Teachers, Teaching, and Educational Psychology
What Would You Do?

Teachers’ Casebook

It is your second year as a teacher at the Riverside Combined Campus (Kindergarten–8th grade). The district has just received money from both the state and a private foundation to give three awards in your school for “excellence in teaching.” The principal wants the teachers’ recommendations for recipients of these awards, so a committee is formed, composed of experienced teachers and one beginner—you. When the principal asked you to serve on the committee, you felt obligated to say yes. All week, the Teachers’ Lounge has been buzzing with discussion about the awards. Some teachers are suspicious—they fear the decisions will be purely political. Others are glad to see individuals’ efforts in teaching honored. Names are mentioned as “sure winners” and a few teachers who seldom speak to you have become very friendly ever since the committee membership was announced. The first meeting is next week. How will you prepare for it?

Critical Thinking

- What do you need to know about teaching to complete this task?
- What are some indicators of excellent teaching?
- Do different philosophies of teaching provide different answers to this question?
- What are your recommendations, and how would you back them up?

Collaboration

With 3 or 4 other members of your class, draw a concept map or web that graphically depicts “good teaching.” For an example of a concept map, see “Figure 8.2: Amy’s Molecule” in Chapter 8.

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ike many students, you may begin this course with a mixture of anticipation and wariness. Perhaps you are required to take educational psychology as part of a program in teacher education, speech therapy, nursing, or counseling. You may have chosen this class as an elective. Whatever your reason for enrolling, you probably have questions about teaching, schools, students—or even about yourself—that you hope this course may answer. I have written the 10th edition of Educational Psychology with questions such as these in mind.

In this first chapter, we begin with education—more specifically, with teaching today and the federal legislation that impacts every teacher. Teachers have been both criticized as ineffective and lauded as the best hope for young people. Do teachers make a difference in students’ learning? What characterizes good teaching? Only when you are aware of the challenges and possibilities of teaching and learning today can you appreciate the contributions of educational psychology. After a brief introduction to the world of the teacher, we turn to a discussion of educational psychology itself. How can principles identified by educational psychologists benefit teachers, therapists, parents, and others who are interested in teaching and learning? What exactly is the content of educational psychology, and where does this information come from? By the time you have finished this chapter, you will be in a much better position to answer these questions and many others such as:

- What is the No Child Left Behind Act?
- Does teaching matter?
- What is good teaching?
- What do expert teachers know?
- What are the greatest concerns of beginning teachers?
- Why should I study educational psychology?
- What roles do theory and research play in this field?
Teaching After No Child Left Behind

If you don’t know about No Child Left Behind, or even if you do, you will hear about it often in this text. On January 8, 2002, President George W. Bush signed into law the No Child Left Behind (NCLB) Act. Actually, NCLB was the most recent authorization of the Elementary and Secondary Education Act or ESEA, first passed in 1965. The reauthorization had a new name to reflect the sweeping changes that came with it. In a nutshell, the NCLB Act requires that by the end of the 2005–2006 school year, all students in grades 3 through 8 must take standardized achievement tests in reading and mathematics every year; in addition, one more exam will be required in high school. Other subjects will be added later. Based on these test scores, schools are judged to determine if their students are making Adequate Yearly Progress (AYP) toward becoming proficient in the subjects tested. States have some say in defining “proficiency” and in setting AYP standards. Regardless of how states define these standards, the NCLB Act requires that all students in the schools must reach proficiency by the end of the 2013–2014 school year. In addition, schools must develop AYP goals and report scores separately for several groups, including racial and ethnic minority students, students with disabilities, students whose first language is not English, and students from low-income homes. The effects on you as a teacher (or parent) will be profound. James Popham, an assessment expert, says:

Testing—and teaching—following the passage of the NCLB Act are certain to be different than testing—and teaching—before the law’s enactment. Today’s public school teachers are now obligated to take part in an educational game whose rules have been dramatically altered because of a significant federal law. The NCLB Act, almost literally, seems likely to trump almost everything it touches. (2005a, p. 4)

I start the first chapter of this text describing the NCLB Act because, as Popham notes, it will affect your teaching life every day. Also, the law addresses what makes a highly qualified teacher—the kind that you want to become. By the end of school year 2005–2006, the NCLB Act requires that all teachers of core academic subjects must be “highly qualified” according to the Act’s definition. By January 2006, all teachers’ assistants must be highly qualified according to the Act’s definition for paraprofessionals. What makes a highly qualified teacher?

To be considered highly qualified under NCLB, new teachers, generally speaking, must be fully certified, have a bachelor’s degree, and demonstrate their knowledge and skills in the subjects they are teaching by either having taken sufficient academic coursework in their field or by passing a state test. Veteran teachers who lack the academic coursework required of new teachers can demonstrate competency in the academic subjects they teach through a third means, by meeting the conditions of their state’s “high objective uniform state standard of evaluation,” or HOUSSE for short. (Center on Education Policy, 2005, p. 148)

By this definition, in 2005, most teachers were considered “highly qualified.” But there are some problems. The proportion of “unqualified” teachers is greatest for poor and minority group students, students with special needs, and students in rural schools.

Does being highly qualified guarantee good teaching? In the next pages we look at several answers to the question, “What is good teaching?” But before we consider what defines good teaching, let’s examine a more basic question: With all this testing, do teachers make a difference?

Do Teachers Make a Difference?

For a while, some researchers reported findings suggesting that wealth and social status, not teaching, were the major factors determining who learned in schools (e.g., Coleman, 1966). In fact, much of the early research on teaching was conducted by educational psy-
chologists who refused to accept these claims that teachers were powerless in the face of poverty and societal problems (Wittrock, 1986).

How could you decide if teaching makes a difference? You could look to your own experience. Were there teachers who had an impact on your life? Perhaps one of your teachers influenced your decision to become an educator. But one of the purposes of educational psychology in general and this text in particular is to go beyond individual experiences and testimonies, powerful as they are, to examine larger groups. Three studies speak to the power of teachers in the lives of students. The first followed 179 children from kindergarten through eighth grade. The second was a large-scale policy study of thousands of students and teachers in all 50 of the United States. The final study examined math achievement for students as they moved through 3rd, 4th, and 5th grades.

**Teacher–Student Relationships**

Bridgett Harme and Robert Pianta (2001) followed all the children in a small school district who entered kindergarten one year and continued in that district through the 8th grade. The researchers concluded that the quality of the teacher–student relationship in kindergarten (defined in terms of level of conflict with the child, the child's dependency on the teacher, and the teacher's affection for the child) predicted a number of academic and behavioral outcomes through the 8th grade, particularly for students with high levels of behavior problems. Even when the gender, ethnicity, cognitive ability, and behavior ratings of the student were accounted for, the relationship with the teacher still predicted aspects of school success. The researchers concluded that "the association between the quality of early teacher–child relationships and later school performance can be both strong and persistent" (p. 636). Based on the results of this carefully conducted study, it appears that students with significant behavior problems in the early years are less likely to have problems later in school if their teachers are sensitive to their needs and provide frequent, consistent feedback. Read the *Stories of Learning: Tributes to Teaching* feature to put a face on the power of positive teacher-student relationships.

**Teacher Preparation and Quality**

Using data from a 50-state survey of policies, state case study analyses, the 1993–94 Schools and Staffing Surveys, and the National Assessment of Educational Progress

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**Stories of Learning**

**Tributes to Teaching**

"You're the only one who gave me a chance."

Maggie pulled her four-year-old son's hand a little harder as she hurried him up the sidewalk. A black pickup truck had slowed alongside them.

"Who's that, Mommy?"

"Let's keep walking," Maggie said. Not recognizing the truck, she picked up the pace.

Just then, her son tripped on a stray branch and pulled on Maggie to wait. As she stopped, the dark glass of the passenger window rolled down and a young man with sunglasses leaned over to get a better look at the sidewalk couple.

"Mrs. Jensen, is that you?" Maggie looked up, responding with caution to the familiar voice. She scooped up her son and took a cautious step back from the street.

The driver stopped the truck, put it in park, and excitedly ran around to meet her. Taking off his sunglasses so Maggie could see him better, he said with a touch of disappointment, "You don't remember me, do you?"

Apprehension turned to delight as Maggie finally recognized her former student: "Of course I do, JAY. You're a hard one to forget."

"I never forgot you, Mrs. Jensen. You're the only one who gave me a chance."

Looking at him she could still see the twelve-year-old who fought the system. As the big, black truck rolled away, Maggie smiled as she read his business card, "Jay Getz, Architect."

Source: Taken from *Apples & Chalkdust* by Vicki Carauna. Copyright © 1998 by Vicki Carauna. Used with permission of Honor Books, an imprint of Cook Communications Ministries.

Do Teachers Make a Difference?
Connect and Extend to the Research


Linda Darling-Hammond (2000) examined the ways in which teacher qualifications are related to student achievement across states. Her findings indicated that the quality of teachers—as measured by whether the teachers were fully certified and had a major in their teaching field—was related to student performance. In fact, measures of teacher preparation and certification were by far the strongest predictors of student achievement in reading and mathematics, both before and after controlling for student poverty and English language proficiency. For example, look at Table 1.1. All the correlations in the first row of this table are positive and significant. This means that the higher the percentage of teachers with full certification and a major in their teaching field, the higher is their students’ achievement in math and in reading. All but one of the correlations in the second row are negative and significant. This indicates that the higher the percentage of teachers who are teaching outside of their field, the lower is their students’ achievement. (Later in the chapter we will look closely at how to interpret these statistics.) Teacher subject matter knowledge and verbal ability are important in student learning, but teacher preparation and qualifications make a difference too (Darling-Hammond & Youngs, 2002). So being a “highly qualified teacher,” as defined by NCLB, is a good first step to becoming a good teacher.

In another study, researchers examined how students are affected by having several effective or ineffective teachers in a row (Sanders & Rivers, 1996). They looked at 5th graders in two large metropolitan school systems in Tennessee. Students who had highly effective teachers for 3rd, 4th, and 5th grades scored an average of 83rd percentile on a standardized mathematics achievement test in one district and 96th percentile in the other (99th percentile is the highest possible score). In contrast, students who had the least effective teachers three years in a row averaged 29th percentile in math achievement in one district and 44th percentile in the other—a difference of over 50 percentile points in both cases! Students who had average teachers or a mixture of teachers with low, average, and high effectiveness for the three years had math scores between these extremes. Sanders and Rivers concluded that the best teachers encouraged good-to-excellent gains in achievement for all students, but lower-achieving students were the first to benefit from good teaching. The effects of teaching were cumulative and residual—that is, better teaching in a later grade could make up in part for less-effective teaching in earlier grades, but could not erase all the deficits. In fact, one study found that at least 7% of the differences in test score gains for students could be traced to their teachers (Rivkin, Hanushek, & Kain, 2001).

**Table 1.1**

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<td>Percent of teachers well-qualified (with full certification and a major in their field)</td>
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<td>.61**</td>
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<td>Percent of teachers out of field (with less than a minor in the field they teach)</td>
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*p < .05

**p < .01

Effective teachers who establish positive relationships with their students appear to be a powerful force in those students' lives. Students who have problems seem to benefit the most from good teaching. What makes a teacher effective? What is good teaching?

What Is Good Teaching?

**WHAT WOULD YOU SAY?**

It is your first interview for a teaching position. The principal takes out a pad of paper and a pen, looks intently into your eyes, and says, “Tell me what you admired about your favorite teacher. What makes a good teacher?” What will you say?

Educators, psychologists, philosophers, novelists, journalists, filmmakers, mathematicians, scientists, historians, policymakers, and parents, to name only a few groups, have examined this question; there are hundreds of answers. And good teaching is not confined to classrooms—it occurs in homes and hospitals, museums and sales meetings, therapists' offices, and summer camps. In this book, we are primarily concerned with teaching in classrooms, but much of what you will learn applies to other settings as well.

**Inside Four Classrooms**

To begin our examination of good teaching, let's step inside the classrooms of four outstanding teachers. All the situations that follow are real. The first two teachers worked with my student teachers in local elementary schools. I have chosen them because one of my former colleagues at Rutgers, Carol Weinstein, has written about them in her book on classroom management (Weinstein & Mignano, 2003). The third teacher became an expert at helping students with severe learning difficulties, with the help of a consultant. The last example is a secondary school teacher who has been studied by other educational psychologists.

**A Bilingual 1st Grade.** There are 25 students in Viviana’s class. Most have recently emigrated from the Dominican Republic; the rest come from Nicaragua, Mexico, Puerto Rico, and Honduras. Even though the children speak little or no English when they begin school, by the time they leave in June, Viviana has helped them master the normal 1st-grade curriculum for their district. She accomplishes this by teaching in Spanish early in the year to aid understanding, then gradually introducing English as the students are ready. Viviana does not want her students segregated or labeled as disadvantaged. She encourages them to take pride in their Spanish-speaking heritage and uses every available opportunity to support their developing English proficiency.

Viviana's expectations for her students are high, and she makes sure the students have the resources they need. She provides materials—pencils, scissors, crayons—so no child lacks the means to learn. And she supplies constant encouragement. "Viviana's commitment to her students is evident... With an energy level that is rare, she motivates, prods, instructs, models, praisess, and captivates her students. The pace is brisk and Viviana clearly has a flair for the dramatic; she uses music, props, gestures, facial expressions, and shifts in voice tone to communicate the material" (Weinstein & Mignano, 2003, p. 14). To know more about her students each year, she visits their homes. For Viviana, teaching is not just a job; it is a way of life.

**A Suburban 5th Grade.** Ken teaches 5th grade in a suburban elementary school in central New Jersey. Students in the class represent a range of racial, ethnic, family income, and language backgrounds. Ken emphasizes “process writing.” His students complete first drafts, discuss them with others in the class, revise, edit, and “publish” their work. The students also keep daily journals and often use them to share personal concerns with Ken. They tell him of problems at home, fights, and fears; he always takes the time to respond in writing. Ken also places the study of science in the context of the real world. Students...
learn about ocean ecosystems by using a software program called A Field Trip to the Sea (Sunburst, 1999). For social studies, the class plays two simulation games that focus on history. One is about coming of age in Native American cultures and the other focuses on the colonization of America.

Throughout the year, Ken is very interested in the social and emotional development of his students; he wants them to learn about responsibility and fairness as well as science and social studies. This concern is evident in the way he develops his class rules at the beginning of the year. Rather than specifying dos and don’ts, Ken and his students devise a “Bill of Rights” for the class, describing the rights of the students. These rights cover most of the situations that might need a “rule.”

An Inclusive Class. Elliot was bright and articulate. He easily memorized stories as a child, but he could not read by himself. His problems stemmed from severe learning difficulties with auditory and visual integration and long-term visual memory. When he tried to write, everything got jumbled. Dr. Nancy White worked with Elliot’s teacher, Mia Russell, to tailor extensive tutoring that specifically focused on Elliot’s individual learning patterns and his errors. With his teachers’ help, over the next years, Elliot became an expert on his own learning and an independent learner; he knew which strategies he had to use and when to use them. According to Elliot, “Learning that stuff is not fun, but it works” (Hallahan & Kauffman, 2006, pp. 184–185).

An Advanced Math Class. Hilda Borko and Carol Livingston (1989) describe how Randy, an expert secondary school mathematics teacher, worked with his students’ confusion to construct a review lesson about strategies for doing integrals. When one student said that a particular section in the book seemed “haphazard,” Randy led the class through a process of organizing the material. He asked the class for general statements about useful strategies for doing integrals. He clarified their suggestions, elaborated on some, and helped students improve others. He asked the students to relate their ideas to passages in the text. Even though he accepted all reasonable suggestions, he listed only the key strategies on the board. By the end of the period, the students had transformed the disorganized material from the book into an ordered and useful outline to guide their learning. They also had a better idea about how to read and understand difficult material.

What do you see in these classrooms? The teachers are committed to their students. They must deal with a wide range of student abilities and challenges: different languages, different home situations, and different abilities and disabilities. They must adapt instruction and assessment to students’ needs. They must make the most abstract concepts, such as integrals, real and understandable for their particular students. And then there is the challenge of new technologies and techniques. The teachers must use them appropriately to accomplish important goals, not just to entertain the students. The whole time that these experts are navigating through the academic material, they also are taking care of the emotional needs of their students, propping up sagging self-esteem and encouraging responsibility. If we followed these individuals from the first day of class, we would see that they carefully plan and teach the basic procedures for living and learning in their classes. They can efficiently collect and correct homework, regroup students, give directions, distribute materials, collect lunch money, and deal with disruptions—and do all of this while also making a mental note to find out why one of their students is so tired.

So What Is Good Teaching? Is good teaching science or art, teacher-centered lecture or student-centered discovery, the application of general theories or the invention of situation-specific practices? Is a good teacher a good explainer or a good questioner, a “sage on the stage” or a “guide by the side”? These debates have raged for years. In your other education classes, you probably will encounter criticisms of the scientific, teacher-centered, theory-based, lecturing sages. You will be encouraged to be artistic, inventive, student-centered, questioning guides. Is this the right path? Let’s see what the arguments are.

One position is that teaching is a theory-based science. Psychologists have spent decades studying how children think and feel, how learning occurs, what influences motivation, and how teaching affects learning. These general and abstract conceptions...
apply to a wide range of situations. Why should teachers have to reinvent all this knowledge? Other educators believe that the mark of an excellent teacher is not the ability to apply theories, but the artistry of being reflective—thoughtful and inventive—about teaching (Schon, 1983). Educators who adopt this view believe teaching “is specific with respect to task, time, place, participants, and content, and that different subjects vary in those specifics” (Leinhardt, 2001, p. 334). Thus, teaching is so complex, according to this view, that it must be invented anew with every new subject and class.

**Beware of Either/Or Choices.** Most people agree that teachers must be both theoretically knowledgeable and inventive. They must be able to use a range of strategies, and they must also be able to invent new strategies. They must have some basic research-based routines for managing classes, but they must also be willing and able to break from the routine when the situation calls for change. And teachers need both general theories and situation-specific insights. They need “understandings of students in general—patterns common to particular ages, culture, social class, geography, and gender; patterns in typical student conceptions of the subject matter” (Ball, 1997, p. 773) and they also need to know their own students. “Face to face with actual children who are particular ages and gender, culture and class, teachers must see individuals against a backdrop of sociological and psychological generalizations about groups” (p. 773). The theories you encounter in this text should be used as cognitive tools to help you examine, inspect, and interpret the claims you will hear and read throughout your career (Leinhardt, 2001).

Personally, I hope you all become teachers who are both “sages” about your subject and “on your students’ sides” wherever you stand.

Viviana, Ken, Mia, and Randy are examples of expert teachers, the focus of much recent research in education and psychology. For another perspective on the question “What is good teaching?” let’s examine this research on what expert teachers know.

**Expert Knowledge**

Expert teachers have elaborate systems of knowledge for understanding problems in teaching. For example, when a beginning teacher is faced with students’ wrong answers on math or history tests, all of these answers may seem about the same—wrong. But for an expert teacher, wrong answers are part of a rich system of knowledge that could include how to recognize several types of wrong answers, the misunderstanding or lack of information behind each kind of mistake, the best way to reteach and correct the misunderstanding, materials and activities that have worked in the past, and several ways to test whether the reteaching was successful. In addition, expert teachers have clear goals and take individual differences into account when planning for their students. These teachers are reflective practitioners (Floden & Klinking, 1990; Hogan, Rabinowitz, & Craven, 2003).

What do expert teachers know that allows them to be so successful? Lee Shulman (1987) has studied this question, and he has identified seven areas of professional knowledge. Expert teachers know:

1. The academic subjects they teach—their content knowledge is deep and interconnected.
2. General teaching strategies that apply in all subjects (such as the principles of classroom management, effective teaching, and evaluation that you will discover in this book).
3. The curriculum materials and programs appropriate for their subject and grade level.
4. Subject-specific knowledge for teaching: special ways of teaching certain students and particular concepts, such as the best ways to explain negative numbers to lower-ability students.
5. The characteristics and cultural backgrounds of learners.
6. The settings in which students learn—pairs, small groups, teams, classes, schools, and the community.
7. The goals and purposes of teaching.
A key factor for expert teachers that may not be clear from the above list is the need to know yourself—your biases, strengths, and blind spots as well as your own cultural identity. Only by having a clear sense of yourself can you understand and respect the cultural identity of your students. Jay Dee and Allan Henkin (2002) note that teachers must be willing to explore beyond their own zone of comfort as members of the majority cultural status quo.

This is quite a list. Obviously, one course cannot give you all the information you need to teach. In fact, a whole program of courses won’t make you an expert. That takes time and experience. But studying educational psychology can add to your professional knowledge because at the heart of educational psychology is a concern with learning wherever it occurs. To become a good teacher, you will need to know about your students (Part 1 of this book), learning and motivation (Part 2), and teaching and assessing (Part 3).

The Role of Educational Psychology

For as long as educational psychology has existed—about 100 years—there have been debates about what it really is. Some people believe educational psychology is simply knowledge gained from psychology and applied to the activities of the classroom. Others believe it involves applying the methods of psychology to study classroom and school life (Brophy, 2003; Wittrock, 1992). A look at history shows the close connections between educational psychology and teaching.

Some Interesting History

In one sense, educational psychology is very old. Topics Plato and Aristotle discussed—the role of the teacher, the relationship between teacher and student, methods of teaching, the nature and order of learning, the role of affect in learning—are still studied by educational psychologists today. In the 1500s, Juan Luis Vives had some very contemporary thoughts about the value of practice, the need to tap student interests and adapt instruction to individual differences, and the advantages of using self-comparisons rather than competitive social comparisons in evaluating students’ work. In the 1700s, Comenius introduced visual aids in books and teaching and proclaimed that understanding, not memorizing, was the goal of teaching (Berliner, 1993). But let’s fast forward to the formal study of psychology.

From the beginning, psychology in the United States was linked to teaching. In 1890, William James at Harvard founded the field of psychology in America and developed a lecture series for teachers entitled Talks to Teachers about Psychology. These lectures were given in summer schools for teachers around the country and then published in 1899. James’s student, G. Stanley Hall, founded the American Psychological Association. His dissertation was about children’s understandings of the world; teachers helped him collect data. Hall encouraged teachers to make detailed observations to study their students’ development—as his mother had done when she was a teacher. Hall’s student, John Dewey, founded the Laboratory School at the University of Chicago and is considered the father of the progressive education movement (Hilgard, 1996).

Another of William James’s students, E. L. Thorndike, wrote the first educational psychology text in 1903 and founded the Journal of Educational Psychology in 1910. Thorndike began a shift from the classroom to the laboratory to study learning—a shift decreed by both James and Hall. Thorndike’s view proved to be too narrow as he sought laws of learning in laboratories that could be applied to teaching without actually evaluating their applications in real classrooms—but it still took 50 years to return to the psychological study of learning in classrooms (Hilgard, 1996).

Developments in teaching continued to be closely tied to psychology in the first half of the 20th century. It was not uncommon for psychologists such as Thorndike, Judd, or their students to be both presidents of the American Psychological Association and authors.
of materials for teaching or assessing school subjects. During this era, educational psychology was the "guiding science of the school" (Cumberly, 1919, p. 755). In the 1940s and 1950s, the study of educational psychology concentrated on individual differences, assessment, and learning behaviors. In the 1960s and 1970s, the focus of research shifted to the study of cognitive development and learning, with attention to how students learn concepts and remember. Recently, the educational psychologists have investigated how culture and social factors affect learning and development (Pressley & Roehrig, 2003).

What is educational psychology today? The view generally accepted is that educational psychology is a distinct discipline with its own theories, research methods, problems, and techniques. Both in the past and today, educational psychologists study learning and teaching and, at the same time, strive to improve educational practice (Pintrich, 2000). But even with this long history of interest in teaching and learning, are the findings of educational psychologists really that helpful for teachers? After all, most teaching is just common sense, isn't it? Let's take a few minutes to examine these questions.

Is It Just Common Sense?

In many cases, the principles set forth by educational psychologists — after spending much thought, time, and money — sound pathetically obvious. People are tempted to say, and usually do say, "Everyone knows that!" Consider these examples.

**Taking Turns.** What method should a teacher use in selecting students to participate in a primary grade reading class?

**Common Sense Answer.** Teachers should call on students randomly so that everyone will have to follow the lesson carefully. If a teacher were to use the same order every time, the students would know when their turn was coming up.

**Answer Based on Research.** Years ago, research by Ogden, Brophy, and Everson (1977) found that the answer to this question is not so simple. In 1st-grade reading classes, for example, going around the circle in order and giving each child a chance to read led to better overall achievement than calling on students randomly. The critical factor in going around the circle may be that each child gets a chance to participate. Without some system for calling on everyone, students can be overlooked or skipped. Research suggests there are better alternatives for teaching reading than going around the circle, but teachers should make sure that everyone has the chance for practice and feedback whatever approach is used (Tierney, Resendice, & Dishner, 1990). See Chapter 13 for more on teaching reading.

**Helping Students.** When should teachers provide help for lower-achieving students as they do class work?

Educational psychology is the discipline concerned with teaching and learning processes. It applies the methods and theories of psychology and has its own as well. These students are participating in a "hands-on" cooperative learning. Will their knowledge of science improve using this approach? Are there better ways to learn in biology? Educational research should shed light on questions like these.
**Common Sense Answer.** Teachers should offer help often. After all, these lower-achieving students may not know when they need help or they may be too embarrassed to ask for help.

**Answer Based on Research.** Sandra Graham (1996) found that when teachers provide help before students ask, the students and others watching are more likely to conclude that the helped student does not have the ability to succeed. The student is more likely to attribute failures to lack of ability instead of lack of effort, so motivation suffers.

**Skipping Grades.** Should a school encourage exceptionally bright students to skip grades or to enter college early?

**Common Sense Answer.** Not! Very intelligent students who are a year or two younger than their classmates are likely to be social misfits. They are neither physically nor emotionally ready for dealing with older students and would be miserable in the social situations that are so important in school, especially in the later grades.

**Answer Based on Research.** Maybe. According to Samuel Kirk and his colleagues (1993), “From early admissions to school to early admissions to college, research studies invariably report that children who have been accelerated have adjusted as well or better than have children of similar ability who have not been accelerated” (p. 105). Whether acceleration is the best solution for a student depends on many specific individual characteristics, including the intelligence and maturity of the student, and the other available options. For some students, moving quickly through the material and working in advanced courses with older students is a very good idea. See Chapter 4 for more on adapting teaching to students’ abilities.

**Obvious Answers?** Lily Wong (1987) demonstrated that just seeing research results in writing can make them seem obvious. She selected 12 findings from research on teaching: one of them was the “taking turns” result noted above. She presented 6 of the findings in their correct form and 6 in exactly the opposite form to both college students and experienced teachers. Both the college students and the teachers rated about half of the wrong findings as “obviously” correct. In a follow-up study, another group of subjects was shown the 12 findings and their opposites and was asked to pick which ones were correct. For 8 of the 12 findings, the subjects chose the wrong result more often than the right one.

You may have thought that educational psychologists spend their time discovering the obvious. The preceding examples point out the danger of this kind of thinking. When a principle is stated in simple terms, it can sound simplistic. A similar phenomenon takes place when we see a gifted dancer or athlete perform; the well-trained performer makes it look easy. But we see only the results of the training, not all the work that went into mastering the individual movements. And bear in mind that any research finding—or its opposite—may sound like common sense. The issue is not what sounds sensible, but what is demonstrated when the principle is put to the test (Gage, 1991).

**Using Research to Understand and Improve Learning**

**STOP, THINK, WRITE.** Quickly, list all the different research methods you can name.

Conducting research to test possible relationships is one of two major tasks of educational psychology. The other is combining the results of various studies into theories that attempt to present a unified view of such things as teaching, learning, and development.

**Descriptive Studies.** Educational psychologists design and conduct many different kinds of research studies. Some of these are “descriptive,” that is, their purpose is simply to describe events in a particular class or several classes. Reports of descriptive studies often include survey results, interview responses, samples of actual classroom dialogue, or audio and video records of the class activities.

One descriptive approach, classroom ethnography, is borrowed from anthropology. Ethnographic methods involve studying the naturally occurring events in the life of a group and trying to understand the meaning of these events to the people involved. For
example, the descriptions of Randy, the expert high school mathematics teacher in the opening pages of this chapter, were taken from an ethnographic study by Borko and Livingston (1989). The researchers made detailed observations in the teachers’ classes and analyzed these observations, along with audio recordings and information from interviews with the teachers, in order to describe differences between novice and expert teachers.

In some descriptive studies, the researcher uses participant observation and works within the class or school to understand the actions from the perspectives of the teacher and the students. Researchers also employ case studies. A case study investigates in depth how a teacher plans courses, for example, or how a student tries to learn specific material.

**Correlation Studies.** Often, the results of descriptive studies include reports of correlations. We will take a minute to examine this concept, because you need knowledge of correlations to fully understand Table 1.1 and you will encounter many other correlations in the coming chapters. A correlation is a number that indicates both the strength and the direction of a relationship between two events or measurements. Correlations range from 1.00 to −1.00. The closer the correlation is to either 1.00 or −1.00, the stronger the relationship. For example, the correlation between height and weight is about .70 (a strong relationship); the correlation between height and number of languages spoken is about .00 (no relationship at all).

The sign of the correlation tells the direction of the relationship. A positive correlation indicates that the two factors increase or decrease together. As one gets larger, so does the other. Height and weight are positively correlated because greater height tends to be associated with greater weight. As you saw in Table 1.1, the correlation between the percent of teachers with full teaching credentials and students’ math achievement is positive (as the percent of fully credentialed teachers increases, student math achievement increases as well). A negative correlation means that increases in one factor are related to decreases in the other. Table 1.1 indicated that as the number of teachers without either a major or a minor in math increases, student math achievement decreases.

It is important to note that correlations do not prove cause and effect (see Figure 1.1). Height and weight are correlated—taller people tend to weigh more than shorter people. But gaining weight obviously does not cause you to grow taller. Knowing a person’s weight simply allows you to make a general prediction about that person’s height. Educational psychologists identify correlations so they can make predictions about important events in the classroom.

**FIGURE 1.1**

**Correlations Do Not Show Causation**
When research shows that landscaped lawns and school achievement are correlated, it does not show causation. Community wealth, a third variable, may be the cause of both school achievement and landscaped lawns.

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The Role of Educational Psychology
Experimental Studies. A second type of research—experimentation—allows educational psychologists to go beyond predictions and actually study cause and effect. Instead of just observing and describing an existing situation, the investigators introduce changes and note the results. First, a number of comparable groups of participants are created. In psychological research, the term participants (also called subjects) generally refers to the people being studied—such as teachers or 8th graders. One common way to make sure that groups of participants are essentially the same is to assign each person to a group using a random procedure. Random means each participant has an equal chance of being in any group.

In one or more of these groups, the experimenters change some aspect of the situation to see if this change or “treatment” has an expected effect. The results in each group are then compared. Usually, statistical tests are conducted. When differences are described as statistically significant, it means that they probably did not happen simply by chance. Look at Table 1.1 again. The $p < .05$ means that these results could happen by chance less than 5 times out of 100, and $p < .01$ means less than 1 time in 100. A number of the studies we will examine attempt to identify cause-and-effect relationships by asking questions such as this: If teachers ignore students who are out of their seats without permission and praise students who are working hard at their desks (cause), will students spend more time working at their desks (effect)?

In many cases, descriptive and experimental research occur together. The study about “taking turns” by Ogden, Brophy, and Everson (1977) described at the beginning of this section is a good example. In order to answer questions about the relationship between how students are selected to read in a primary-grade class and their achievement in reading, these investigators observed students and teachers in a number of classrooms and measured the reading achievement of the students. They found that having students read in a predictable order was associated, or correlated, with gains in reading scores. With a simple correlation such as this, however, the researchers could not be sure that the strategy was actually causing the effect. In the second part of the study, Ogden and her colleagues asked several teachers to call on each student in turn. They then compared reading achievement in these groups with achievement in groups where teachers used other strategies. This second part of the research was thus an experimental study—specifically, a field experiment because it took place in a real classroom setting and not a laboratory.

Single-Subject Experimental Designs. The goal of single-subject experimental studies is to determine the effects of a therapy or teaching method, or other intervention. One common approach is to observe the individual for a baseline period (A) and assess the behavior of interest; try an intervention (B) and note the results; then remove the intervention and go back to baseline conditions (A); and finally reinstate the intervention (B). This form of single-subject design is called an ABAB experiment. For example, a teacher might record how much students are out of their seats without permission during a week-long baseline (A), and then try ignoring those who are up, but praising those who are seated and recording how many are wandering out of their seats for the week (B). Next, the teacher returns to baseline conditions (A) and records results, then reinstates the praise-and-ignore strategy (B) (Landrum & Kauffman, 2006). Years ago, when this very intervention was tested, the praise-and-ignore strategy proved effective in increasing the time students spent in their seats (Madsen, Becker, Thomas, Koser, & Plager, 1968).

Microgenetic Studies. The goal of microgenetic research is to intensively study cognitive processes in the midst of change—as the change is actually happening. For example, researchers might analyze how children learn a particular strategy for adding two-digit numbers over the course of several weeks. The microgenetic approach has three basic characteristics: (a) researchers observe the entire period of the change—from when it starts to the time it is relatively stable; (b) many observations are made, often using videotape recordings, interviews, and transcriptions of the exact words of the individuals being studied; (c) the behavior that is observed is “put under a microscope,” that is, examined moment by moment or trial by trial. The goal is to explain the underlying mechanisms of change—for example, what new knowledge or skills are developing to allow change to take place (Siegel & Crowley, 1991). This kind of research is expensive and time-consuming, so often only one or a few children are studied.
The Role of Time in Research. Another distinction is useful in understanding research—a distinction based on time. Many things that psychologists want to study, such as cognitive development, happen over several months or years. Ideally, researchers would study the development by observing their subjects over many years as changes occur. These are called longitudinal studies. They are informative, but time-consuming, expensive, and not always practical—keeping up with subjects over years as they grow up and move can be impossible. As a consequence, much research is cross-sectional, focusing on groups of children at different ages. For example, to study how children’s conceptions of “alive” change from ages 3 to 16, researchers can interview children of several different ages, rather than following the same children for 14 years.

Teachers as Researchers. Research also can be a way to improve teaching in one classroom or one school. The same kind of careful observation, intervention, data gathering, and analysis that occurs in large research projects can be applied in any classroom to answer questions such as “Which writing prompts seem to encourage the best descriptive writing in my class?” “When does Kenyon seem to have the greatest difficulty concentrating on academic tasks?” “Would assigning task roles in science groups lead to more equitable participation of girls and boys in the work?” This kind of problem-solving investigation is called action research. By focusing on a specific problem and making careful observations, teachers can learn a great deal about both their teaching and their students.

What Is Scientifically Based Research?

Since 2002, there has been a great debate about the value of research in education. One of the requirements of the landmark No Child Left Behind Act passed in that year was that educational programs and practices receiving federal money had to be consistent with “scientifically based research.” The lawmakers believed that scientifically based research produces reliable and valid knowledge because the research is rigorous, systematic, and objective. In fact, the term, “scientifically based research” appeared 110 times in the bill. Specifically, the No Child Left Behind (NCLB) Act stated that scientifically based research:

- Systematically uses observation or experiment to gather valid and reliable data
- Involves rigorous and appropriate procedures for analyzing the data
- Is evaluated using experimental or quasi-experimental designs, preferably with random assignment of participants to conditions
- Makes sure that experimental studies are carefully explained so other researchers can replicate the studies or build systematically on their findings
- Has been through a rigorous, objective, scientific review by a journal or a panel of independent experts

This description of scientifically based research fits the experimental approach described above better than other methods such as ethnographic research or case studies. Because schools are required to base their programs on scientifically based research as defined in the NCLB Act, there is continuing debate about what this means, as you will see in the Point/Counterpoint when you turn this page.

Theories for Teaching

The major goal of educational psychology is to understand teaching and learning; research is a primary tool. Reaching this goal is a slow process. There are very few landmark studies that answer a question once and for all. Human beings are too complicated. Instead, research in educational psychology examines limited aspects of a situation—perhaps a few variables at a time or life in one or two classrooms. If enough studies are completed in a certain area and findings repeatedly point to the same conclusions, we eventually arrive at a principle. This is the term for an established relationship between two or more factors—between a certain teaching strategy, for example, and student achievement.

Another tool for building a better understanding of the teaching and learning processes is theory. The common sense notion of theory (as in “Oh well, it was only a
**Point/Counterpoint**

**What Kind of Research Should Guide Education?**

**POINT** Research should be scientific; educational reforms should be based on solid evidence.

According to Robert Slavin, "Education is the very bedrock of scientific research; without the potential to profoundly transform policy, practice, and research" (Slavin, 2002, p. 15). He goes on to describe several educational reforms from the federal government that will provide money for research, but only if they are based on scientific research. Included in the No Child Left Behind legislation of 2002. The last example of this kind of research according to Grover Whitefish, the director of the U.S. Office of Educational Research and Improvement, is randomized experiments. Slavin points out that education reform guided by scientific research is feasible.

It is possible that these policies reforms could set in motion a process of research and development on programs and practices affecting children everywhere. This might create the kind of pressure to systematically improve over time that has characterized successful parts of our economic and society throughout the 20th century. In fields such as medicine, space exploration, transportation, and technology, each of these fields, processes of development, rigorous evaluation, and dissemination have produced a host of innovations and improvements that are unprecedented in history. These innovations have transformed the world. Yet education has failed to embrace this dynamic, and as a result, educational reform has been slow to come. Educational practice does change over time but the change process more resembles the pendulum swings of fads characteristic of art than the progressive improvements characteristic of science and technology (p. 16).

The main reason for extraordinary advances in medicine and agriculture, according to Slavin, is that these fields have true practices on scientific evidence. Randomized clinical trials and replicated experiments are the sources of the evidence.

**COUNTERPOINT** Experiments are not the only or even the best source of evidence.

David Portnoy (2004) disagrees strongly with Slavin's position. He claims that we cannot use medicine as an analogy to education. "Treatments" in education are much more complex and unpredictable than administering one drug or another in medicine. And every educational program is changed by classroom conditions over and above what it is implemented. Paul Leider, a colleague of mine at Ohio State, "...in improving the quality of practice, complexity, and the necessity of practice-in-context cannot be analyzed away. To try to do so yields important but not necessarily improvement. That loss is borne by the children, teachers, and administration in our schools" (p. 30). David Berliner (2004) makes a similar point.

Doing science and implementing scientific findings are so difficult in education because humans in schools are embedded in complex and changing networks of social interaction. The participants in those networks have variable powers to affect each other from day to day, and the ordinary events of life (sick child, a new friend, a parent with a new love affair, a new job for the family's head, a religious holiday, a new principal, a new classmate in the classroom, a new talent that keeps the children from robbing outside the school building, all affect doing science in school settings, both limiting the generality of educational research findings. Compared to designing bridges and circuits or splitting either atoms or genes, the science to help change schools and classrooms is harder to do because consent cannot be controlled.

Berliner concludes that a complex problem like education needs a whole range of methods for study: ethnographic research is crucial, as are case studies, survey research, time series designs and experiments, action research, and other means to collect reliable evidence for engaging is unlimited argument about education issues. A single method is not what the government should be promoting for educational researchers (Berliner, 2004, p. 20).

**WHAT DO YOU THINK?**

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**Theory** A integrated statement of principles that attempts to explain a phenomenon and make predictions.

**Theory** is "a guess or hunch." But the scientific meaning of theory is quite different. "A theory in science is an interrelated set of concepts that is used to explain a body of data and to make predictions about the results of future experiments" (Stanovich, 1992, p. 21). Given a number of established principles, educational psychologists have developed explanations for the relationships among many variables and even whole systems of relationships. There are theories to explain how language develops, how differences in intelligence occur, and, as noted earlier, how people learn.

Few theories explain and predict perfectly. In this book, you will see many examples of educational psychologists taking different theoretical positions and disagreeing on the
overall explanations of such issues as learning and motivation. Because no one theory offers all the answers, it makes sense to consider what each has to offer.

So why, you may ask, is it necessary to deal with theories? Why not just stick to principles? The answer is that both are useful. Principles of classroom management, for example, will give you help with specific problems. A good theory of classroom management, on the other hand, will give you a new way of thinking about discipline problems; it will give you cognitive tools for creating solutions to many different problems and for predicting what might work in new situations. A major goal of this book is to provide you with the best and the most useful theories for teaching—those that have solid evidence behind them. Although you may prefer some theories to others, consider them all as ways of understanding the challenges teachers face.

**Becoming a Good Beginning Teacher**

**STOP THINK WRITE** Imagine walking into your first day of teaching. List the concerns, fears, and worries you have. What assets do you bring to the job?

**Concerns.** Beginning teachers everywhere share many concerns, including maintaining classroom discipline, motivating students, accommodating differences among students, evaluating student work, dealing with parents, and getting along with other teachers (Conway & Clark, 2003; Vecenman, 1984). Many teachers also experience what has been called “reality shock” when they take their first job because they really cannot ease into their responsibilities. On the first day of their first job, beginning teachers face the same tasks as teachers with years of experience. Student teaching, while a critical element, does not really prepare prospective teachers for starting off a school year with a new class. If you listed any of these concerns in the Stop/Think/Write box above, you shouldn’t be troubled. They come with the job of being a beginning teacher (Borko & Putnam, 1996; Cooke & Pang, 1991). But even with these concerns, you don’t have to wait for years to become a good teacher. I have worked with many students who are excellent, even during their practice teaching experiences. Here is what Esme Codell, a gifted 5th-grade teacher in an inner-city Chicago school, remembered about her first year of teaching:

I feel like we did a lot of interesting things this year. Some of my favorites: When learning about electricity, we made light-up quiz games. When learning about light, we put on shadow-puppet shows. When learning about medieval history, we built an accurate castle, then decorated it with colored marshmallows and put it in our fairy tale book display. When we learned about air, we had a bubble festival. When learning about Asia, we made sushi. We videotaped commercials to promote our favorite books. We had a book character masquerade party. The kids had checking accounts in a classroom economy. We had a cereal box supermarket, and the kids learned to make change. My kids write the best descriptive compositions. They have international pen pals. They illustrated poetry anthologies. They read and wrote treasure maps. They know all the dances from the 60s. (Codell, 2001, pp. 177–178)

With experience, hard work, and good support, most teachers have more time to experiment with new methods or materials. Finally, as confidence grows, seasoned teachers can focus on the students’ needs. At this advanced stage, teachers judge their success by the successes of their students (Fuller, 1969; Pigge & Marso, 1997). Or as Esme’s mentor teacher once told her, “The difference between a beginning teacher and an experienced one is that the beginning teacher asks, ‘How am I doing?’ and the experienced teacher asks, ‘How are the children doing?’” (Codell, 2001, p. 191).

**Being a Good Beginner.** Becoming an expert teacher takes time and experience, but you can start now by becoming a good beginner. You can develop a repertoire of effective principles and practices for your first years of teaching so that some activities quickly become automatic. You can also develop the habit of questioning and analyzing these accepted practices and your own teaching so you can solve new problems when they arise. You can learn to look behind the effective techniques identified in research to ask: Why
Teaching is one of the few professions in which a new teacher must assume all of the responsibilities of an experienced "pro" during the first week on the job. Veteran teachers can be an excellent source of information and support during these early weeks.

did this approach work with these students? What else might be as good or better? The answers to these questions and your ability to analyze the situations are much more important than the specific techniques themselves. As you ask and answer questions, you will be refining your personal theories of teaching.

My goal in writing this book is to help you become an excellent beginning teacher, one who can both apply and improve many techniques. Even more important, I hope this book will cause you to think about students and teaching in new ways, so you will have the foundation for becoming an expert as you gain experience. Table 1.2 shows some advice a 1st-grade class gave to their student teacher: It looks like the students know about good teaching too.

Diversity and Convergences in Educational Psychology

The last section of every chapter in this book will be "Diversity and Convergences." This section will examine the topic under discussion in relation to student differences in race, ethnicity, family income, disabilities, or gender. Then, we will consider the convergences— the principles or practices that hold well for all students. This first chapter has been about teaching and educational psychology.

**TABLE 1.2**

<table>
<thead>
<tr>
<th>Advice for Student Teachers from Their Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>The students in Ms. Amato’s elementary school class gave this advice as a gift to their student teacher on her last day.</td>
</tr>
<tr>
<td>1. Teach us as much as you can.</td>
</tr>
<tr>
<td>2. Give us homework.</td>
</tr>
<tr>
<td>3. Help us when we have problems with our work.</td>
</tr>
<tr>
<td>4. Help us do the right thing.</td>
</tr>
<tr>
<td>5. Help us make a family in school.</td>
</tr>
<tr>
<td>6. Read books to us.</td>
</tr>
<tr>
<td>7. Teach us to read.</td>
</tr>
<tr>
<td>8. Help us write about faraway places.</td>
</tr>
<tr>
<td>9. Give us lots of compliments, like &quot;Oh, that’s so beautiful.&quot;</td>
</tr>
<tr>
<td>10. Smile at us.</td>
</tr>
<tr>
<td>11. Take us for walks and on trips.</td>
</tr>
<tr>
<td>12. Respect us.</td>
</tr>
<tr>
<td>13. Help us get our education.</td>
</tr>
</tbody>
</table>

Source: From Affirming Diversity: The Sociopolitical Context of Multicultural Education, 4e by Sonia Nieto. Published by Allyn and Bacon, Boston, MA. Copyright © 2004 by Pearson Education. Reprinted by permission of the publishers. |
Diversity
Trying to address differences in academic achievement for different groups of students was one of the motivations behind the No Child Left Behind Act. NCLB specifies that Adequate Yearly Progress goals have to be set and tested specifically for racial and ethnic minority students, students with disabilities, students whose first language is not English, and students from low-income homes. In this chapter, we also examined the diversity of research methods in educational psychology—from descriptive studies to experimental studies to teachers’ action research.

Convergences
I can see two convergences in this chapter. No matter what educators think of NCLB or what they believe about good teaching, all agree that many children have been left behind in the past and this must stop. I think educational psychology has much to offer teachers who want to see all students achieve. No matter which research methods are used, education and psychology have had a long relationship. Educational psychology stands with a foot in two worlds: scholarship and practice. Merle Wittrock (1992, p. 138) sums it up well, saying that educational psychology focuses on “the psychological study of the everyday problems of education, from which one derives principles, models, theories, teaching procedures, and practical methods of instruction and evaluation, as well as research methods, statistical analyses, and measurement and assessment procedures appropriate for studying the thinking and affective processes of learners and the socially and culturally complex processes of schools.” That about covers it.

| SUMMARY TABLE |
| Teaching After No Child Left Behind (p. 2) |
| **What is NCLB?** The No Child Left Behind Act of 2002 requires standardized achievement testing in reading and mathematics every year for all students in grades 3 through 8 and once more in high school. Based on these test scores, schools are judged to determine if their students are making Adequate Yearly Progress (AYP) toward becoming proficient in the subjects tested. States have some say in defining “proficiency” and in setting AYP standards. Regardless of how states define these standards, the NCLB Act requires that all students in the schools must reach proficiency by the end of the 2013–2014 school year. |
| **What is a highly qualified teacher as defined by NCLB?** New teachers must be fully certified, have a bachelor’s degree, and demonstrate their knowledge and skills in the subjects they are teaching either by having taken sufficient academic coursework in their field or by passing a state test. Veteran teachers can demonstrate qualifications by taking a test. |
| **Do Teachers Make a Difference?** (pp. 2-5) |
| **What evidence is there that teachers make a difference?** Three studies speak to the power of teachers in the lives of students. The first found that the quality of the teacher–student relationship in kindergarten predicted several aspects of school success through the 8th grade. The second study of thousands of students and teachers in all 50 of the United States found that teacher quality was the strongest predictor of student achievement in mathematics and reading. The final study examined math achievement for students in two large school districts as they moved through 3rd, 4th, and 5th grades. Again, the quality of the teacher made a difference—students who had three high-quality teachers in a row were way ahead of students who spent one or more years with less competent teachers. |
| **What Is Good Teaching?** (pp. 5-8) |
| **What do expert teachers know?** It takes time and experience to become an expert teacher. These teachers have a rich store of well-organized knowledge about the many specific situations of teaching. This includes knowledge about the subjects they teach, their students, general teaching strategies, subject-specific ways of teaching, settings for learning, curriculum materials, and the goals of education. |
| **Reflective** Thoughtful and inventive. Reflective teachers think back over situations to analyze what they did and why and to consider how they might improve learning for their students. |
| **Expert teachers** Experienced, effective teachers who have developed solutions for common classroom problems. Their knowledge of teaching process and content is extensive and well organized. |
| **The Role of Educational Psychology** (pp. 8-16) |
| **What is educational psychology?** The goals of educational psychology are to understand and to improve the teaching...
and learning processes. Educational psychologists develop knowledge and methods; they also use the knowledge and methods of psychology and other related disciplines to study learning and teaching in everyday situations.

**What are descriptive studies?** Reports of descriptive studies often include survey results, interview responses, samples of actual classroom dialogue, or records of the class activities. Ethnographic methods involve studying the naturally occurring events in the life of a group and trying to understand the meaning of these events to the people involved. A case study investigates in depth how a teacher plans courses, for example, or how a student tries to learn specific material.

**What are correlations and experimental studies?** A correlation is a number that indicates both the strength and the direction of a relationship between two events or measurements. The closer the correlation is to either 1.00 or –1.00, the stronger the relationship. Experimental studies can indicate cause-and-effect relationships and should help teachers implement useful changes. Instead of just observing and describing an existing situation, the investigators introduce changes and note the results.

**What are single-subject and microgenetic studies?** In single-subject experimental designs, researchers examine the effects of treatments on one person, often by using a baseline/intervention/baseline/intervention or ABAB approach. Microgenetic studies take many detailed observations of subjects to track the progression of change from the very beginning until a process becomes stable.

**What is action research?** When teachers or schools make systematic observations or test out methods to improve teaching and learning for their students, they are conducting action research.

**Distinguish between principles and theories.** A principle is an established relationship between two or more factors—between a certain teaching strategy, for example, and student achievement. A theory is an interrelated set of concepts that is used to explain a body of data and to make predictions. The principles from research offer a number of possible answers to specific problems, and the theories offer perspectives for analyzing almost any situation that may arise.

**What are the concerns of beginning teachers?** Learning to teach is a gradual process. The concerns and problems of teachers change as they progress. During the beginning years, attention tends to be focused on maintaining discipline, motivating students, evaluating students’ work, and dealing with parents. Even with these concerns, many beginning teachers bring creativity and energy to their teaching and improve every year. The more experienced teacher can move on to concerns about professional growth and effectiveness with a wide range of students.

**Educational psychology** The discipline concerned with teaching and learning processes; applies the methods and theories of psychology and has its own as well.

**Descriptive studies** Studies that collect detailed information about specific situations, often using observation, surveys, interviews, recordings, or a combination of these methods.

**Ethnography** A descriptive approach to research that focuses on life within a group and tries to understand the meaning of events to the people involved.

**Participant observation** A method for conducting descriptive research in which the researcher becomes a participant in the situation in order to better understand life in that group.

**Case study** Intensive study of one person or one situation.

**Correlations** Statistical descriptions of how closely two variables are related.

**Positive correlation** A relationship between two variables in which the two increase or decrease together. Example: calorie intake and weight gain.

**Negative correlation** A relationship between two variables in which a high value on one is associated with a low value on the other. Example: height and distance from top of head to the ceiling.

**Experimentation** Research method in which variables are manipulated and the effects recorded.

**Participants/Subjects** People or animals studied.

**Random** Without any definite pattern; following no rule.

**Statistically significant** Not likely to be a chance occurrence.

**Single-subject experimental studies** Systematic interventions to study effects with one person, often by applying and then withdrawing a treatment.

**Microgenetic studies** Detailed observation and analysis of changes in a cognitive process as the process unfolds over a several day or week period of time.

**Action research** Systematic observations or tests of methods conducted by teachers or schools to improve teaching and learning for their students.

**Principle** Established relationship between factors.

**Theory** Integrated statement of principles that attempts to explain a phenomenon and make predictions.
To receive your teaching license, you will have to take some kind of examination; the PRAXIS II™ in almost 50 states, or a similar test developed by your state. The bases for all these tests are the professional standards created by the Interstate New Teacher Assessment and Support Consortium (INTASC). Many of these standards are reflected in this book (see the Handbook, p. 590) for all the standards connections.

Case analysis is part of many licensure exams, so this text poses you practice and expert ideas about how to apply educational psychology to analyze cases, the case introducing this chapter asks you to think about excellent teaching. Excellent teachers are reflective—they critically examine every aspect of their teaching experiences, display inventiveness in their practices, and continually work to upgrade their knowledge and skills. As a juror member of the committee to recognize excellence in teaching, you might find it useful for your work as a committee member and your own professional development to learn how nominees for the excellence in teaching award use reflection. Praxis II recognizes the role of effective practice in the development of excellent teachers. Reflective practice includes contact with colleagues, membership in professional associations, and review of professional literature as resources, as well as the ability to understand the current views, significant debates, and research about effective teaching practices.

What Would They Do?

Here is how some practicing teachers responded to the teaching situation presented at the beginning of this chapter about establishing a "Teaching Excellence Award."

Thomas Nalsmith, Science Teacher, Grades 7-12, St. John's Independent School District, Chippewa, Pennsylvania.

To be fair in selecting recipients of the "Excellence in Teaching" award, the process must be subjective and inclusive. Prior to attending the first committee meeting, the beginning teacher should give serious thought to and work with others concerning what should be included in a sample evaluation checklist. The form on the checklist might be weighted as to importance, and could include such things as: standardized test scores by the teacher's students, productive participation by the teacher on various school and parent-teacher committees, etc. Copies of the checklist should be provided to the other members of the committee for their consideration and input. The other members of the committee should appreciate the preparation of their new colleagues and the fact that it is going to save them some time.

Madya Ayala, High School Teacher, of Preparatoria Eugenia Garza-Lejarza, Campus Garza Sales, Monterrey, N. L., Mexico.

The first thing that I would propose is to establish a set of selection criteria. We know that all teachers have strengths and weaknesses, and we wish the best for each of us. The set of evaluation criteria could change from time to time, depending on international, national, and local needs and values. These factors would influence the interpretation of a teacher's psychological, pedagogical, and sociological strengths and weaknesses. Length of experience should not be a factor. Only excellence, in performance, as a teacher. The main objective should be to make teachers aware of what is expected of them and to set the best examples.

Katie Churchill, Third Grade Teacher, Orlando Public Elementary School, Chicago, Illinois.

I would prepare for the meeting by researching how other schools have chosen recipients for similar awards in the past. I would recommend that we select different categories of excellence to decide who will be nominated for the award. I would suggest that we choose recipients fairly, based on their teaching abilities. Finally, I would recommend that we have student input regarding which teachers should receive these awards.

Carly Persson, Second Grade Teacher, Stone School, Groveland, Massachusetts.

I would have a discussion with the experienced teachers before our committee meeting to pinpoint what qualifications we are looking for in our candidates. Establishing a definition of "excellence in teaching" and constructing a list of recommendations should be a priority of the committee to ensure that all committee members are looking for the same qualifications. By constructing a list of key qualities and accomplishments for each nominee, we would be able to assess which would be the most qualified for the award.

Aimee Fredette, Second Grade Teacher, Park Elementary School, Woburn, Massachusetts.

There are many facets to being an effective teacher, but perhaps most bring that the teacher will teach all children to the best of their ability in a manner that is not only educational but also fun. A teacher who is able to teach in such a way that the students not only learn the material but also enjoy the process is a teacher who is truly effective. Effective teachers will actively engage students in the learning process, providing a variety of instructional methods and strategies to accommodate different learning styles. They also create a positive classroom environment where students feel safe and supported, which is essential for successful learning.

Effective teachers, regardless of philosophy, will excite and spark their students' interest. This will help them to develop their own interest in the subject matter, thereby increasing their motivation to learn. I also feel that teachers should not only help students to improve their academic skills but also help them to develop their personal and social skills. Teachers can help students to become more confident and self-reliant, which is essential for success in the future. I believe that the most effective teachers are those who are passionate about teaching and who are willing to go the extra mile to ensure that their students succeed. It is the responsibility of the teacher to create a positive learning environment where students feel safe and supported, which is essential for successful learning.

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