Instructional Technology and Media for Learning
12th Edition

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About the Authors

Sharon E. Smaldino
Sharon served for many years as a speech therapist and special educator in school districts from Florida to Minnesota. She spent many years working with PK-12 aged deaf and hearing-impaired students in public schools and in residential programs. For several years she worked with hearing impaired students who were placed in a residential program for social and emotional issues. During the time she was working with those students Sharon began a doctoral program at Southern Illinois University-Carbondale with a focus on instructional design and technology integration. Sharon brought her personal computer into her classroom to help her deaf students explore new technology-integrated learning experiences. Following completion of her degree, Sharon started her career as a teacher educator where she focused on working with teacher candidates, faculty, and PK-12 teachers to integrate technology into the learning process. Presenting at state, national, and international conferences, Sharon has become an important voice on applications of technology in the classroom and in distance education. In addition to her teaching, Sharon has written articles for state and national journals, chapters, and books on her primary research interest—effective technology integration in learning. She has worked on the development and implementation of grants that are designed to support teachers to integrate technology into their teaching. Sharon has received several awards for her teaching and professional activities. She has served as a journal editor and has held leadership positions in several state and national professional associations.

Deborah L. Lowther
Deborah has been an educator for over 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 served as Department Chair for Instruction and Curriculum Leadership (ICL). The ICL department offers eight initial teacher licensure programs as well as several MS and EdD options. Prior to accepting the chair position, Deborah served as the senior technology researcher for the Center for Research in Educational Policy, through which she researched 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 state-level technology initiatives. With regard to scholarship, Deborah has coauthored several books, chapters, and refereed journal articles; presented at numerous national and international conferences; and provided professional development to educational institutions across the nation.

Clif Mims
Clif is a teacher, researcher, author, speaker, and educational consultant specializing in the effective integration of technology with teaching and learning. His teaching career began more than 20 years ago as an elementary and middle school teacher. He also coached basketball and math teams to numerous championships. While earning his
doctorate in instructional technology at the University of Georgia, Clif began focusing on teacher education and professional development. He is a professor of instructional design and technology at the University of Memphis and is the founding executive direction of the Martin Institute for Teaching Excellence. Clif is both a Project Zero Faculty Fellow and a Future of Learning Fellow at Harvard University. He and his wife have three children.
Preface

About This Book

Instructional Technology and Media for Learning, Twelfth 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 fit into the daily life of the classroom. 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 their repertoire—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.

New to This Edition

This edition is necessitated by the amazing pace of innovation in all aspects of technology, particularly in those related to computers and mobile technologies, as well as the Internet. The text has been updated to reflect the accelerating trend toward technology advances and changes in educational use of technology resources. We have combined two former chapters, audio and video, to reflect the multimedia concepts relevant today. The twelfth edition also addresses the interaction among the roles of teachers, technology coordinators, and school media specialists, all complementary and interdependent teams within the school.

- The explanation of the ASSURE model has been revised to be more clear, practical, and focused on PK–12 teaching and learning. Several chapters include ASSURE Classroom Case Study features that show how teachers can effectively integrate technology and media into instruction to augment their students’ learning experiences.
- The chapters have been revised with updated information about designing instruction for learning that focuses on current learning standards and learning environments. Every effort has been made to identify the most current technology to support learning, providing an overview of how to use the technologies with students of all ages. We’ve included end-of-chapter professional development activities that guide the user through teacher performance assessment using technology standards as part of the process.
- We have updated several of the Taking a Look at Technology Integration features with examples of how actual classroom teachers use technology to support student learning. The examples place emphasis on integrating the learning standards and learner-centered instructional strategies.
- We have focused on enhancing the use of technology to meet the learning needs of all students in a classroom. With the increase in student diversity, classroom teachers are expected to meet the learning needs of all students. We have expanded the Technology for All Learners feature to help consider options that will be useful to facilitate learning experiences for all students in the classroom.
- We have added self-check items throughout each chapter to give the reader opportunities to recall the material just read and make connections to learning experiences. The reader can respond to questions that help them check for understanding. These replace the former end-of-chapter demonstration of professional knowledge exercises that were in previous editions.
Key Content Updates by Chapter

Specific chapter-by-chapter updates and additions include the following:

- **Chapter 1**: The first chapter reflects an extended discussion of academic and career learning experiences with updates on media and technology integration in classrooms. It includes an overview of effective learning environments. Key components of copyright issues are presented. Video segments offer ideas from the classroom. An updated description of the use of media and technology in instruction is present. An overview of assessment options is provided. Questions and discussion options are embedded throughout the chapter to provide learners with opportunities to explore the topics.

- **Chapter 2**: The chapter provides an updated overview of learning theories and principles of effective instruction. Video examples provide examples of ways that the technology offers support for learning and the embedded questions provide ways for learners to explore their thinking.

- **Chapter 3**: The foundational components of the ASSURE model have been updated and further supported with targeted, short video examples of actual classroom practice. The video examples demonstrate each step of the model and offer higher-level questions to deepen the learning experience.

- **Chapter 4**: Expanded discussion of digital learning environments explores a variety of learning strategies and contexts from a teacher’s perspective. New examples, tips, and ideas reflect current classroom use of technology and media.

- **Chapter 5**: This chapter has been updated to align with digital devices used in today’s classrooms to enhance learning. Video examples are revised to better demonstrate use of technology in classrooms. We embed new and thought-provoking questions and interactive application exercises throughout to keep readers engaged and increase learning.

- **Chapter 6**: This chapter has been revised to demonstrate the expanded role of Web 2.0 and social media in today’s schools. New terminology aligns with current apps and digital devices used to support learning. The video examples provide insight into the ideas explored within the chapter. The embedded questions provide ways to engage the learners as they read the chapter.

- **Chapter 7**: An updated description of planning and implementing instruction at a distance is presented. An overview of resources to enhance learning opportunities in distance settings is included. Video of classroom use of distance learning provides examples within the chapter and, along with the embedded questions and discussion points, serves to guide the reader towards understanding points.

- **Chapter 8 (formerly chapters 8 and 9)**: Chapters are combined, with integrated material covering four types of multimedia used to enhance learning: audio, video, text, and visuals. Integration examples are updated to illustrate ways new technologies and media are used in the classroom. Selection Rubrics for each type of media are embedded for quick access.

- **Chapter 9 (formerly chapter 10)**: The Preparing for Tomorrow’s Challenges chapter is fully updated with new Learning Outcomes, exciting video examples, and cutting-edge practices emerging on the horizon. Among the new topics are: coding as literacy, transdisciplinary learning, artificial intelligence, and augmented reality. The chapter also provides a new discussion of future ready professional development.

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the way today’s students read, think, and learn. Enlivening course content with media interactives and assessments, REVEL empowers educators to increase engagement with the course to better connect with students.

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  - **Video examples within ASSURE Case Study boxes** offer students the opportunity to see key technologies at work, putting the ASSURE model into practice in different classrooms throughout the text.
  - **Application Exercises** are interactive activities that allow students to test their understanding of skills and concepts throughout each chapter, using formative and summative assessment tools. These include fill-in-the-blank, drag-and-drop tables, and journal exercises.
  - **Interactive Check Your Understanding items** are multiple choice assessment questions that test students’ knowledge of the content they have just read at the end of each major section. Feedback for the correct answer is provided.
  - **Interactive Shared Writing activities** allow students to answer questions and share their responses with others.

- **Interactive Glossary** The material links bolded key terms in the text to glossary definitions, enabling students to read and comprehend with clarity without skipping concepts they do not understand.

Our Approach

We share a number of convictions that underlie this edition. First, we believe in an eclectic approach to instruction. Advocates cite an abundance of theories and philosophies in support of different approaches to instruction—behaviorist, cognitivist, constructivist, and social-psychological. We view these theoretical positions as differing perspectives—different vantage points—from which to examine the complex world of teaching and learning. We value each of them and feel that each is reflected in the guidance we offer.

Second, we have a balanced posture regarding the role of technology in instruction. Because of this perspective, we consider each technology in light of its advantages, limitations, and range of applications. No technology can be described solely as being either “good” or “bad,” so we strive to give a balanced treatment to a range of technologies and media resources.

Third, we believe that technology can best be integrated into instruction when viewed from a learner’s perspective. Therefore, throughout the book we attempt to approach technology and media solutions in terms of a teacher’s day-to-day challenges and to avoid technical jargon as much as possible. Our examples deal with everyday teaching issues in a range of content areas.

The ASSURE Model for Technology Integration

To ensure our approach is applied effectively, we created the ASSURE Model for planning that included considerations for technology integration. This model presents a procedure that helps teachers consider appropriate technology that aligns with content standards while meeting the learning needs of all of their students. We have further refined this model in this current edition.
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 expanded the Professional Development feature.

In the first section, Demonstrate Professional Skills, readers integrate their learning through activities that are aligned with the ISTE Standards for Educators. The final section, Building Your Professional Portfolio, includes three parts: Creating My Lesson, Reflecting on My Lesson, and Enhancing My Lesson. These are also linked to the ISTE Standards for Educators.

- 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 ideas help readers make decisions to create their own lesson plan using appropriate instructional strategies, technology, and media.

- Reflecting on My Lesson prompts readers to reflect on their lesson design, 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.

- Enhancing My Lesson asks the reader to describe other strategies, technologies, 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.

Additional Features

ASSURE Classroom Case Study

Chapter opening “ASSURE Classroom Case Studies” (in Chapters 3 through 9) each presents 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.
Taking A Look at Technology Integration

Cooperative Learning
Connie Courbat, a third-grade teacher, was aware of the various ability levels of her students and wanted them all to experience the Oregon Trail. The app presented students with various scenarios and forced them to work together as they worked through the game. She knew that the app would help students understand the importance of teamwork and how it can be used to achieve a common goal.

Simulations: Integration of Technology and Media
Integration skills and creativity are required to make educational simulations. In this case, students were given an assignment to design a simulation to help them understand how a community works. They worked in teams, assuming roles, and building skills in cooperation and collaboration as they learned about investing. The game also provides practice for relevant skills, and has the potential to hold the interest of your students.

Copyright Concerns

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

Copyright Concerns

This collection of copyright information is intended to help educators understand the issues surrounding the use of technology in the classroom. The information is presented in a clear and concise manner, and is designed to help educators make informed decisions about the use of technology in their classrooms.

Software

Corporations and individuals who produce software must comply with laws to ensure that copyrighted materials are not copied or distributed without permission. Federal law makes it illegal to make or distribute copies of copyrighted works without the permission of the copyright owner. For example, making copies of software applications, e-books, documents, or audio recordings is illegal unless you have the permission of the copyright owner.

Copyright laws apply to all forms of software, including computer programs, videos, and audio recordings. The laws are designed to protect the rights of copyright owners and to encourage the creation of new works.

Software publishers have the right to control the copying, distribution, and use of their works. They may require users to purchase software and to follow certain rules to avoid violating copyright laws.

Using software that you have purchased, but that you have not obtained through a legitimate source, is illegal. You should be a model user of technology for your students. Students will quickly learn how to learn.

Technology Resources

Search Engines for Kids

This is an advanced educational resource that provides access to kids and teens. The search engine site is designed to help students navigate the Internet and find information quickly and easily. The search engine uses advanced technology to help students find what they are looking for.

FactRetriever

FactRetriever is an educational resource that provides access to information. The site is designed to help students navigate the Internet and find information quickly and easily. The search engine uses advanced technology to help students find what they are looking for.

Technology Resources

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 along with helpful web links.
Selection Rubrics
These rubrics are related to each of the technology and media formats, making it easy to preview materials systematically and to preserve the information for later reference. Textbook users have permission to print these rubrics for personal use.

Innovations in Teaching
This feature presents chapter-specific examples of innovative trends and technologies in teaching and learning.
The tests can be downloaded in the following formats:

- TestGen Testbank file—PC
- TestGen Testbank file—MAC
- TestGen Testbank—Blackboard 9 TIF

Support Materials for Instructors

The following resources are available for instructors to download on www.pearsonhighered.com/educators. Instructors enter the author or title of this book, select this particular edition of the book, and then click on the Resources tab to log in and download textbook supplements.

The Instructor’s Guide (0134298284)

The Instructor’s Guide provides chapter-by-chapter tools for 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.

PowerPoint® Presentations (0134298276)

Designed as an instructional tool, the presentations can be used to elaborate on chapter material. They are available for both students and instructors and reinforce key concepts and ideas presented throughout the text.

TestGen (0134287479)

Test Gen is a powerful test generator available exclusively from Pearson Education. You install TestGen on your personal computer (Windows or Macintosh) and create your own tests for classroom testing and for other specialized delivery options, such as a local area network or the web. A test bank, which is also called a Test Item File (TIF), typically contains a large set of test items organized by chapter and ready for your use in creating a test based on the associated textbook material.

The tests can be downloaded in the following formats:

- TestGen Testbank file—PC
- TestGen Testbank file—MAC
- TestGen Testbank—Blackboard 9 TIF

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).
Authors’ Services
The authors are eager to assist you in putting together an outstanding course. We offer the following services to instructors who have adopted this book:

- **Online dialog.** The authors are available to “meet” with your students if you are using an online course delivery learning management tool.

- **Telelectures and Videoconferences.** Contact any of the authors in advance to arrange a guest lecture in your class via telephone or video. Some instructors find this a good way to demonstrate the use of this technology for learning about distance learning options. The authors’ e-mail addresses are listed in the Instructor’s Guide.

- **Workshops.** The authors have conducted workshops across the country. This is a forum for exchange of ideas and networking among instructors of courses on technology and media. They are also available to provide a workshop in your area if you wish to arrange one.

- **Consulting.** The authors are available for consulting and conducting workshops at the local, state, and national level. They are regular presenters and workshop facilitators across the country and around the world.

If you are a student or an instructor using this text and wish to share your comments with us, please email them to Sharon Smaldino (smaldinos@comcast.net), Deborah Lowther (dlowther@memphis.edu), or Clif Mims (clifmims@memphis.edu).

Acknowledgments
Through each of the editions we have been fortunate to have guidance from the people who teach the courses for which this book is designed. In preparing this edition, again we surveyed a sample of adopters and other leaders in the field to elicit their advice about content and emphases. We also asked other well-respected colleagues in the field to critique the text. We thank all those who gave their time and expertise to help make this textbook what it is. In particular we want to acknowledge those talented individuals who reviewed the twelfth edition and suggested improvements: 1) Rob Branch, University of Georgia 2) Jennifer Richey, Texas Woman’s University 3) Mary Smith, Texas A&M Texarkana 4) Matthew A. Williams, Ph.D., Kent State University

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We are grateful to our colleagues from our own universities—Northern Illinois University and the University of Memphis—for their many and valuable forms of support over the years.
And, we are especially grateful for the opportunity to have worked with Jim Russell, one of the original authors of this text’s long-time contribution to the field. Jim is a professor emeritus of Educational Technology at Purdue University, where he was a faculty member for 38 years, having received numerous honors for his teaching. During those years, he also engaged in working with classroom teachers to improve their classroom practice and use of technology. Prior to joining the faculty at Purdue, Jim was a high school mathematics and science teacher. As authors, we have heart-felt gratitude for Jim’s guidance, patience, and insights that helped us with this book and with our professional endeavors.

Finally, we thank our families for all they do to make this project possible. Their patience and support have been invaluable in helping us finish this project.

Sharon E. Smaldino
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