positive way. Traditionally underrepresented groups are more likely to struggle emotionally in college and to leave before attaining a degree.

As an instructor, you are also an ambassador of the academy to these groups, and you are close enough to them to reach out and include them. How you relate to these students has a powerful impact on their performance and retention (Ferguson, 1989; Grant-Thompson & Atkinson, 1997; Guo & Jamal, 2007; Jones, 2004; Kobrak, 1992). Here are some guidelines, and you'll find more in the section "Equity in the Classroom" at the end of Chapter Five:

- Assign and mention the scholarly and artistic contributions of diverse groups where appropriate (Toombs & Tierney, 1992).
- Call a group by the name that its members prefer.
- Develop a personal rapport with your African American, Native American, Hispanic, and female students. Their style of thinking and dealing with the world tends to be relational and interpersonal, which means intuitive, cooperative, holistic, subjective, relationship focused, motivated by personal loyalty, and oriented to socially relevant topics (Anderson & Adams, 1992; Baxter Magolda, 1992). This style contrasts with the analytical, which values analysis, objectivity, logic, reason, structure, sequence, the abstract, debate, challenge, competition, and economic practicality. It is prevalent among European and Asian American males and in the academy in general (Anderson & Adams). How closely and easily you relate to your diverse and female students will strongly affect their motivation to learn, their trust in your intentions for them, and their overall satisfaction with college (Allen, Epps, & Haniff, 1991; Gonsalves, 2002; Grant-Thompson & Atkinson, 1997; Kobrak, 1992; Nettles, 1988).
- Be aware that most international students stand physically closer to others than do Americans, that many Asian American women are taught to avoid eye contact, and that many Asian Americans and Native Americans have learned to listen quietly rather than jumping into discourse.
- Don't avoid course-appropriate topics related to diverse groups because they are sensitive, controversial, or applicable to only a minority of people. Some students will see your avoidance as prejudicial.
- Don't avoid giving timely, constructive feedback to diverse students about their work out of fear of injuring their self-esteem or being accused of racism. Indeed, diverse students may interpret your criticisms as racially motivated disrespect, so you should bring up this possibility yourself and explicitly ask them rather than sweeping the issue under the rug. Be very sure that the students really understand your criticisms and recommendations for improvement (Gonsalves, 2002).
- Don't make so much of their successes that you imply you didn't expect them to succeed.
- Don't let any students get away with insensitive remarks in class. Such incidents open up teachable moments for you to lead an open discussion about cultural differences and stereotyping. Before launching a potentially controversial discussion, it is also a good idea to explain what a civil intellectual discourse comprises and to set up ground rules for it.
- Don't ask diverse students to speak in class as representatives of their group. Whatever the group, it is too internally diverse to be represented by one or a few members.

THE CHALLENGE

With such a varied student population on so many dimensions, including academic background, instructors sometimes wonder at what level of student to aim their courses. Unfortunately, there is no clear answer. Some of us find peace aiming at the top 20 percent, where we know our efforts will be intellectually productive. Others of us aim at the broad middle, hoping to bring as many students along with us as possible. Of course, where the top 20 percent and broad middle lie varies by type of institution.

This dilemma rarely presented itself over forty years ago. Back then, higher education was largely a screening device for privileging the best and the brightest—and often the wealthiest—over the rest of the socioeconomic pack. The more selective colleges and universities welcomed only the top performers, regardless of cultural and economic background, and they shamelessly discouraged or flunked out students who did not thrive on the lecture method. In fact, most institutions with a high attrition rate were proud of it. The society did not hold them accountable for effective teaching and achieving learning outcomes; the term *learning outcome* did not even exist. Students were solely responsible for their learning, and those who survived college had to have strong study skills, cognitive abilities, and self-motivation. Under this old system, many of today's students would never have completed college—if they ever gained admission.

During the 1980s and 1990s, higher education started to adopt a different and rather novel goal: to educate as many as possible rather than to screen. At the time, which wasn't long ago, this was quite a radical notion, but it also was a pragmatic response to the changing demographics of our society. This shift in the mission of higher education generated teaching and learning centers, higher faculty standards for teaching effectiveness, and an explosion of research on how students learn and respond to different instructor behaviors, teaching methods, and instructional settings. This book draws on and integrates much of this research into a practical reference on the most effective approaches to use for different types of learning outcomes.