

SEVENTH  
CANADIAN  
EDITION

WOOLFOLK  
WINNE  
PERRY

# EDUCATIONAL PSYCHOLOGY



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**SEVENTH  
CANADIAN  
EDITION**

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# **EDUCATIONAL PSYCHOLOGY**

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To my mother,

**Marion Wieckert Pratt.**

A remarkable educator,  
an adventurous world traveler,  
a courageous advocate for all in need,  
and a wonderful guide in life—  
thank you.

—A.W.

In memory of missed parents,

**Bill Perry and Jean and Hawley Winne.**

Great teachers all!

And to family, friends, and students,  
who continue to teach us the joys of life and learning.

—P.H.W.

—N.E.P.

# ABOUT THE AUTHORS

So you will know the authors a bit better, here is some information.



**Anita Woolfolk** was born in Fort Worth, Texas, where her mother taught child development at TCU and her father was an early worker in the computer industry. She is a Texas Longhorn—all her degrees are from the University of Texas, Austin, the last one a PhD. After graduating, she worked as a child psychologist in elementary and secondary schools in 15 counties of central Texas. She began her career in higher education as a professor of educational psychology at Rutgers University, and then moved to The Ohio State University in 1994. Today she is Professor Emerita at Ohio State. Anita's research focuses on motivation and cognition, specifically, students' and teachers' sense of efficacy and teachers' beliefs about education. For many years she was the editor of *Theory Into Practice*, a journal that brings the best ideas from research to practicing educators. She has published over 80 books, book chapters, and research articles with her students and colleagues. Anita has served as vice-president for Division K (Teaching & Teacher Education) of the American Educational Research Association and president of Division 15—Educational Psychology of the American Psychological Association. Just before completing this edition of *Educational Psychology*, she collaborated with Nancy Perry, University of British Columbia, to write the second edition of *Child Development* (Pearson, 2015), a book for all those who work with and love children.



**Philip H. Winne** received his Ph.D. from Stanford University, accepted a position at Simon Fraser University in 1975, and has happily worked there his entire career. He is a professor at SFU and previously served as associate dean for Graduate Studies and Research in the Faculty of Education. His research accomplishments earned him two terms as a Tier I Canada Research Chair in Self-Regulated Learning & Learning Technologies and election as a fellow of the American Educational Research Association, the American Psychological Association, the Association for Psychological Science, and the Canadian Psychological Association. His research interests include self-regulated learning, metacognition, motivation, study tactics and learning strategies, adaptive software for research, and promoting self-regulated learning. To pursue these topics, he leads a team developing state-of-the-art software called nStudy. As students use nStudy to study online, the software collects extensive and detailed data about how they study. He has published more than 170 scholarly works and served as president of the Canadian Educational Researchers' Association, the Canadian Association for Educational Psychology, and Division 15—Educational Psychology of the American Psychological Association. He co-edited the *Handbook of Educational Psychology* (second edition) with Patricia Alexander and the field-leading journal *Educational Psychologist* (2001–2005), with Lyn Corno. He has served as Associate Editor of the *British Journal of Educational Psychology* for nearly 20 years, and currently is a member of the editorial board of seven other leading journals in the field.



**Nancy Perry** worked as a classroom and resource teacher in school districts in British Columbia, Canada, before obtaining her Ph.D. from the University of Michigan in 1996. Today, she is a professor of Educational and Counselling Psychology, and Special Education at the University of British Columbia (UBC). There, she teaches courses in two program areas—Human Development, Learning, and Culture; and Special Education; and supports students in a B.Ed. cohort that focuses on promoting self-regulated learning (SRL) in the middle years. She is a recipient of UBC's Killam Teaching Prize and holds the Dorothy Lam Chair in Special Education. Her research examines the role of task structures, instructional practices, and interpersonal relationships in promoting motivation and self-regulation in school. Related projects are profiled on her website: "Seeding Success through Motivation and Self-Regulation in Schools," <http://self-regulationinschool.research.educ.ubc.ca>. In addition to these teaching and research activities, Nancy has served as Associate Editor for the *Journal of Learning and Instruction*, President of Division 15—Educational Psychology of the American Psychological Association, President of the Canadian Association for Educational Psychology, Member of the Executive Boards of the Canadian Association for Studies in Education and Division 15—Educational Psychology as Member-at-Large.

# PREFACE

Many of you reading this book are enrolled in an educational psychology course as part of your professional preparation for teaching, counselling, speech therapy, nursing, or psychology. The material in this text should be of interest to everyone who is concerned about education and learning, from the kindergarten volunteer to the instructor in a community program for adults with disabilities. No background in psychology or education is necessary to understand this material. It is as free of jargon and technical language as possible, and many people have worked to make this edition clear, relevant, and interesting.

Since the first edition of *Educational Psychology* appeared, there have been many exciting developments in the field. The seventh Canadian edition continues to emphasize the educational implications and applications of research on child development, cognitive science, learning, motivation, teaching, and assessment. Theory and practice are not separated in the text but are considered together. The book is written to show how information and ideas drawn from research in educational psychology can be applied to solve the everyday problems of teaching. To help you explore the connections between research and practice, you will find in these pages a wealth of examples, lesson segments, case studies, guidelines, and even practical tips from experienced teachers. As you read this book, we believe you will see the immense value and usefulness of educational psychology. The field offers unique and crucial knowledge to any who dare to teach and to all who love to learn.

## NEW CONTENT IN THE SEVENTH CANADIAN EDITION

Across the book, there is increased coverage of a number of important topics. Some of these include

- New explorations of current research on teaching and models of **expert teaching**, introduced in Chapter 1 and continued throughout the book.
- Increased coverage of the **brain, neuroscience, and teaching** emphasized in Chapter 2 and also integrated into several other chapters.
- Increased coverage of the **impact of technology** and **virtual learning environments** on the lives of students and teachers today.
- Increased emphasis on **diversity in today's classrooms**, especially in Chapters 1 to 6. Portraits of students in educational settings make diversity real and human for readers.

Key content changes in each chapter include the following:

### Chapter 1 Learning, Teaching, and Educational Psychology

- Our goal is that this text will provide the knowledge and skills that will enable you to build a solid foundation for an authentic sense of teaching efficacy in every context and for every student. There is new information about models of good teaching here and throughout the text. Also, the section on research now examines different kinds of qualitative and quantitative research and what you can learn from each approach (see Table 1.2).

### Chapter 2 Cognitive Development

- New information on the brain, synaptic plasticity, executive functioning, and implications for teaching, including an approach based on Vygotsky called Tools of the Mind.

### **Chapter 3 Self and Social and Moral Development**

- New sections on cultural differences in play, physical activity and students with disabilities, eating disorders and the websites that promote them, self-concept—particularly elaborations of gender and sexual identity—and Jonathan Haidt’s model of moral psychology.

### **Chapter 4 Learner Differences and Learning Needs**

- New sections on nine possible multiple intelligences, autism spectrum disorders, student drug use, and ways to identify students who are gifted and talented.

### **Chapter 5 Language Development, Language Diversity, and Immigrant Education**

- New information on learning to read, emergent literacy and language diversity, sheltered instruction, and student-led conferences.

### **Chapter 6 Culture and Diversity**

- New coverage of homeless and highly mobile students, expanded coverage of poverty and school achievement, opportunity gaps, and stereotype threat.

### **Chapter 7 Behavioural Views of Learning**

- Expanded coverage of teaching implications of behavioural learning.

### **Chapter 8 Cognitive Views of Learning**

- Updated coverage of working memory, developmental differences, and teaching implications of cognitive learning theories.

### **Chapter 9 Complex Cognitive Processes**

- Updated sections on metacognition and learning strategies, creativity, and transfer, and a new section on Paul and Elder’s model of critical thinking.

### **Chapter 10 The Learning Sciences and Constructivism**

- New material on inquiry learning and teaching in a digital world, including Betty’s Brain—an example of a virtual learning environment—the use of games in teaching, and the initiative to teach computational thinking and coding.

### **Chapter 11 Social Cognitive Views of Learning and Motivation**

- Updated coverage of self-efficacy, self-regulated learning, and new material on emotional self-regulation.

### **Chapter 12 Motivation in Learning and Teaching**

- Updated treatment of self-determination theory and goal theory, expanded coverage of helping students cope with anxiety, and new material on flow and motivation.



## Chapter 13 Creating Learning Environments

- New sections on understanding your beliefs about classroom management, creating caring relationships, bullying, restorative justice, and Marvin Marshall's views on consequences and penalties.

## Chapter 14 Teaching Every Student

- Updated discussion of research on teaching, as well as a new section on understanding by design.

## Chapter 15 Classroom Assessment, Grading, and Standardized Testing

- Updated material on student testing.

## A CRYSTAL-CLEAR PICTURE OF THE FIELD AND WHERE IT IS HEADED

The seventh Canadian edition maintains the lucid writing style for which the book is renowned. The text provides accurate, up-to-date coverage of the foundational areas within educational psychology: learning, development, motivation, teaching, and assessment, combined with intelligent examination of emerging trends in the field and society that affect student learning, such as student diversity, inclusion of students with special learning needs, education and neuroscience, and technology.

## ACKNOWLEDGMENTS

During the years we have worked on this book, from initial draft to this most recent revision, many people have supported the project. Without their help, this text simply could not have been written.

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—PHIL WINNE AND NANCY PERRY

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# CHAPTER 1



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## LEARNING, TEACHING, and EDUCATIONAL PSYCHOLOGY



what would you do?

### **TEACHERS' CASEBOOK: Including All Students**

It is your second year as a high school teacher in the Surrey school district in British Columbia. Over the last four years, the number of students from immigrant families has increased dramatically in your school. You have students in your class who speak a wide range of languages, including Mandarin, Filipino, Hindi, and Punjabi. Some of them know a little English, but many have very few words other than "OK." In addition, you have several students with special needs; learning disabilities, particularly problems in reading, are the most common. The district and provincial policies are to educate all students in the general education classroom as much as possible, so you need to find meaningful ways to support all students' participation in classroom tasks.

### **CRITICAL THINKING**

- What will you do to help all your students to make progress with learning throughout the year?
- How will you make use of resources in your school and classroom?
- How can you work with the families of your non-English-speaking students and students with learning disabilities to support their children's learning?

## OVERVIEW AND OBJECTIVES

If you are like many students, you 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 counselling. Or you may have chosen this class as an elective because you are interested in education or psychology. Whatever your reason for enrolling, you probably have questions about teaching, schools, students—or even about yourself—that you hope this course may answer. This seventh Canadian edition of *Educational Psychology* has been written with questions such as these in mind.

In this first chapter, we begin by considering the state of education in today's world—more specifically, we ask: What it is like to be a teacher in Canada's diverse classrooms today? 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 associated with the field of educational psychology, and where does this information come from? Finally, we consider an overview of a model that organizes research in educational psychology to identify the key student and school factors related to student learning (Lee & Shute, 2010).

After you read and study this chapter, you should be able to:

- 1.1** Explain how teaching matters.
- 1.2** Discuss the essential characteristics of effective teaching, including different frameworks describing what good teachers do.
- 1.3** Describe the methods used to conduct research in the field of educational psychology and the kinds of questions each method can address.
- 1.4** Recognize how theories and research in development and learning are related to educational practice.

---

## LEARNING AND TEACHING TODAY

Welcome to one of our favourite topics—educational psychology—the study of development, learning, and motivation that takes place in and out of schools. We believe this is the most important course you will take to prepare for your future as an educator, whether your “students” are children or adults learning in classrooms or in environments that are outside schools. In fact, there is evidence that new teachers who have completed coursework in development and learning are twice as likely to stay in teaching (National Commission on Teaching and America's Future, 2003). This may be a required course for you, so let us make the case for educational psychology by introducing you to classrooms today.

### Classrooms Today Are Dramatically Diverse

Who are the students in Canadian classrooms today? Where do they come from? Here are a few facts taken from 2011 and 2016 Census data (Statistics Canada, 2018a-c; Statistics Canada, 2018):

- According to the 2016 Census, 22% of Canada's population is foreign-born. Most immigrants (62%) come from Asian countries, but people come to Canada from all over the world. More than 250 ethnic origins were reported.

- Approximately 22% of the population identify as members of visible minority groups, and approximately 21% report speaking a language other than English or French at home.
- Diversity is most concentrated in Toronto, Montreal, and Vancouver. Students in the Vancouver School Board speak more than 120 languages and it's not uncommon to have more English learners than native speakers in classrooms in some neighbourhoods.
- Indigenous communities across Canada are young and growing. Currently, they constitute almost 5% of our total population.
- Children come from a wide range of religious communities. Participation in religions other than Christianity is growing, particularly in the Muslim, Hindu, Sikh, and Buddhist faiths.
- Nearly 1.2 million (approximately 25%) children live in poverty in Canada and children represent 36% of regular users of food banks (Canadian Institute of Child Health, 2018). Particularly disturbing is the fact that 4 in 10 of Canada's Indigenous children are poor.
- Children in classrooms have diverse abilities and disabilities. Our inclusive policies mean that children with disabilities spend the majority of their school day in general education classrooms.
- Children are surviving diseases as serious as cancer and returning to school, but sometimes with so-named "late effects" related to the treatment they underwent that have implications for learning (Daly, Kral, & Brown, 2008).
- Finally, children's families are diverse. Some children live with a mom and dad, but many live with a mom or dad, and some live with two moms or two dads (e.g., in the case of gay and lesbian parents or blended families where parents are divorced and remarried). Still others live with grandparents, or with aunts and uncles.

One thing these children have in common is that they are all "digital natives"—they have not lived without digital technologies and many are better equipped than their teachers to deal with the changes to learning and living technology brings. Of course, there is also a growing "digital divide," which disproportionately advantages some groups over others.

These statistics are dramatic, but a bit impersonal. As a teacher, counsellor, recreational worker, speech therapist, or family member, you will encounter real children. You will meet many individual children in this text, too. Even though students in classrooms are increasingly diverse in terms of race, ethnicity, language, and economic and technological advantages, the teaching force remains very homogeneous. Clearly, it is important for all teachers to understand and work effectively with all their students. Several chapters in this text are devoted to understanding students. In addition, we will explore the concepts of student diversity and inclusion through the research, cases, and practical applications we present within each chapter.

## Confidence in Every Context

Schools are about teaching and learning; all other activities are secondary to these basic goals. But teaching and learning in the contexts described above can be challenging for both teachers and students. This text is about understanding the complex processes of development, learning, motivation, teaching, and assessment so that you can become a capable and confident teacher.

Much of Anita Woolfolk's research has focused on **teachers' sense of efficacy**, defined as a teacher's belief that he or she can reach even difficult students to help them learn. This confident belief appears to be one of the few personal characteristics of teachers



**TEACHER EFFICACY** Teachers' personal sense of efficacy is related to a school atmosphere of high expectations for teachers and students, administrative support, and real success with students.

### Teachers' sense of efficacy

A teacher's belief that he or she can reach even difficult students to help them learn.

that predict student achievement (Çakıroğlu, Aydın, & Woolfolk Hoy, 2012; Tschannen-Moran & Woolfolk Hoy, 2001; Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998; Woolfolk & Hoy, 1990; Woolfolk Hoy, Hoy, & Davis, 2009). Teachers with a high sense of efficacy work harder and persist longer even when students are difficult to teach, in part because these teachers believe in themselves and in their students. Also, teachers are less likely to experience burnout and more likely to be satisfied with their jobs (Collie, Perry, & Martin, 2017; Fernet, Guay, Senécal, & Austin, 2012; Fives, Hamman, & Olivarez, 2005; Klassen & Chiu, 2010).

Anita Woolfolk (and other researchers) have found that prospective teachers tend to increase their personal sense of efficacy as a consequence of completing student teaching, but sense of efficacy may decline after the first year as a teacher, perhaps because the support that was available during student teaching is gone (Woolfolk Hoy & Burke-Spero, 2005). Teachers' sense of efficacy is higher in schools when the other teachers and administrators have high expectations for students and the teachers receive help from their principals in solving instructional and management problems (Capa, 2005). Another important conclusion from this research is that efficacy grows from real success with students, not just from the moral support or cheerleading of professors and colleagues. Any experience or training that helps you succeed in the day-to-day tasks of teaching will provide a foundation for developing a sense of efficacy in your career. This text aims to provide the knowledge and skills that form a solid foundation for an authentic sense of efficacy in teaching.

### 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 psychologists who refused to accept these claims that teachers were powerless in the face of poverty and other societal problems among students (Wittrock, 1986).

How could you decide if teaching makes a difference in the lives of students? You could look to your own experience. Did you have teachers who had an impact on your life? Perhaps one of your teachers influenced your decision to become an educator. Even if you had such a teacher, and we hope you did, one of the purposes of educational psychology is to go beyond individual experiences and testimonies, powerful as they are, to systematically examine the impact of teaching on the lives of students by using carefully designed research studies. Several such studies are described below.



**RELATIONSHIPS MATTER** Research has shown that the quality of the teacher–student relationship in kindergarten predicts a number of academic and behavioural outcomes, particularly for students with behavioural problems, who are less likely to have problems later in school if their teachers are sensitive to their needs and provide frequent, consistent feedback.

**Teacher–Student Relationships.** Bridget Hamre and Robert Pianta (2001) followed 179 children in a small school district from the time they entered kindergarten through to the end of grade 8. 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 behavioural outcomes through grade 8, particularly for students with high levels of behavioural problems. Even when the gender, ethnicity, cognitive ability, and behaviour ratings of the student were accounted for, the relationship with the teacher still predicted aspects of school success. So students with significant behaviour problems in the early years are less likely to have problems later in school if their first teachers are sensitive to their needs and provide frequent, consistent feedback. In another study that followed children from grades 3 through 5, Pianta and his colleagues found that two factors helped children with lower skills in mathematics begin to close the achievement gap. The factors were higher-level (not just basic skills) instruction and positive relationships with teachers (Crosnoe, et al., 2010).



**The Cost of Poor Teaching.** In a widely publicized study, researchers examined how students are affected by having several effective or ineffective teachers in a row (Sanders & Rivers, 1996). They looked at fifth graders in two large metropolitan school systems in Tennessee. Students who had highly effective teachers for grades 3, 4, and 5, scored at the 83rd percentile on average on a standardized mathematics achievement test in one district and at the 96th percentile in the other (99th percentile is the highest possible score). In contrast, students who had the least effective teachers 3 years in a row averaged at the 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 3 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 partially make up 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 (Hanushek, Rivkin, & Kain, 2005; Rivkin, Hanushek, & Kain, 2001).

Another study about test score gains from the Los Angeles public schools may be especially interesting to you. Robert Gordon and his colleagues (2006) measured the test performance of elementary school students in *beginning teachers'* classes. Teachers were ranked into quartiles based on how well their students performed during the teachers' first 2 years. Then the researchers looked at the test performance of students in classes with the top 25% of the teachers and the bottom 25% during their third year of teaching. After controlling for the effects of students' prior test scores, their family income, and other factors, the students working with the top 25% of the teachers gained an average of 5 percentile points more compared to students with similar beginning-of-the-year test scores, while students in the bottom 25% lost an average of 5 percentile points. So students working with a less effective teacher could be an average of 10 percentile points behind the students working with an effective teacher. If these losses accumulate, then students working with poorer teachers would fall farther and farther behind. In fact, the researchers speculated that “. . . having a top-quartile teacher four years in a row would be enough to close the black-white test score gap” of about 34 percentile points (Gordon, Kane, & Staiger, 2006, p. 8).

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? We consider those points next.

## WHAT IS GOOD TEACHING?

Educators, psychologists, philosophers, novelists, journalists, filmmakers, mathematicians, scientists, historians, policy-makers, 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, in museums and sales meetings, and in therapists' offices and summer camps. In this text we are primarily concerned with teaching in classrooms, but much of what you will learn applies to teaching in other settings as well.

### Inside Three Classrooms

To begin our examination of good teaching, let's step inside the classrooms of several outstanding teachers. All the situations that follow reflect the conditions in real classrooms today.

**A Multilingual Grade 1 Class.** Anne Lee-Hawman teaches grade 1 in Mississauga, Ontario. Of the 22 children in her classroom, half are English (or additional) language learners. As is true for most linguistically diverse students in Canada, they spend 100% of

their school day using English instead of their native language. This immersion, or submersion, approach to second-language learning contrasts with the bilingual approaches to language learning used in many American states.

An English language teacher helps Anne to integrate these students by working in Anne's classroom each day. Together Anne and the English language teacher support students in small groups and make modifications to the curriculum to enable students who are English language learners to participate in all the activities of the classroom. One strategy the two teachers have found useful is to make information available through visual materials (e.g., pictures, diagrams, word or concept maps). Anne also makes use of peer tutors and, whenever possible, offers one-on-one instruction to students who need it.

In addition to supporting students' acquisition of English, Anne encourages students and their parents to continue talking, reading, and writing in their first language at home. As well, she fosters an appreciation for diverse languages and cultures in her classroom by designing tasks and activities that invite students to draw on their cultural knowledge and by having students compare and contrast their home or community experiences and practices during classroom discussions and sharing times.

Anne makes a point of learning as much as she can about her students' linguistic and cultural heritages. She recognizes how important it is for teachers to understand how issues of language and culture influence children's learning, so that they do not misinterpret children's motivation and behaviour. This year, five languages are represented in Anne's classroom: English, Hindi, Punjabi, Mandarin, and Malay. She has a lot of learning to do.

**A Suburban Grade 6 Class.** Ken teaches grade 6 in a suburban elementary school in Richmond, BC. Students in the class have varying 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 these 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. The study of science is also placed in the context of the real world. The students use a National Geographic Society computer network to link with other schools in order to identify acid rain patterns around the world. For social studies, the class plays simulation games; for example, in two games that focused on the first half of the 1800s, the students "lived" as trappers collecting animal skins and as pioneers heading west.

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 generate a list of rights and responsibilities for their class. This list covers most of the situations that might need a "rule."

**An Inclusive Class.** Eliot 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. His teacher, Mia, and a special education teacher worked together to tailor tasks to take advantage of Eliot's strengths as well as to provide explicit and intensive instruction to address his learning patterns and errors. With his teachers' help, over the next years, Eliot became an expert on his own learning and was transformed into an independent learner; he knew which strategies he had to use and when to use them. According to Eliot, "Learning that stuff is not fun, but it works!" (Hallahan & Kauffman, 2006, pp. 184–185).

What do you see in these three classrooms? The teachers are confident and 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. Then there is the challenge of how to use new technologies and techniques. The teachers must use them appropriately to accomplish important goals, not just to entertain the students. And the whole time these experts are navigating through the academic material, they are also 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. These teachers can efficiently collect and correct homework, regroup students, give directions, distribute materials, collect lunch money, and deal with disruptions—and they can do all this while also making a mental note to find out why one of their students is so tired. Finally, these teachers are also **reflective**—they constantly think back over situations to analyze what they did and why, and to consider how they might improve learning for their students.

**So, What Is Good Teaching?** Is good teaching science or art, the application of research-based theories or the creative invention of specific practices? Is a good teacher an expert explainer—“a sage on the stage”—or a great coach—“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-centred sages. You will be encouraged to be inventive, student-centred guides. *But beware of either/or choices.* Teachers must be both 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. They must know the research on student development, and they also need to know their own particular students with their unique characteristics of culture, gender, and geography. Personally, we hope you all become teachers who are both “sages” and “guides,” wherever you stand.

Anne, Ken, and Mia are examples of expert teachers, but they have been teaching for a long time. What about you? Let’s look at what it is like to be a new teacher.

## What Are the Concerns of Beginning Teachers?

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

Beginning teachers everywhere share many concerns, including how to maintain classroom discipline, motivate students, accommodate differences among students, evaluate students’ work, deal with parents, and get along with other teachers (Conway & Clark, 2003; Melnick & Meister, 2008; Veenman, 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 of becoming a good teacher, does not really prepare prospective teachers for starting off a school year with a new class. If you listed any of these concerns in your response to the *Stop & Think* question, you should not be troubled. They come with the job of being a beginning teacher (Borko & Putnam, 1996; Cooke & Pang, 1991).

With experience, hard work, and good support, seasoned teachers can focus on students’ needs and judge their teaching success by the accomplishments of their students (Fuller, 1969; Pigge & Marso, 1997). One experienced teacher described the shift from concerns about yourself to concerns about your students: “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).

Our goal in writing this text is to give you the foundation to become an expert as you gain experience. One thing experts do is listen to their students. Table 1.1 shows some advice students in a grade 1 class gave to their student teacher: It looks like the students know about good teaching, too.

**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.

**TABLE 1.1 • Advice for Student Teachers from Their Students**

The students in Ms. Amato's elementary school class gave this advice as a gift to their student teacher on her last day.

1. Teach us as much as you can.
2. Give us homework.
3. Help us when we have problems with our work.
4. Help us to do the right thing.
5. Help us make a family in school.
6. Read books to us.
7. Teach us to read.
8. Help us write about faraway places.
9. Give us lots of compliments, like "Oh, that's so beautiful."
10. Smile at us.
11. Take us for walks and on trips.
12. Respect us.
13. Help us get our education.

Source: From Nieto, S. *Affirming Diversity: The Sociopolitical Context of Multicultural Education*, 4e. Published by Allyn and Bacon, Boston, MA. Copyright © 2004 by Pearson Education. Reprinted by permission of the publisher.

## THE ROLE OF EDUCATIONAL PSYCHOLOGY

For as long as the formal study of 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.

### In the Beginning: Linking Educational Psychology and Teaching

In one sense, educational psychology is very old. Topics that 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. From its beginning, psychology in North America was linked to teaching. In 1890, William James officially founded the field of psychology and developed a lecture series for teachers entitled *Talks to Teachers on Psychology*. These lectures were given in summer schools for teachers 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 (Berliner, 2006; Hilgard, 1996; Pajares, 2003). 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.

In the 1940s and 1950s, the study of educational psychology concentrated on individual differences, assessment, and learning behaviours. 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. More recently, educational psychologists have investigated how culture and social factors affect learning and development (Anderman, 2011; Pressley & Roehrig, 2003).

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

### Educational Psychology Today

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. Educational psychologists study learning and teaching and, at the same time,

strive to improve educational policy and practice (Anderman, 2011; Pintrich, 2000). In order to understand as much as possible about learning and teaching, educational psychologists examine what happens when *someone* (a teacher or parent) or *something* (a computer) teaches *something* (math or weaving or dancing) to *someone else* (a student or co-worker or team) in some *setting* (a classroom or theatre or gym) (Berliner, 2006; Schwab, 1973). So educational psychologists study child and adolescent development; learning and motivation, including how people learn different academic subjects such as reading or mathematics; social and cultural influences on learning; teaching and teachers; and assessment including testing (Alexander & Winne, 2006).

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, is it not? 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, research, and money—sound pathetically obvious. People are tempted to say, and usually do say, “Everyone knows that!” Consider these examples:

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

**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 a student asks, the student 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 university or college early?

**Common Sense Answer.** No! 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. In *A Nation Deceived: How Schools Hold Back America's Brightest Children* (2004), Nicholas Colangelo, Susan Assouline, and Miraca Gross list the 20 most important points from their report. The first two are: (1) Acceleration is the most effective curriculum intervention for gifted children, and (2) for bright students, acceleration has long-term beneficial effects, both academically and socially. Whether acceleration is the best solution for a student depends on many specific individual characteristics, including the intelligence and maturity of the student as well as 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.



**RESEARCH MATTERS** These students are participating in true “hands-on” cooperative learning. Will their knowledge of science improve using this approach? Are there better ways to learn this subject? Educational research should shed light on questions like these.

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

More recently, Paul Kirschner and Joren van Merriënboer (2013) made a similar point when they challenged several “urban legends” in education about the assertion that learners know best how to learn. Today society has strongly held beliefs about students being self-educating digital natives who can multitask, having unique learning styles, and always making good choices about how to learn; these beliefs *have no strong basis in research*, but they are embraced nonetheless.

You may have thought that educational psychologists spend their time discovering the obvious, but 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** Quickly, list all the different research methods you can name. •

Educational psychologists design and conduct many different kinds of research studies. Some of these are **descriptive studies**—that is, their purpose is simply to describe events in a particular class or several classes.

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

**Correlation** Statistical description 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.

**Correlational Studies.** Often the results of descriptive studies include reports of correlations. We will take a minute to examine this concept, because you will encounter many 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. A **negative correlation** means that increases in one factor are related to decreases in the other. For example, the less you pay for a theatre or concert ticket, the greater your distance from the stage. 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 height simply allows you to make a general prediction about that person’s weight. Educational psychologists identify correlations so that they can make predictions about important events in the classroom.

**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 subjects are created. In psychological