About the Authors

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Deborah L. Lowther  Deborah has been an educator for 30 years. For the first seven years of her career she taught middle school science and was highly engaged with providing professional development to teachers within and beyond her district. Because of her desire to work with teachers, she received her PhD in educational technology in 1994 and accepted a faculty position at the University of Memphis in 1995. At the University of Memphis, Deborah serves as the senior technology researcher for the Center for Research in Educational Policy, through which she investigates PK–12 technology integration issues. She has personally conducted observations in PK–12 classrooms and interviewed students, teachers, and principals in numerous schools across the country. She has used the knowledge and experiences gained through engagement in applied research to develop the iNtegrating Technology for inQuiry (NTeQ) Model with Dr. Gary Morrison. This model has been the foundational approach for several high-profile technology initiatives, including Michigan’s Freedom to Learn program and Tennessee’s EdTech Launch program. With regard to scholarship, Deborah has coauthored several books, chapters, and refereed journal articles; presented at numerous national and international conferences; and has provided professional development to educational institutions across the nation.

James D. Russell  Jim is professor emeritus of Educational Technology at Purdue University, where he taught for 38 years. Jim also worked part time for Purdue’s Center for Instructional Excellence, where he conducted workshops on teaching techniques and consulted on instructional improvement. During fourteen spring semesters he was Visiting Professor of Educational Psychology and Learning Systems at Florida State University. There he also worked part time for the Center for Teaching and Learning. A former high school mathematics and physics teacher, Jim’s teaching career spans 45 years. He has won numerous honors for his teaching at Purdue, including his department’s Outstanding Teacher Award and the School of Education’s Best Teacher Award. He is also the recipient of AECT’s Diamond Mentor Award. He was selected as a member of Purdue’s Teaching Academy and has been inducted into the Purdue Book of Great Teachers. His specialty areas, in which he has achieved national prominence through his writings and presentations, are presentation skills and using media and technology in classrooms. Through his teaching, workshops, consulting, and this textbook, Jim has made a significant impact on classroom teaching practice.
Instructional Technology and Media for Learning has received the following recognition in past editions:

- Outstanding Book in Educational Technology and Teacher Education from the Association of Educational Communications and Technology (AECT) Teacher Education Division
- The James Brown Award for the Best Non-Periodic Publication in the Field of Educational Technology from AECT
- The Outstanding Instructional Communication Award from the International Society for Performance Improvement (ISPI)
- The Visual Design and Layout Award from the Design Society of America
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Instructional Technology and Media for Learning, Tenth Edition, shows how a complete range of technology and media formats can be integrated into classroom instruction using the ASSURE model for lesson planning. Written from the viewpoint of the teacher, the text shows specifically and realistically how technology and media enhance and support everyday teaching and learning. This book is intended for educators at all levels who place a high value on learning. Its purpose is to help educators incorporate technology and media into best practice—to use them as teaching tools and to guide students in using them as learning tools. We draw examples from elementary and secondary education because we know that instructors in these PK–12 settings have found previous editions of this book useful in their work.

This new edition is necessitated by the amazing pace of innovation in all aspects of technology, particularly in those related to computers, Web 2.0, social networks, and the Internet. The text has been updated to reflect the accelerating trend toward digitizing information and school use of telecommunications resources, such as the Web, wikis, and blogs. The tenth edition also addresses the interaction among the roles of teachers, technology coordinators, and school media specialists, all complementary and interdependent teams within the school.

NEW TO THIS EDITION

The nature of shifts and changes in technology requires us to continually look at new trends and resources that impact learning with technology. Because of these changes, we found the need to add new information and features to this edition of the book.

1 Focus on 21st Century Learning. With the advent of the 21st century, it is important to focus on the new directions that impact today’s students. The chapters focus on 21st century learners and how to best use technology and media to address their interests and needs.

1 Chapter 2, Understanding 21st Century Learners. This heavily revised chapter brings the reader into the 21st century classroom where there are new challenges as well as new tools available to enhance teachers’ classroom instruction and strategies.

1 Web 2.0. Web 2.0 resources and tools are provided throughout the text. In addition, we have devoted an entire chapter, Chapter 6, to the types of Web 2.0 tools available to use as part of the extension beyond the computers in the classroom. Many open-source and online resources are identified as examples of Web 2.0 tools.

1 Websites and Online Resources. More websites and online resources are featured in each chapter. A balance of student use and teacher support websites have been identified for the many technology and media topics discussed throughout the book.
1. **Knowledge Outcomes**

   This chapter addresses ISTE NETS-T 2, 4, and 5.
   1. Describe the characteristics of the 21st-century learner.
   2. Discuss the learning theories described in this chapter.
   3. List principles of effective instruction for the 21st-century learner.
   4. Discuss the principles of effective technology and media utilization.
   5. Discuss the concept of test literacy.
   6. Compare and contrast the advantages and limitations of integrating technology into learning.

---

### Taking a Look at Technology Integration

These miniature case studies of technology and media applications demonstrate how teachers are using technology in a variety of settings. Like the ASSURE Classroom Case Study, they show technology and media use in context.

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### Innovation on the Horizon

The features, which appear toward the end of each chapter, highlight new developments in technology that can impact teachers and students.

---

Updated ISTE NETS-T. At the beginning of each chapter, the ISTE NETS-T are aligned with chapter Knowledge Outcomes. At the end of each chapter, the professional skills activities have been updated to reflect the ISTE NETS-T. For each end of chapter activity at least one standard has been identified. Students who successfully complete the skills activities will demonstrate that they have accomplished the standards.

---

**New Tech High**

Started in California, the New Tech Network is a national initiative to develop innovative high schools. It is an outgrowth of the philosophy that empowering students through an alternative instructional approach will help them to become creators, leaders, and tomorrow’s productive citizens. New Tech Network advocates learning environments that provide student-centered settings where:

- Problem-based learning engages learners
- Students and teachers have ownership of their learning experiences
- Technology is integrated throughout the entire learning experience

The goal is to provide students with an integrated curriculum that focuses on critical thinking, collaboration, and problem solving as validities to learning. And they have the data to demonstrate that their ideas are working, with graduation rates that are significantly higher than the national averages. Also, more of the graduates from New Tech high school pursue careers in mathematics, science, and engineering than their regular high school peers.

---

3D INTERACTIVE CUBE DISPLAY

**Tabletop Display Gets Rich of the Glasses**

A cube-shaped device offers all the thrill of 3D without those annoying glasses. The device, called “pCubee,” has five LCD screens—one on each side and another on the top of the cube. The viewer can pick it up and see virtual objects from four sides and the top. The viewer can shake the cube, tilt it, and even interact with objects in the cube using a virtual stylus, just think of the advantages of using the 3D cube in the classroom to show different objects without having to store the many objects between uses.
The ASSURE Model for Technology Integration. The presentation of the ASSURE model has been moved forward to Chapter 3 and related features have been substantially revised. In this edition the explanation of the ASSURE model has been revised to be more clear, practical, and focused on PK–12 teaching and learning. Chapter opening ASSURE Classroom Case Studies (in Chapters 3 through 11) each present a video clip of a specific classroom that will be revisited periodically throughout the chapter in the ASSURE Case Study Reflections. These are brief notes and reflection questions that extend the opening case study by addressing the questions that a teacher may face when considering technology integration in the context of specific chapter content. At the end of the chapter the ASSURE Lesson Plan provides a fuller version of the instructional or classroom situation outlined at the beginning of the chapter and offers a possible solution.
Copyright Concerns.

This feature provides an integrated discussion of copyright issues linked to specific chapter content.

1. **Computer Software**
   - Copyright Concerns. This feature provides an integrated discussion of copyright issues linked to specific chapter content.
   - Media Samples. Actual materials in a variety of media formats are highlighted as examples that are commercially available, to make the reader aware of what is available for use in the classroom. The materials referred to are meant to be typical of a given format, not necessarily exemplary. No endorsement is implied.

2. **Selection Rubrics**
   - Selection Rubrics. These updated rubrics, related to each of the technology and media formats, make it easy to preview materials systematically and to preserve the information for later reference. Textbook users have permission to photocopy these for personal use and may also download them from the Book Resources section of MyEducationKit.

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Preface

Technology for Diverse Learners

Completely revised, this feature describes technology and media that can be used to meet the learning needs of diverse learners, ranging from those with learning disabilities to gifted and talented students.

**2**

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**Text-Based Materials**

Use when student learning will be enhanced by...

**Guidelines**

- Reading text information for which they will be held accountable
- Supplementing teacher-presented material
- Using handouts that guide them through learning activities
- Implementing an SQ3R method (see Using Text Materials in the Classroom, p. 51)

**Examples**

- High school students read an assigned article from an online source
- Students use library books, encyclopedia, or newspapers to add to their knowledge of a topic
- Students use a step-by-step guide to write a book report
- Students Survey, ask Questions, Read, Reacts, and Review printed information about the city of airlines

**1**

When to Use . . . This feature gives specific tips on using technology and media with clarity, flair, and dramatic effect. It goes with the “U” of the ASSURE model (Utilize Technology, Media, and Materials).

**Free and Inexpensive**

RUBRICS

Rubistar

http://rubistar4teachers.org/index.php

Rubistar is a free online tool designed to assist teachers in creating a variety of rubrics. This website has numerous examples of rubrics that can be accessed through keyword searches. If you are new to rubrics, the site offers a rubric tutorial. When you are ready to try it out, Rubistar provides an easy-to-use template to create and print rubrics. If you complete the registration, you can access and edit rubrics online.

Kathy Schrock’s Assessment and Rubric Information

http://school.discovery.com/technoGuide/assess.html#rubrics

This site provides a vast array of links to rubric resources. The links are categorized by Student Web Page Rubrics, Subject-Specific and General Rubrics, Rubric Builders, Educator Technology Skills and Rubrics, and Related Articles.

Rubrics and Evaluation Resources

www.naa.edu/eval/rubrics

This site provides a collection of rubric resources that range from specific rubrics (e.g., book report rubric, multimedia project rubric, and writing assessment rubrics) to generic rubric templates.

Free and Inexpensive. Because many schools have tight budgets, this feature offers a list of practical and valuable resources that are free or inexpensive. They also inform the reader how to obtain the resources. These are listed at the ends of chapters with our all-new web links.
FOCUS ON PROFESSIONAL DEVELOPMENT

To help readers develop their ongoing professional knowledge and skills with regard to effectively using technology and media for learning, we have enhanced the feature at the ends of chapters called Continuing My Professional Development.

The first section, Demonstrating Professional Knowledge, poses questions based on the Knowledge Outcomes at the beginning of each chapter. In the next section, Demonstrating Professional Skills, readers integrate their learning through activities that are aligned with the ISTE NETS for Teachers. Additional activities are also available on this text’s MyEducationKit. The final section is Building My Professional Portfolio. In Chapters 3 through 11 readers use the ASSURE model to build lessons using the following three steps:

- Creating My Lesson asks readers to select their own topics and settings for developing lessons that integrate the technology and media discussed in the chapter. Chapter-specific questions help readers make decisions to create their own lesson plan using appropriate instructional strategies, technology, and media.
- Enhancing My Lesson asks the reader to describe other strategies, technology, media, and materials that could enhance the lesson. The reader addresses how the lesson could be enhanced to meet the diverse needs of learners, including students who already possess the knowledge and skills targeted in the lesson plan.
- Reflecting on My Lesson prompts readers to reflect on the lesson, the process used to develop it, and different types of students who could benefit from it. Readers are also asked to reflect on what they learned about the process of matching audience, content, strategies, technology, media, and materials.

INSTRUCTOR SUPPLEMENTS

The following instructor ancillaries support and reinforce the content presented throughout the text. All supplements are available for download from Pearson’s password-protected Instructor Resource Center (www.pearsonhighered.com/irc) for instructors who adopt this text. For more information, contact your Pearson Education sales representative.

INSTRUCTOR’S MANUAL

The Instructor’s Manual provides chapter by chapter tools to use in class. Teaching strategies, in-class activities, student projects, key term definitions, and helpful resources will reinforce key concepts or applications and keep students engaged.

MYTEST COMPUTERIZED TEST BANK

MyTest Computerized Test Bank (www.pearsonmytest.com) provides multiple-choice and essay questions tied to each chapter. Pearson MyTest is a powerful assessment generation program that helps instructors easily create and print quizzes and exams. Questions and tests are authored online, allowing ultimate flexibility and the ability to efficiently create and print assessments anytime, anywhere! To access Pearson MyTest and your test bank files, simply go to www.pearsonmytest.com to log in, register, or request access.

FEATURES OF PEARSON MYTEST:

Premium assessment content
- Draw from a rich library of assessments that complement your Pearson textbook and your course’s learning objectives.
- Edit questions or tests to fit your specific teaching needs.

Instructor-friendly resources
- Easily create and store your own questions, including images, diagrams, and charts using simple drag-and-drop and MS-Word-like controls.
- Use additional information provided by Pearson, such as the question’s difficulty level or learning objective, to help you quickly build your test.

Time-saving enhancements
- Add headers or footers and easily scramble questions and answer choices, all from one simple toolbar.
- Quickly create multiple versions of your test or answer key, and when ready, simply save to MS-Word or PDF and print.
- Export your exams for import to Blackboard 6.0, CE (WebCT), or Vista (WebCT).

MYTEST SUPPORT

MyTest questions from instructors are fully supported by Pearson Customer Support, and there are numerous helpful documents posted at www.247pearsoned.custhelp.com and www.pearsonmytest.com/support.html.
POWERPOINT SLIDES

Each slide reinforces key concepts and big ideas presented throughout the text. These are available for download from the Instructor Resource Center.

Dynamic Resources Meeting Your Needs

MyEducationKit is a dynamic website that connects the concepts addressed in the text with effective teaching practice. Plus, it’s easy to use and integrate into assignments and courses. Whenever the MyEducationKit logo appears in the text, follow the simple instructions to access a variety of multimedia resources geared to meet the diverse teaching and learning needs of instructors and students. Here are just a few of the features that are available:

- Online study plans, including self-assessment pre- and post-test quizzes, resource material, and flashcards
- Gradetracker, an online grade book
- A wealth of multimedia resources, including classroom video, rubrics, strategies, and lesson plans
- Annotated web links to important national organizations and sites in your field

Study Plan A MyEducationKit Study Plan is a multiple-choice assessment with feedback tied to chapter objectives. A well-designed Study Plan offers multiple opportunities to fully master required course content as identified by the objectives in each chapter:

- Learning Outcomes tie to the knowledge outcomes for the chapter and give students targets to shoot for as they read and study. Learning outcomes are aligned with relevant ISTE NETS-S standards.
- Multiple-Choice Assessments (pre- and post-tests) assess mastery of the content. These assessments are mapped to chapter objectives, and students can take the multiple-choice quizzes as many times as they want. Not only do these quizzes provide overall scores for each objective, but they also explain why responses to particular items are correct or incorrect.
- Study Material: Review and Enrichment gives students a deeper understanding of what they do and do not know related to chapter content with text excerpts connected to learning outcomes.
- Flashcards help students study the definitions of the key terms within each chapter.

Assignments and Activities Designed to save instructors preparation time and enhance student understanding, these assignable exercises show concepts in action (through video, cases, and/or student and teacher artifacts). They help students synthesize and apply concepts and strategies they read about in the book.

Multimedia Resources The rich media resources you will encounter throughout MyEducationKit include:

- ASSURE Videos: These videos tie directly to the ASSURE Lesson Plans in Chapters 3 through 11 of the text.
- Additional Classroom Videos: The authentic classroom videos in MyEducationKit show how real teachers handle actual classroom situations. Discussing and analyzing these videos not only deepens understanding of concepts presented in the text, but also builds skills in observing children and classrooms.
- Selection Rubrics: The selection rubrics that you find in the chapters are also available in the Book Resources section of MyEducationKit. Although these are available for photocopying from the book, they are also available for printing from the site.
- Strategies and Lesson Plans: These teacher-tested, research-based strategies and lesson plans span grade levels K–12 and all content areas.
- Annotated Web Links: On MyEducationKit you don’t need to search for the sites that connect to the topics covered in your chapter. Here you can explore websites that are important in the field and that give you perspective on the concepts covered in your text.

General Resources on MyEducationKit The Resources section on MyEducationKit is designed to help students pass their licensure exams, put together effective portfolios and lesson plans, prepare for and navigate the first year of their teaching careers, and understand key educational standards, policies, and laws. This section includes:

- Licensure Exams: Contains guidelines for passing the Praxis exam. The Practice Test Exam includes practice multiple-choice questions, case study questions, and video case studies with sample questions.
- Lesson Plan Builder: Helps students create and share lesson plans.
- Licensure and Standards: Provides links to state licensure standards and national standards.
- Beginning Your Career: Educates and offers tips, advice, and valuable information on:
  - Resumé Writing and Interviewing: Expert advice on how to write impressive resumés and prepare for job interviews.
• Your First Year of Teaching: Practical tips on setting up a classroom, managing student behavior, and planning for instruction and assessment.

• Law and Public Policies: Includes specific directives and requirements educators need to understand under the No Child Left Behind Act and the Individuals with Disabilities Education Improvement Act of 2004.

Visit www.myeducationkit.com for a demonstration of this exciting new online teaching resource.

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Sharon E. Smaldino
Deborah L. Lowther
James D. Russell
Chapter 3: Integrating Technology and Media into Instruction: The ASSURE Model

Tiare Ahu has her ninth-grade English students use computers, DreamWeaver, and iMovie software to create electronic portfolios as a way to improve their writing and comprehension skills.

Chapter 4: Using Instructional Strategies to Achieve 21st Century Learning

Lindsay Kaiser and Jena Marshall co-teach fifth grade. To enhance their students’ limited interest in social studies, they use a WebQuest to guide students’ exploration of Lewis and Clark’s famous expedition.

Chapter 5: Engaging Learners with Computers

The students in Kerry Bird’s fourth-grade class increase their understanding of the water cycle by using computers, PowerPoint software, and Internet resources to create individualized presentations of the water cycle.

Chapter 6: Connecting Learners Using Web 2.0 Tools

Vicki Davis teaches a technology class comprised of high school students who are interested in exploring new technology applications. The lesson involves students conducting a discussion about helping younger students learn online safety within a student-created virtual world. The students use online tools to record their discussions.

Chapter 7: Connecting Learners at a Distance

Jimmy Chun’s high school social studies students from Hawaii use two-way audio/video distance education and Blackboard course management software to interact with students from New Hampshire.

Chapter 8: Enhancing Learning with Visuals

The third-grade students in Mary Roman’s class work with the art teacher, Christine Edlund, to create an electronic art portfolio that demonstrates their understanding of mathematics concepts such as symmetry.

Chapter 9: Enhancing Learning with Audio

Aina Akamu’s high school advanced speech–communications students use audio recordings and other media to create presentations depicting their impressions of “What It Means to Be Hawaiian.”

Chapter 10: Enhancing Learning with Video

Scott James has his fifth-grade students use digital video, iMovie, and “green screens” to create student-scripted news broadcasts on natural disasters.

Chapter 11: Using Multimedia to Engage Learners

The first-grade students in Phil Ekker’s class enhance their reading, mathematics, and writing skills by completing a series of learning center activities that include audio books and drill-and-practice software on fractions.
Instructional Technology and Media for Learning