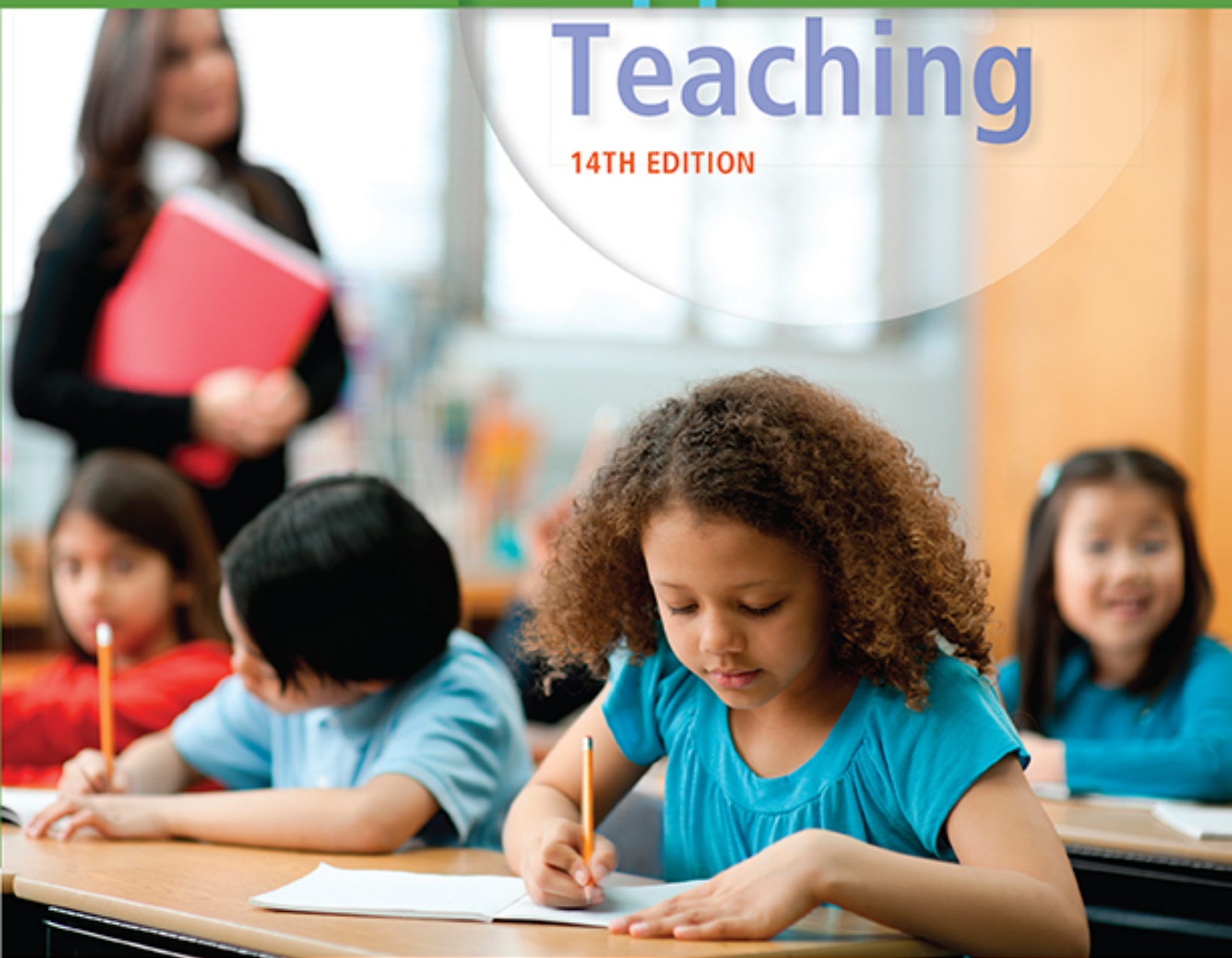


Jack Snowman • Rick McCown

Psychology Applied to Teaching

14TH EDITION



Correlation Chart for InTASC Standards

New to this edition is a focus on professional education standards, specifically the **Interstate Teacher Assessment and Support Consortium (InTASC) Standards**, which represent the core knowledge, dispositions, and skills that InTASC believes are essential for all teachers, regardless of their specialty or grade level. The InTASC standards are also designed to be compatible with the certification program for highly skilled veteran teachers developed by the National Board for Professional Teaching Standards. This handy correlation chart will help you determine where to find these standards within each chapter.

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14TH EDITION

Jack Snowman

Professor Emeritus, Southern Illinois University, Carbondale

Rick McCown

Duquesne University



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Psychology Applied to Teaching,
Fourteenth Edition

Jack Snowman
Rick McCown

Product Director: Marta E. Lee-Perriard
Senior Product Manager: Mark Kerr
Content Developer: Kassi Radomski
Product Assistant: Julia Catalano
Media Developer: Renee Schaaf
Marketing Coordinator: Angeline Low
Content Project Manager: Samen Iqbal
Senior Art Director: Jennifer Wahj
Manufacturing Planner: Doug Bertke
Production Service: Michelle Dellinger, Integra
Photo Researcher: Sofia Priya Dharshini
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WCN: 02-200-208

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Library of Congress Control Number: 2013954648

ISBN-13: 978-1-285-73455-2

ISBN-10: 1-285-73455-6

Cengage Learning

200 First Stamford Place, 4th Floor
Stamford, CT 06902
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Preface

This edition of *Psychology Applied to Teaching* was written at a time of unprecedented change in public education. For most of public education's history the impetus for teachers to improve the quality of their instruction was based almost entirely on their values and professional goals. But in recent years states and the federal government have worked together to create new standards for students and formal evaluation systems of teaching effectiveness.

The implication that flows from these changes is that prospective teachers need to be better prepared than ever to meet the expectations of society. This book can help you do that in several ways. One is by providing understandable accounts of psychological concepts that have been validated by research done under realistic conditions. As we point out in the first chapter, educational psychology textbooks have been accused of providing readers with ideas that are neither clearly explained nor terribly relevant. A large part of the reason for this book's long life and widespread use is that it has always emphasized a practical, reader-oriented approach to educational psychology theory and research. A second way this book can help prepare teachers is through our focus on classroom applications of research-validated concepts, which we pioneered over 40 years ago. We believe that prospective teachers will be more likely to use the information discussed in these chapters if they are also given examples of how these concepts can actually be used. Finally, the first and last chapters provide a framework for adding to and refining one's teaching skills. We have tried always to keep in mind that becoming an effective teacher means becoming an effective learner, and that effective learning comes from engaged inquiry. Therefore, in this edition, we have tried to frame our treatment of educational psychology so that the aspiring and developing professionals who read it can see themselves as engaged learners: professionals who inquire continuously to find, and then test, better ways of helping their students succeed.

MAJOR FEATURES OF THIS EDITION

Because of its central role in American society, education is a dynamic enterprise. Tens of thousands of people—including classroom teachers, school administrators, community organizations, accreditation agencies, foundations, state and federal education officials, politicians, educational and psychological researchers, and students themselves—are constantly searching for and trying out new ideas to increase student learning and achievement. Large-scale partnerships are being formed in an effort to advocate for one idea or another. Large-scale funding is being made available to encourage new ideas. Efforts to help students succeed are laudable and there are many of them. But ideas to help students succeed must be tested, and this is where educational and psychological researchers come into play.

Since the previous edition of this text, many new developments have occurred in social, emotional, and cognitive development; learning processes; motivation; classroom assessment and management; standardized testing; bilingual education; inclusion of students with disabilities; and the use of technology to support student learning and achievement. The 14th edition of *Psychology Applied to Teaching* has been revised and updated to reflect these developments.

Noteworthy themes of this edition include:

- **Framing effective teaching as being the result of an inquiry process.** Novice teachers are frequently in awe of how quickly and effectively their experienced colleagues solve everyday instructional problems. What they may not understand is that such expertise is the result of a systematic and continual process

of collecting and analyzing data about one's instructional efforts. In Chapter 1 we describe a four-part model called **teaching as inquiry** to help you better understand how that process works.

- **Emphasis on inquiry through assessment.** Research on new designs for teaching and learning—conducted in schools with practicing teachers and administrators—has clarified how assessment can be used in classrooms to inform both student and teacher learning. The role of teacher inquiry and how it is supported through formative assessment practices is addressed in several chapters. Formative assessment's role in reflective teaching is discussed in Chapters 1 and 16. A definition of formative assessment tied to both student and teacher learning appears in Chapter 14.
- **Advances in social cognitive theory.** Because of the many recent developments in social cognitive research, particularly with respect to self-regulated learning, Chapter 9 includes extensive coverage of learning strategies and tactics and how students can be taught to create and use them. Research on a program of self-regulation designed to strengthen writing skills shows how the principles of self-regulated learning can be applied in the classroom.
- **Emphasis on critical issues in educational psychology.** All the editions of *Psychology Applied to Teaching* have framed the crucial issues in contemporary education in ways that encourage students to consider the research and make informed judgments. In each chapter's critically acclaimed Take a Stand! feature, we model this behavior for students by stating where we stand on a critical issue and specifying the reasons for that stance.
- **Emphasis on educational technology.** Each chapter contains at least one section, and sometimes several, on how technology can be used to address the main themes and concepts of that chapter. These sections include emerging findings on the impact of Web 2.0 and what have been called Web 3.0 technologies. For example, the reader will find discussions of how such technologies can be used to foster cognitive development, address individual differences, promote greater multicultural understanding, make learning easier for students with disabilities, promote learning and problem solving for all students, increase motivation for learning, help teachers manage their classrooms, and aid in assessment of students. Design research, which is becoming more and more prevalent in educational research, is driving much of the work on technology for learning. Such research appears across chapters, including one large-scale project on a *multi-user virtual environment* (MUVE) and increased connectivity between learners in the classroom and explorers, scientists, and adventurers.
- **Emphasis on classroom applications.** *Psychology Applied to Teaching* was the first educational psychology textbook to provide numerous specific examples and guidelines for applying psychological concepts and research findings to classroom teaching in its Suggestions for Teaching sections. We want to ensure that new teachers are prepared for the realities of the classroom. That orientation and emphasis on bridging the gap from preparation to practice to foster teachers' lifelong career success not only continues but is also augmented by Chapter 13, "Approaches to Instruction," which links the writing of instructional objectives with five approaches to instruction that flow from different conceptions of learning.
- **Emphasis on diverse learners.** To help prospective and new teachers understand and cope with the wide range of student diversity they will almost certainly face, we provide extensive treatment of this issue in two chapters: Chapter 4, "Understanding Student Differences," and Chapter 5, "Addressing Cultural and Socioeconomic Diversity." In addition, in Chapter 6, "Accommodating Student Variability," we show how principles of *universal design for learning* (UDL) are being employed via technology. Key ideas on teaching the diversity students (e.g., the emerging work on *critical constructivism* in Chapter 10) appear in other chapters as well.

- **Emphasis on real-life contexts.** Each chapter contains two features that illustrate the relevance of psychological concepts to actual classroom practice. The first feature, **Improving Practice Through Inquiry: One Teacher's Story**, is a first-person account from a current or former teacher that describes how that individual solved an instructional problem that relates to some part of that chapter's content.

Also included in every chapter are references to **TeachSource Video Cases** that students can view on the CourseMate website. Each video shows an actual classroom scene in which the teacher describes his or her actions and explains why they were taken. Readers are also prompted by questions that help them relate the video to the content of the chapter.

- **Reflective teaching.** Thinking about what one does as a teacher and why has been shown to be an important characteristic of effective teachers. *Psychology Applied to Teaching* tries to foster in students an appreciation of this skill in several ways. First, the concept of reflective teaching and its role in the inquiry process described above is discussed in Chapter 1. This theme is picked up again in Chapter 16, in which students learn how to construct a personal journal and how useful this activity is to practicing teachers. Second, Chapters 2 through 15 begin and end with vignettes called "Revealing and Challenging Assumptions" about two fictional teacher education students and one first-year teacher who, reflecting under the guidance of a master teacher, become aware of and challenge common but untenable assumptions they hold about teaching and classroom learning. In Chapter 16, the master teacher draws conclusions and shows how important reflection is in a teaching career. Third, at several locations in Chapters 2 through 15, students encounter a "Pause and Reflect" feature in which they are asked to respond to a question about classroom learning and instruction that is based on that chapter's content. Fourth, the critical role of assessment data in guiding action-oriented reflection is a recurring theme. Fifth, the value of collaborative reflection and feedback from colleagues (e.g., *lesson study* in Chapter 16) is described.

NEW FEATURES

This edition now provides a number of new features to help students in their studies.

- **NEW Integrated coverage of Interstate Teacher Assessment and Support Consortium (InTASC) Standards** includes a list of standards covered at the beginning of each chapter, icons highlighting this coverage throughout the text, and a Standards Correlation Grid on the inside front and back covers to help students make connections between what they learn in *Psychology Applied to Teaching* and the professional standards. InTASC standards include 10 Essential Knowledge standards that represent what teachers should know about students and their learning environments in order to maximize instructional outcomes.
- **NEW Learning Objectives** at the beginning of each chapter correlate with main chapter headings and show students what they need to know to process and understand the information in the chapter. Learning Objectives are also integrated into the end-of-chapter Summary, so by the time students complete the chapter, they should be able to demonstrate how they can use and apply the knowledge and skills learned in the chapter.
- **NEW Guide to Reading and Studying Digital Downloads** include information and complete versions of the forms in the textbook for students to download, often customize, and use to review key concepts and in the classroom! Look for the Digital Downloads label that identifies these items.

- **NEW Improving Practice Through Inquiry: One Teacher's Story**, is a first-person account from a current or former teacher that describes how that individual solved an instructional problem that relates to some part of that chapter's content.
- **NEW Did You Get It?** quizzes allow students to measure their performance against the learning objectives in each chapter. One question for each learning objective is featured in the textbook to encourage students to go to CengageBrain.com, take the full quiz, and check their understanding.

ADDITIONAL SPECIAL FEATURES OF THE TEXT

The pedagogic features introduced in earlier editions have been improved and augmented to make this 14th edition even more useful and effective.

- **Suggestions for Teaching** A hallmark feature of this text, the Suggestions for Teaching sections provide concrete teaching examples that highlight the application of psychological research in the classroom. This real-world connection helps pre-service teachers understand the value of their Educational Psychology course to their development as an educator. Numerous examples of applications at different grade levels are supplied; readers are urged to select applications that will fit their own particular personality, style, and teaching situation. The Suggestions for Teaching are intended to be read while the book is in use, and also referred to by future teachers and in-service teachers after they have completed coursework. For ease in reference, these suggestions are printed on a colored background and tabbed.
- **TeachSource Video Cases** feature footage from the classroom to help students relate key chapter content to real-life scenarios. Critical-thinking questions, artifacts, and bonus video help the student reflect on the content in the video. The TeachSource Videos can be accessed through CourseMate. CourseMate can be bundled with the student text. Contact your Cengage sales representative for information on getting access to CourseMate.
- **Revealing and Challenging Assumptions** In Chapters 8, 9, and 10 we make the point that people use their prior knowledge and experience to help them make sense of a complex and information-filled world. Teaching is a complex world, and those who aspire to teach naturally form assumptions about it. Making and acting on assumptions can be an effective means of dealing with complex matters; it can also lead to problems, especially in those cases in which assumptions are formed on the basis of limited knowledge and experience. The Revealing and Challenging Assumptions features afford aspiring teachers opportunities to confront and reflect on problematic assumptions about teaching and learning. In Chapters 2 through 15, a chapter-opening vignette illustrates, within the context of the chapter's themes, commonly held but unsound assumptions about teaching and learning. Each opening vignette is followed by an opportunity to pause and reflect on how and why the assumption illustrated in the vignette and explicitly cited in the Pause and Reflect feature could be an obstacle to effective teaching and learning. At the end of the chapter, the vignette resumes in order to challenge the problematic assumption in light of the theories, research, and suggestions for teaching in the chapter. The same four characters are included in the vignettes throughout the book.
- **Take a Stand!** In this era of accountability, teachers are frequently criticized and called on to defend their profession and their practices. Although many veteran teachers do this quite confidently and effectively, the novice teacher often feels ill prepared to engage the public. The Take a Stand! feature provides students with brief models of how one can articulate a compelling position on an educational issue. In Chapters 1 through 15, the book's authors draw on their extensive experience and knowledge of the research literature (38 and 35 years,

respectively) to take a strong but supportable stand on an issue that relates to the chapter content. Further, the feature encourages students to do the same—to articulate and discuss their own opinions on key issues. At the textbook's website this feature is extended with additional resources and pedagogy. This feature became an immediate hit with instructors after its introduction in the 11th edition.

- **Key Points** The Key Points appear in the margins of pages next to where each point is discussed and are also available as a Guide to Reading and Studying Digital Download. They call attention to sections of the text that are considered to be of special significance to teachers and thus serve as instructional objectives.
- **Pause and Reflect** Knowing how difficult it is for students to meaningfully grasp the abstract concepts that make up educational psychology and how important it is for them to begin to develop the habit of reflective thinking, this feature was designed to help students make connections between one idea and another and between theory and actual classroom practice. As students read each chapter, they will encounter several Pause and Reflect features that ask them to stop and think about a concept or issue raised in the chapter or to consider how their own experiences relate to what they are reading.
- **Summary** A numbered set of summary statements—now organized by learning objective—appears at the end of the chapter. This feature is intended to help students review the main points of a chapter for upcoming examinations or class discussions.
- **Resources for Further Investigation** To conclude the chapter, an annotated bibliography is presented that offers sources of information on the major topics covered in the chapter. Internet addresses for websites that provide additional useful information are also listed. Please note that the websites were active at the time we prepared the text, but we, of course, are not responsible for their continued presence. Readers can access the textbook's website for live, recently updated links.
- **Glossary** A glossary of key terms and concepts is provided at the back of the book as an aid in reviewing for examinations or classroom discussion.

MAJOR CHANGES TO EACH CHAPTER

The following lists highlight some, though not all, of the major changes made to each chapter.

Chapter 1: Applying Psychology to Teaching

- An explanation of the nature of theory and its relationship to educational research and practice.
- A new discussion and examples of the complexity of teaching.
- The inclusion of authoritative websites that teachers can use to learn about research-validated programs and practices.
- Current research on the effectiveness of teachers who graduate from accredited teacher education programs and receive standard certification as compared to teachers who received nonstandard certification.
- A revised discussion and new examples of how nonscientific reasoning leads to flawed educational decisions, with a particular emphasis on the use and effectiveness of grade retention.
- A revised discussion and new examples of the factors that complicate educational psychology research.
- A revised discussion of the role of flexibility in the art of teaching.
- A new section on how a teaching as inquiry model can help teachers progress from novice to expert.

Chapter 2: Theories of Psychosocial and Cognitive Development

- Current research that updates the 40-year history of research on how adolescent identity statuses affect behavior.
- New research on Carol Gilligan's criticism that Erikson's theory is gender-biased.
- Revised suggestions for helping adolescents develop a strong identity, including the use of technology.
- Revised discussions and examples of the Piagetian concepts of scheme, equilibration, and adolescent egocentrism.
- Updated discussion of research on whether formal instruction can accelerate cognitive development.
- New research on the extent to which Piaget's theory underestimates the cognitive capabilities of young children and overestimates the cognitive capabilities of adolescents.
- Revised discussion of the criticisms of Kohlberg's theory of moral development.
- Revised discussion of the validity of Nel Noddings's care theory.
- Revised discussion of Hartshorne and May's pioneering research on moral behavior (e.g., lying, cheating, stealing) and updated research on the validity of those early findings.
- New section on character development as an educational goal.

Chapter 3: Age-Level Characteristics

- New research findings on friendships among preschool and kindergarten children.
- The effect of various types of social interactions on young children's competence.
- The effect of being accepted by a peer group on achievement among elementary grade children.
- Characterization of parenting styles in terms of relational power used confrontatively and coercively.
- The positive effect of school-based programs on the social and emotional development of middle school students.

Chapter 4: Understanding Student Differences

- A new section on the various ways in which intelligence has been defined and a recent general definition.
- An expanded discussion of the limitations of intelligence tests.
- Revised discussion of the nature of learning styles.
- New section on current research on the issue of matching learning styles to instruction.
- Revised and updated discussion of gender differences on tests of cognition and achievement.
- New section on gender differences in school performance.

Chapter 5: Addressing Cultural and Socioeconomic Diversity

- Updated figures on immigration to the United States and birthrate patterns.
- The effect of poverty on academic motivation.
- New evidence on the increase in and effects of homelessness.
- Current data on high school dropout rates among students of color.
- Updated data on how social class affects achievement, health and living conditions, family environment, and motivation, beliefs and attitudes.
- New findings on the benefits of homework.

- Revised Suggestion for Teaching about using instructional techniques that are consistent with students' cultural backgrounds and value systems.
- New findings on the effect of bilingual education programs versus English immersion programs on the achievement of English Language Learners.

Chapter 6: Accommodating Student Variability

- Current data on the prevalence of inclusion.
- New figures from the most recent report from the U.S. Department of Education on the percentages of students who receive special education services under IDEA.
- Current figures on the prevalence of students with learning disabilities.
- Current figures on the prevalence of students with ADHD.
- Current figures on the prevalence of students with emotional disturbance.
- New material about online programs for gifted and talented students.

Chapter 7: Behavioral Learning Theory: Operant Conditioning

- Revised discussion of the basic nature of operant conditioning.
- Expanded discussion and examples of punishment and how it differs from negative reinforcement.
- Additional examples of the effect of a fixed ratio schedule of reinforcement.
- New research on the effects of computer-based instruction on achievement.
- New research on the effects of integrated learning systems on achievement.
- Updated figures on the number of states that ban or permit corporal punishment in schools.
- Expanded discussion and examples of the beneficial effects of feedback on learning in the Suggestions for Teaching section.

Chapter 8: Information-Processing Theory

- Expanded discussion of the effect of attention on memory.
- Revised discussion of short-term memory to incorporate the concept of working memory.
- Expanded discussion of the role of visual imagery encoding on memory.
- A new section that describes the major explanations of why people forget.
- A new section on the development of children's memory skills.
- A new Suggestion for Teaching on the use of chunking.
- A new Suggestion for Teaching on the power of distributed practice.
- Revised discussion of metacognition that distinguishes between and describes metacognitive knowledge and metacognitive skills.
- New research findings on age trends in metacognition.
- Revised discussion of technology as an information processing tool.

Chapter 9: Social Cognitive Theory

- Updated findings on the extent to which teachers provide instruction in self-regulated learning skills.
- New findings on how acquiring self-regulation skills positively affects students.
- New material on the benefits of providing students with feedback about their use of self-regulation skills.
- New research on establishing the foundation for self-regulated learning in kindergarten and the primary grades.

Chapter 10: Constructivist Learning Theory, Problem Solving, and Transfer

- A new introduction that highlights the importance of acquiring higher-level thinking skills.
- Updated research on the effectiveness of discovery learning.
- New material on the use of situated learning by successful teachers.
- New research on the effectiveness of problem-based learning.
- New material on flipping the classroom as an example of constructivist teaching.
- A new Suggestion for Teaching that involves the use of a discussion-oriented website.
- Revised discussion of “Quest Atlantis”—a virtual world for students and their teachers.

Chapter 11: Motivation and Perceptions of Self

- Revised introduction that includes results of a survey on student engagement and four factors that affect motivation.
- Current research on learning goals.
- A new discussion of “Maslow’s Paradox” as experienced by contemporary learners.
- New material on the limitations of Maslow’s theory.

Chapter 12: Classroom Management

- Updated statistics on the extent of violence in schools.
- New material on cyberbullying.
- New findings on the effect of schoolwide programs to prevent bullying.
- New material on how a measure of adverse childhood experiences correlates with biological and academic health.
- New findings on the effectiveness of the Resolving Conflict Creatively Program.

Chapter 13: Approaches to Instruction

- Updated research on the effects of scaffolding.
- Revised introduction to “The Humanistic Approach to Teaching.”
- Revised description of “The Pioneers of the Humanistic Approach.”
- Revised description of “Teaching from a Humanistic Orientation.”
- New research on the effect of a humanistic classroom environment on student achievement.
- A new section on how technology—including Web 3.0 technologies—support thinking and sharing.
- A new section on the effects of personalization and diversification on thinking and learning and exemplified by new material on “Adventure Learning.”

Chapter 14: Assessment of Classroom Learning

- Revised description of criterion-referenced grading.
- New Suggestion for Teaching on the use of formative assessments to promote mastery of instructional objectives.
- New Suggestion for Teaching on giving students feedback before telling them the grade they earned.

Chapter 15: Understanding Standardized Assessment

- New introduction to standardized assessment.
- Updated discussion of the problems involved in implementing No Child Left Behind.

- New research on how high-stakes testing programs have affected the motivation of students and teachers.
- New research on the extent to which state tests are aligned with state standards.
- New research on the effect of high-stakes assessment on school curricula.
- New section on modifications to No Child Left Behind brought about by the federal government's ESEA Flexibility program.
- New sections on how Race to the Top and the Common Core Standards have changed state assessments.

Chapter 16: Becoming a Better Teacher by Becoming a Reflective Teacher

- New description of a teacher evaluation instrument called the Constructivist-Oriented Learning Environment Survey (COLES).
- Revision of “What Makes Reflective Techniques Effective?”

SUPPLEMENTS

Online Instructor's Manual and Test Bank An online Instructor's Manual accompanies this book. It contains information to assist the instructor in designing the course, including sample syllabi, discussion questions, teaching and learning activities, field experiences, learning objectives, and additional online resources. For assessment support, the manual includes an updated test bank with true/false, multiple-choice, matching, short-answer, and essay questions for each chapter.

Cengage Learning Testing Powered by Cognero Cognero is a flexible, online system that allows instructors to author, edit, and manage test bank content from multiple Cengage Learning solutions. Instructors can create multiple test versions in an instant and deliver tests in several ways—from their LMS, their classroom, or wherever they want! The bank includes test items consisting of multiple-choice, short-answer, and essay questions consistent with the text's long-standing emphasis on mastery. Each question reflects a learning objective and level of Bloom's Taxonomy.

PowerPoint Lecture Slides These vibrant, Microsoft PowerPoint lecture slides for each chapter assist you with your lecture by providing concept coverage using images, figures, and tables directly from the textbook!

Education CourseMate brings course concepts to life with interactive learning, study, and exam preparation tools that support the printed textbook. CourseMate includes the eBook, quizzes, Digital Downloads, TeachSource Video Cases, flashcards, and more—as well as EngagementTracker, a first-of-its-kind tool that monitors student engagement in the course. The accompanying instructor website, available through login.cengage.com, offers access to password-protected resources such as PowerPoint® lecture slides and the online Instructor's Manual with Test Bank. CourseMate can be bundled with the student text. Contact your Cengage sales representative for information on getting access to CourseMate.

ACKNOWLEDGMENTS

Authors write books to share what they have learned and, in the case of this book, to facilitate the learning of those who aspire to teach. Unless the book is published, however, learning can neither be shared nor facilitated. We are grateful to our colleagues at Cengage Learning for their efforts to help us share learning. In particular, we express our appreciation to Kassi Radomski, who served as the development editor of this edition.

Many others have also played a significant role in shaping the book. A number of reviewers made constructive suggestions and provided thoughtful reactions at various stages in the development of this edition. Thanks go out to the following individuals for their help:

Austin Archer
Walla Walla University

Tara Beziat
University of South Carolina Aiken

Sue Burdett Robinson
Hardin Simmons University

Heidi Burross
University of Arizona

Kay Chick
Penn State Altoona

Lisa Davies
Lipscomb University

Vickie Denny
Clearwater Christian College

John Ellis
Missouri Western State University

Kathleen Everling
University of Texas at Tyler

Betty Hubbard
Concordia College Alabama

Patricia Lanzon
Henry Ford Community College

Judith Levine
Farmingdale State College

Frank Lilly
California State University, Sacramento

Angia Macomber
Taylor University—Upland

Mike Martynowicz
Manchester University

Sandra Owen
Cincinnati State Technical and Community College

Edmund Sass
College of Saint Benedict/St. John's University

Thomas Scheira
Buffalo State College

Devora Shamah
Oregon State University

Michele Shanahan
The University at Buffalo, SUNY

Karthigeyan Subramaniam
University of North Texas

Sandra Todaro
Bossier Parish Community College

Laura Ward
Tompkins Cortland Community College

Tricia Wessel-Blaski
University of Wisconsin—Washington County

Vickie Williams
University of Maryland Baltimore County

Eileen Yantz
Gaston College

Because all teachers—at various points along the way—have been shaped by those who taught them, teachers are living legacies. As it happens, we share a legacy. We were, and continue to be, influenced and inspired by the same teacher. Our teacher brought us both to the study of educational psychology, opened the door, invited us in, and has in the course of his teaching made us part of his academic family: a family that has given us a history, support, a network of colleagues, and friends on whom we can rely. Our teacher is a good man and that helps make him a good teacher. Our teacher's name is Donald J. Cunningham, and we thank him. Our acknowledgment carries also the hope that he is pleased with the legacy he entrusted to us.

The work of writing a book requires spending a lot of time inside one's own head, but that time commitment makes demands also on the author's family. For their understanding and their support, Jack thanks his wife, Rickey, and Rick thanks his wife, Nona for her patience as she missed evenings out and weekend activities.

Both authors are now grandfathers and they think a lot about the people who will teach their grandchildren. A lot. They do so because they know how important teachers are to the futures of children. We have always known this was the case—the research is clear on this point—but as grandfathers we know it viscerally. We hope our book will help those who will guide the learning of every child. We hope this book will help those who study it to become perpetual learners who inquire and learn from their inquiry. As you study to become a teacher, we ask that you take care of the children you teach. It is those children—including, perhaps, our own grandchildren—to whom we dedicate this book.

1

Applying Psychology to Teaching



David Leahy/Digital Vision/Getty Images

LEARNING OBJECTIVES

INTASC

Standards Addressed in This Chapter

- 4 Content Knowledge
- 5 Application of Content
- 6 Assessment
- 7 Planning for Instruction
- 8 Professional Learning and Ethical Practice

After studying this chapter, you will be able to ...

- 1-1** State the main focus of educational psychology.
- 1-2** Explain how learning about educational psychology will help make you a better teacher.
- 1-3** Describe the limitations of a nonscientific approach to solving education-related problems and the strengths of a scientific approach.
- 1-4** Describe how the limited focus of research, the complexity of teaching and learning, differences in how educational psychologists select and interpret research findings, and the accumulation of knowledge over time complicates the scientific study of behavior and thought processes.
- 1-5** Explain what it means to say that good teaching is partially an art and partially a science.
- 1-6** Describe the concept of teaching as inquiry, and explain how it contributes to a teacher's effectiveness.

As you begin to read this book, you may be asking yourself, “What will this book tell me about teaching that I don’t already know? After all, I’ve been in school for more than 12 years and have observed dozens of teachers. And teaching is nothing more than telling others what I know.” What you may not realize—at least not yet—is that you likely have significant gaps in your knowledge about the factors that affect teaching and learning.

You may also have formed incorrect beliefs about how to teach others and about how people learn in classroom settings. Our primary goal, then, is to help you fill in these gaps and create more accurate beliefs by explaining how you can use various psychological theories, concepts, and principles to become an effective classroom teacher.

The purpose of this first chapter is to tell you a little bit about the field of educational psychology, why we think research on various aspects of teaching and classroom learning can help you become an effective teacher, and how you can best use research findings to achieve your teaching goals. So let’s start with a comment and question that the two of us have heard from various people, including teachers, many, many times in our careers: “I’ve never heard of educational psychology. What is it all about?”

GUIDE TO READING AND STUDYING

These key points will help you learn the important information in this chapter. To help you study, they also appear in the margins of the pages, next to the text where they are discussed.

What Is Educational Psychology?

- Educational psychologists study how students learn in classrooms

How Will Learning About Educational Psychology Help You Be a Better Teacher?

- Teaching is complex work because it requires a wide range of knowledge and skills
- Research in educational psychology offers many useful ideas for improving classroom instruction
- Teachers who have had professional training are generally more effective

The Nature and Values of Science

- Unsystematic observation may lead to false conclusions
- Grade retention policies are influenced by unsystematic observation
- Scientific methods: sampling, control, objectivity, publication, replication

Complicating Factors in the Study of Behavior and Thought Processes

Research focuses on a few aspects of a problem

- Complexity of teaching and learning limits uniform outcomes
- Differences of opinion result from selection and interpretation of data
- Accumulated knowledge leads researchers to revise original ideas

Good Teaching Is Partly an Art and Partly a Science

- Teaching as an art: beliefs, emotions, values, flexibility
- Research provides a scientific basis for “artistic” teaching
- Good teachers combine “artistic” and “scientific” characteristics

Reflective Teaching: A Process to Help You Grow from Novice to Expert

- Reflective teachers think about what they do and why
- Reflective teachers have particular attitudes and abilities

TeachSource Digital Download

Access online

Educational psychologists study how students learn in classrooms

1-1 WHAT IS EDUCATIONAL PSYCHOLOGY?

Educational psychology is a branch of psychology that is concerned with understanding and improving how students acquire a variety of capabilities through formal instruction in classroom settings. David Berliner (2006), for example, described educational psychology as a scientific discipline that uses psychological concepts and research methods to understand how the various characteristics of students, teachers, learning tasks, and educational settings interact to produce the everyday behaviors common in school settings. Because educational psychology is a scientific discipline, we will be describing one of its most important tools in just about every chapter: theory. Many people mistakenly think that a theory is nothing more than unproven, off-the-top-of-the-head speculation about some topic. Let’s put that view to rest right now. In a scientific context, a theory is a proposed explanation of some phenomenon that is based in part on already existing facts. Scientists then use what they already know to propose a tentative explanation of how something works that can be tested. The nature of theory and its relationship to research and practice should become clearer as you move through the book.

Some of the factors that psychological theories are concerned with and that affect how teachers teach and students learn include the learner’s physical, social, emotional, and cognitive development; cultural, social, emotional, and intellectual differences; learning and problem-solving processes; self-esteem; motivation; testing; and measurement to formulate effective instructional lessons. In the next section, we’ll explain why learning about these topics is worth your time and effort.

The importance of these topics to classroom learning has been underscored by the American Psychological Association (APA). In November 1997, the APA’s Board of Educational Affairs proposed that efforts to improve education be based on a set of 14 learner-centered psychological principles. These principles, derived from decades of research and practice, highlight the importance of learning processes, motivation, development, social processes, individual differences, and instructional practices in classroom learning. These are the same topics and principles that have long been emphasized by *Psychology Applied to Teaching*. A description of and rationale for each principle appears on the APA website.

Did You Get It?

Which of the following is the best description of the field of educational psychology?

- a. It is concerned with the mental health of educators.
- b. It studies the historical forces that have influenced the nature of schooling.
- c. It is primarily concerned with the relationships among teachers, administrators, and parents.
- d. It uses theory and research to understand the factors that affect teaching and learning.

[Take the full quiz online](#)

1-2 HOW WILL LEARNING ABOUT EDUCATIONAL PSYCHOLOGY HELP YOU BE A BETTER TEACHER?

There's no question that knowledge of psychological concepts and their application to educational settings has the potential to help you be a better teacher (Photo 1–1). Whether that potential is ever fulfilled depends on how willing you are to maintain an open mind and a positive attitude. We say this because educational research is often described as being neither useful nor influential (Miller, Drill, & Behrstock, 2010; Patrick, Anderman, Bruening, & Duffin, 2011). As you read through the next few paragraphs and the subsequent chapters, you will see that criticisms like this are easily rebutted. We offer a three-pronged argument (teaching is a complex enterprise, research can inform teachers, and professional coursework contributes to competence) to explain how educational psychology can help you be a better teacher, whether you plan to teach in an elementary school, a middle school, or a high school.

1-2a Teaching Is a Complex Enterprise

The first part of our argument is that teaching is not the simple, straightforward enterprise some people imagine it to be. In fact, it ranks in the top quartile on complexity for all occupations (Rowan, 1994), and several analyses include teachers in the same occupational group as accountants, architects, computer programmers, counselors, engineers, and lawyers (Allegreto, Corcoran, & Mishel, 2004; U.S.

Photo 1–1 *The information in this book can help you be a better teacher for three reasons: teaching is a complex activity that requires a broad knowledge base, many instructional practices are supported by research, and teachers who are knowledgeable about that research are better teachers.*



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Department of Labor, 2001). Marilyn Cochran-Smith (2003), for many years the editor of the *Journal of Teacher Education*, has characterized teaching as “unforgivably complex.” While there are many reasons for this complexity, two stand out. First, while teachers usually work with diverse groups of students who have varied and sometimes contradictory needs, each student needs to be understood as an individual learner. But perhaps most fundamentally, the complexity of teaching derives from its decision-making nature. Teachers are constantly making decisions—before and after instruction as well as on the spot. Linda Darling-Hammond (2006a), a leading teacher educator, notes that teachers must “be able to understand and respond to the dense and multifaceted nature of the classroom, juggling multiple academic and social goals requiring trade-offs from moment to moment and day to day” (p. 305). Here’s an insightful observation about teaching that highlights its complexity: “Mathematicians need to understand a problem only for themselves; math teachers need both to know the math and to know how 30 different minds might understand (or misunderstand) it. Then they need to take each mind from not getting it to mastery. And they need to do this in 45 minutes or less” (Green, 2010).

Teaching is complex work because it requires a wide range of knowledge and skills to properly address the needs of all students

Educational psychology offers many useful ideas that can help you cope with the complexity of teaching. But for reasons that we elaborate on later in the chapter and at other points in the book, it does not, in most cases, provide specific prescriptions about how to handle particular problems; rather, it gives you general principles that you can use in a flexible manner. Fortunately, the research literature contains a wealth of these ideas.

1-2b Research That Informs Teachers

Research in educational psychology offers many useful ideas for improving classroom instruction

The second part of our argument pertains to the potential usefulness of educational psychology research. Contrary to the negative opinions that were reported by Miller et al. (2010) and Patrick et al. (2011), the research literature contains numerous studies that were conducted under realistic classroom conditions and offer useful ideas for improving instruction (see, for example, Berliner & Casanova, 1996; Marzano, Pickering, & Pollock, 2005; Simonson, Fairbanks, Briesch, Myers, & Sugai, 2008; Walberg, 2006). As you read through each chapter in the book, you will find solid support for the instructional practices we describe.

Another source of useful research is the What Works Clearinghouse. This resource, which is part of the U.S. Department of Education, was designed to provide educators with information about how well various types of instructional programs they might be interested in adopting are supported by research. What makes this site so useful is that each program is judged according to the same set of rigorous standards. Reports are available on 15 topics, including academic achievement, dropout prevention, education technology, math, science, literacy, student behavior, and special needs. Being aware of and consulting the WWC site will leave you better informed than most of your colleagues. A 2010 survey by the Government Accountability Office found that 58 percent of school administrators had never heard of the What Works Clearinghouse, which means that decisions about which programs to adopt (many of which are sold commercially and are very expensive) are made on the basis of a persuasive sales pitch or a recommendation from a colleague (Gabriel & Richtel, 2011).

Doing What Works is another website maintained by the U.S. Department of Education that provides research-based evidence on various practices and programs, such as a response to intervention in primary-grade reading, teaching literacy to K–5 English-language learners, encouraging girls in math and science, and reducing behavior problems.

Analyses of research on mathematics, reading, science, early childhood education, and comprehensive school reform can be found on the website of the Johns Hopkins University’s Center for Data-Driven Reform in Education. Called the Best Evidence Encyclopedia, this site summarizes the results of research reviews that meet high

standards of quality and usefulness. Each program that is reviewed is then assigned to one of four categories depending on the amount and strength of the evidence.

As much as we value the contribution that research can make to your effectiveness as a teacher and hope that you will make consistent use of it in the future, you need to put research in its proper context. For reasons we mention in a later section of this chapter, you should keep in mind that the knowledge produced by science, particularly with respect to classroom learning, is usually qualified and temporary. A few pages ago, we described educational psychology as a discipline that studies how characteristics of students, teachers, learning tasks, and educational settings interact to produce the outcomes that will be of interest to you. Consequently, the insights you seek from research should be specific (“For which students will this idea likely work best?” “Under what circumstances?” “With what kinds of tasks?” “For what kinds of outcomes?”), rather than general (“Will my students benefit more from A than B?”). In other words, keep reminding yourself that nothing works for everybody in any and all circumstances. Notice also that we talked about research providing you with insights rather than definitive answers. Our choice of wording here is quite deliberate. Research in any field is a matter of adding to, taking away from, and revising an existing body of knowledge. For all practical purposes, we never get to the point where we say, “This is what we know, and it will always be so.” Instead, researchers say, “This is what we know for now.” That’s why we prefer that you treat research findings as providing you with insights or guidelines rather than hard-and-fast answers. As we explain a bit later in this chapter, the ability to take basic insights from research and tailor them to a classroom’s ever-changing circumstances is what defines the teacher who is an artistic scholar, or one who combines the art and science of teaching.

1-2c Coursework and Competence

The third part of our argument that educational psychology can help you be a better teacher concerns the courses you are currently taking, particularly this educational psychology course. Many researchers have asked, “How do the courses teachers take as students relate to how capable they perceive themselves to be as teachers?” One means that researchers have used to determine the answer has been to ask beginning teachers to rate how prepared they feel to handle a variety of classroom tasks.

Teachers who have had professional training are generally more effective

Surveys of beginning teachers (e.g., Brouwer & Korthagen, 2005; Maloch, Fine, & Flint, 2002/2003; National Comprehensive Center for Teacher Quality & Public Agenda, 2008a,b; Ruhland & Bremer, 2002; Zientek, 2007) reveal that they are highly satisfied with how well their training has prepared them to deal with certain classroom challenges but are dissatisfied with their preparation for addressing other challenges. On the plus side, most beginning teachers reported that their training adequately prepared them to teach a specific subject, provide individualized instruction, manage the behavior of students in their classroom, and understand the impact of children’s cognitive, social, and emotional development on learning (Maloch, Fine, & Flint, 2002/2003; National Comprehensive Center for Teacher Quality & Public Agenda, 2008a,b; Zientek, 2007). On the negative side, beginning teachers felt their teacher education programs did not do enough to prepare them to deal with children with special needs, children from ethnically and racially diverse backgrounds, assessing learning, and interpreting test results to students and parents (National Comprehensive Center for Teacher Quality & Public Agenda, 2008a,b; Ruhland & Bremer, 2002; Zientek, 2007). This textbook will address all of these issues, including those about which teachers have reported discomfort. Our belief is that this course and this book will be one important means for helping you feel prepared to enter your first classroom.

Despite feeling less than fully prepared to deal with special needs students, ethnically and culturally diverse students, and aspects of classroom assessment, beginning teachers who earned their certification from a standard teacher education program

reported higher levels of satisfaction with the quality of their training than did teachers who earned their certification through such alternate means as the Teach for America program, New Teachers Project, and Troops to Teachers program. In one survey, 80 percent of traditionally trained and certified first-year teachers felt they were prepared for their first year of teaching, whereas only 50 percent of alternate-route teachers felt adequately prepared. Similarly, 74 percent of traditionally trained teachers felt they spent enough time working with classroom teachers during their training, whereas only 31 percent of alternate-route teachers felt that way (National Comprehensive Center for Teacher Quality & Public Agenda, 2008c).

Although it is reassuring to know that most beginning teachers have a generally favorable opinion of the quality of their preparation programs, researchers have also asked if the graduates of such programs provide high-quality instruction to their students. There are two types of evidence that shed some light on this issue.

First, several studies (see, for example, American Educational Research Association, 2004; Darling-Hammond, 2006b; Berry, Hoke, & Hirsch, 2004; Darling-Hammond & Youngs, 2002; Darling-Hammond, Holtzman, Gatlin, & Heilig, 2005; Laczko-Kerr & Berliner, 2003; Wayne & Youngs, 2003; and Wilson, Floden, & Ferrini-Mundy, 2002) found that the students of certified teachers scored higher on standardized achievement tests than did the students of teachers with nonstandard certification even though these teachers were judged to have had a good understanding of their subject matter (Photo 1–2). The value added by being trained in an accredited teacher education program and receiving standard certification is something called *pedagogical content knowledge*. It involves both knowing about and knowing how to use the contents of this book and those from other courses to present lessons in various subjects that are interesting, meaningful, and engaging. Research shows that the students of math teachers who were judged to have high levels of pedagogical content knowledge learned more than did students whose teachers lacked this characteristic but were considered nonetheless to be highly knowledgeable about mathematics (Baumert, Kunter, Blum, Brunner, Voss, Jordan, et al., 2010).

Second, the grades teachers earned in their teacher preparation program and their performance during student teaching were better predictors of how effective they were as teachers than were their scores on a standardized teacher certification test (D’Agostino & Powers, 2009).



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Photo 1–2 *The students of teachers who were trained in teacher education programs and certified by their states score higher on standardized achievement tests than do the students of noncertified teachers.*

Did You Get It?

A student of Mr. Aldrich is having difficulty grasping fractions. Which of the following will best help Mr. Aldrich solve this problem?

- Mr. Aldrich should talk to the student’s parents about restricting access to television and video games until the student’s performance improves.
- Mr. Aldrich should keep the student inside during recess to work on fractions problems.
- Mr. Aldrich should consult the What Works Clearinghouse website.
- Mr. Aldrich should ask other students in the class for suggestions.

[Take the full quiz online](#)

INTASCStandard 4(j)
Standard 5(i)**1-3 THE NATURE AND VALUES OF SCIENCE**

The primary purpose of this book is to offer suggestions on how psychology (the scientific study of behavior and mental processes) might be applied to teaching. This text is based on the premise that information reported by scientists can be especially useful for those who plan to teach. Some of the reasons for this conviction become apparent when the characteristics of science are examined and compared with the limitations of casual observation.

Unsystematic observation may lead to false conclusions

1-3a Limitations of Nonscientific Reasoning

Those who think unscientifically about the world in which they live may be easily misled into drawing false conclusions. One way this happens is by mistaking correlation for cause-and-effect. In other words, when two events occur close together in time, and when logic suggests that one could have been the cause of the other, many people jump to the conclusion that the first event did in fact cause the second. Here's a common example: a person goes to the doctor for a flu shot, comes down with the flu a few days later, and concludes that the flu shot caused the flu (despite being told that the vaccine contained a dead virus). What people ignore when they think this way are alternative explanations such as contracting the flu just after the shot (it takes the immune system about two weeks to create antibodies to the dead virus contained in the vaccine) or contracting a strain of the flu that was not contained in the vaccine. Another common mistake is to generalize from a single example. Many teachers conclude, for example, that because a previously uninterested student was motivated by praise, all students will react in a similar fashion. Often they do not. What teachers ignore when they think this way is the possibility that other students are not motivated by praise or that praise may not work with students whose self-concepts are very weak. In short, unsystematic observers are especially prone to noting only evidence that fits their expectations and ignoring evidence that does not.

Grade-retention policies are influenced by unsystematic observation

One example of how operating from a nonscientific basis leads to poor educational decisions is the practice of retaining children for a second year in a given grade because of poor achievement. The percentage of students in grades K–12 in the United States who had ever been retained was 9.8 percent for 2007, with the highest rate (22.9 percent) occurring among students from low-income families (Planty et al., 2009). Retention is often seen as a relatively inexpensive way to bring underachieving students up to grade-level standards, but it really is not when you consider that the average school spent \$9,553 per student during the 2005–2006 school year (Planty et al., 2009). Clearly, keeping students in school longer than normal has a significant monetary cost.

To some extent, retention rates are related to the growth of state learning standards and high-stakes testing programs (which we discuss in Chapter 15 on standardized tests); school districts are often required to retain students whose test scores fall below a certain level (Allensworth & Nagaoka, 2010).

Support for grade retention rests on the following assumption: students who repeat a grade will, by the end of the repeated year, have a better understanding of that grade's subject matter and skills than similar peers who were promoted. As a result, their learning gains the following year will be better than those of their promoted peers. So, how well is this assumption supported by research findings? Rather poorly. Primary grade students who have been retained typically perform no better the following year than their nonretained counterparts, and elementary grade students often perform worse. In addition, students who were retained are more likely to drop out of school (Allensworth & Nagaoka, 2010; Duffrin, 2004a; Hong & Raudenbush, 2005; Jimerson, 2001; Jimerson & Kaufman, 2003; Jimerson, Anderson, & Whipple, 2002; Nagaoka & Roderick, 2004; Ramirez & Carpenter, 2009).

So why, in the face of overwhelmingly negative evidence, does grade retention continue to be practiced? We can think of two reasons that reflect nonscientific

thinking. First, the assumption we described above is very intuitively appealing. It just seems logical that giving students a second opportunity to master a particular grade's knowledge base and skills will produce higher achievement in subsequent grades. A position that is backed by what appears to be an ironclad logic can quickly become an unshakeable belief. A second reason is that people tend to overgeneralize from the exceptional case in which the outcome was positive (Duffrin, 2004b; Graue & DiPerna, 2000; Owings & Kaplan, 2001; Thomas, 2000).

The reason retention does not work is simple: it does not address the causes of students' poor performance. These students typically begin school with more poorly developed academic skills, more serious health problems, and less stable home environments than their peers. In addition, retained students receive the same type of instruction and material the second time around (Allensworth & Nagaoka, 2010). The best way to minimize, if not avoid, the use of retention is to provide developmentally, cognitively, and culturally appropriate forms of instruction (Darling-Hammond & Falk, 1997). The major goal of this text is to help you know how to provide such instruction as a teacher.

pause & reflect

Imagine that you are a second-grade teacher. Your principal suggests that one of your students who performed poorly this year repeats second grade next year. Given what you know about the research on retention, how would you respond?

1-3b Strengths of Scientific Observation

Now that we've described the major shortcomings of operating on the basis of common knowledge (or personal experience or intuition, if you prefer those terms), it's time to examine what makes a scientific approach to the study of behavior more useful. Most scientific studies have the following five characteristics, which we can designate with the labels *sampling*, *control*, *objectivity*, *publication*, and *replication*.

In most cases, researchers study a representative sample of subjects so that individual idiosyncrasies are canceled out. An effort is made to note all plausible hypotheses to explain a given type of behavior, and each hypothesis is tested under controlled conditions. If all factors but one can be held constant in an experiment, the researcher may be able to trace the impact of a given condition by comparing the behaviors of those who have been exposed to it and those who have not.

Scientific observers make special efforts to be objective and guard against being misled by predetermined ideas, wishful thinking, or selected evidence. Observations are made in a carefully prescribed, systematic manner, which makes it possible for different observers to compare reactions.

Complete reports of experiments—including descriptions of subjects, methods, results, and conclusions—are published in professional journals. This dissemination allows other experimenters to replicate a study to discover if they obtain the same results. The existence of reports of thousands of experiments makes it possible to discover what others have done. This knowledge can then serve as a starting point for one's own speculations.

Scientific methods: sampling, control, objectivity, publication, replication

Did You Get It?

Kaylee, who has just completed the first grade, reads slowly and sometimes confuses her letters. Her teacher recommends that Kaylee repeat the first grade. The teacher's recommendation is

- likely to lead Kaylee to have good emotional adjustment.
- unlikely to solve Kaylee's reading problem.
- correct because this decision worked with one other student several years ago.
- based on scientific procedures.

[Take the full quiz online](#)

1-4 COMPLICATING FACTORS IN THE STUDY OF BEHAVIOR AND THOUGHT PROCESSES

Although the use of scientific methods makes it possible to overcome many of the limitations of nonscientific thinking, applying research findings to classroom settings is not as straightforward as you might think because of several complicating factors. What follows is a brief description of several factors that sometimes frustrate both researchers and practitioners.

1-4a The Limited Focus of Research

Human behavior is complex, changes with age, and has many causes. A student may perform poorly on a history exam, for example, for one or more of the following reasons: poorly developed study skills, inattentiveness in class, low interest in the subject, a poorly written text, low motivation to achieve high grades, vaguely worded exam questions, and difficulty with a particular type of exam question (compare-and-contrast essays, for example).

Research focuses on a few aspects of a problem

To understand how these factors affect performance on school-related tasks, research psychologists study at most only a few of them at a time under conditions that may not be entirely realistic. Imagine that a researcher is interested in comparing lectures versus problem-solving exercises in terms of their effect on conceptual understanding. The researcher may recruit subjects who are equivalent in terms of social class, prior knowledge of the topic of the reading passage, and age; randomly assign them to either a teacher who mostly lectures or one who assigns problems to solve; and then examine each group's responses to several types of comprehension items. There's nothing inherently wrong with this approach; you just have to understand that the results relate most directly to the type of person who participated in the study and the circumstances under which the study was conducted. Change any of the variables and you might not get the same result. But by combining and interrelating separate studies that have looked at different aspects of the same problem, we can apply the findings to a wider range of people and circumstances.

1-4b The Complexity of Teaching and Learning

David Berliner (2002), a leading educational researcher, considers the scientific study of education to be “the hardest-to-do science of them all” for at least two reasons. First, it is difficult to implement research findings and programs uniformly because schools and classrooms differ from one another along such lines as quality and quantity of personnel, teaching methods, budget, leadership, and community support. Thus, a program or technique may work just as the research says it should in one district or teacher's class, but not in other classes or districts.

Complexity of teaching and learning limits uniform outcomes

Second, the outcomes of schooling that teachers, students, and parents typically value are the result of complex interactions among numerous variables (Photo 1–3). This is true for both cognitive (thinking) outcomes and affective (emotional) outcomes. Achievement may, for example, be the result of interactions among student characteristics (such as prior knowledge, interests, and socioeconomic levels), teacher characteristics (type of training, ideas about learning, interests, and values, for example), curriculum materials, socioeconomic status of the community, and peer influences. This complexity produces two outcomes that teachers find both frustrating and challenging: (1) students exposed to the same materials and teaching methods are likely to vary in how much and what they learn (Daniel & Poole, 2009; Davis, 2007), and (2) a teacher's effectiveness is likely to vary from class to class and year to year (Kennedy, 2010).