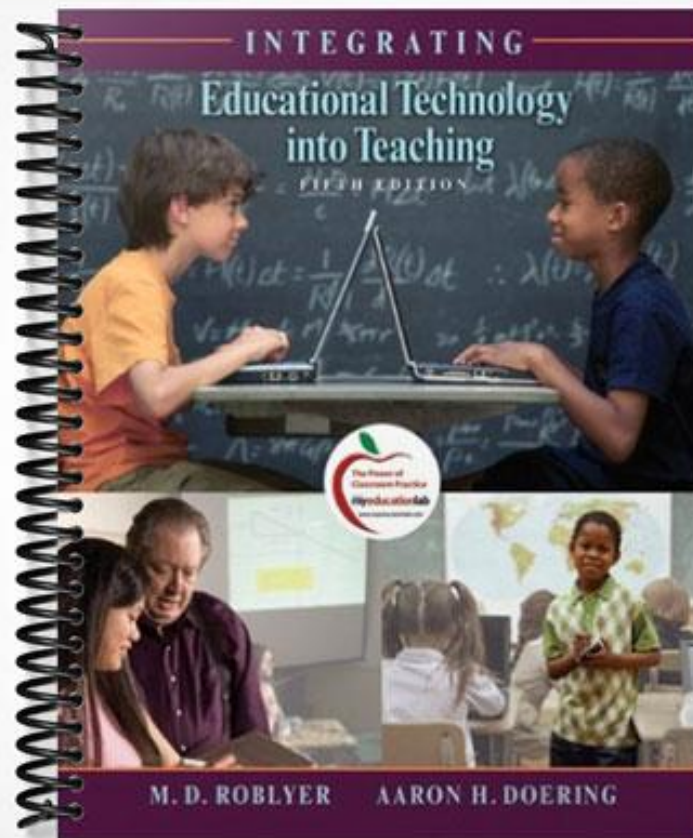


TEST BANK





WHAT IS IRIS?

The IRIS Center for Training Enhancements is based at Vanderbilt University's Peabody College and Claremont Graduate University. The Center, supported through a federal grant from the Office of Special Education Programs (OSEP), creates enhancement materials and resources for college faculty preparing future education professionals and for professional development providers who conduct inservice trainings for current school personnel.

What Resources Does IRIS Offer?

IRIS training enhancements are designed to better prepare school personnel to provide an appropriate education to students with disabilities. To achieve this goal, the Center has created free course enhancement materials for college faculty and professional development providers. These materials can be used either as homework or as in-class or training activities.

STAR LEGACY MODULES

- Offer challenge-based interactive lessons
- Apply the *How People Learn (HPL)* framework (developed by John Bransford and colleagues)
- Translate research into effective teaching practices
- Produce significant learner outcomes

CASE STUDIES

- Include three levels of problems to solve
- Illustrate evidence-based instructional strategies
- Are accompanied by answer keys (upon request)

IRIS Topics Include

- Accommodations
 - Behavior
 - Collaboration
 - Disability
 - Diversity
- Learning Strategies
 - RTI

ACTIVITIES

Activities are created to accompany lectures and professional development training, to be assigned as independent homework, or to promote discussion. They cover a wide range of topics related to special education and disabilities.

INFORMATION BRIEFS

Information briefs are gathered from a number of sources and are included on the IRIS Web site to offer quick facts and details on a wide range of disability-related subjects.

WEB RESOURCE DIRECTORY

The Web Resource Directory is a search engine that helps users locate information about special education and disability-related topics available through other Web sites.

IRIS FILM TOOL

The Film Tool is a comprehensive database of motion pictures featuring or having to do with people with disabilities—some of them inaccurate or negative—as a means of stimulating discussions of popular depictions of disabilities.

ONLINE DICTIONARY

The Online Dictionary contains hundreds of definitions of disability and special education-related terms, plus cross-links between definitions for easier searching.

PODCASTS

IRIS downloadable podcasts feature audio interviews with some of the most knowledgeable experts in the field.

Instructor's Manual and Test Bank

for

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Integrating Educational Technology into Teaching

Fifth Edition

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PEARSON

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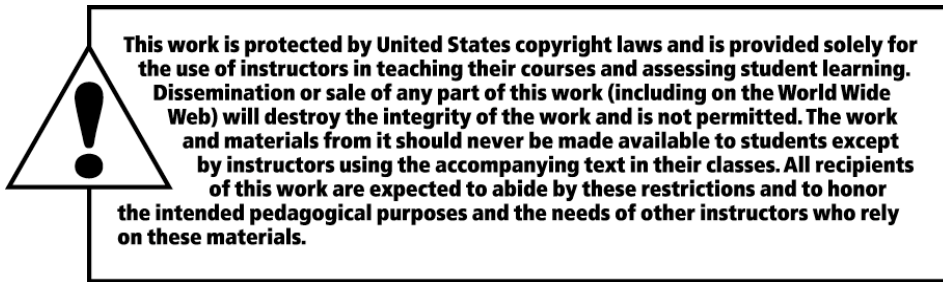
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www.pearsonhighered.com

ISBN-10: 0-13-513108-1

ISBN-13: 978-0-13-513108-4



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Integrating Educational Technology into Teaching

(5th edition)

Introduction

Integrating Educational Technology into Teaching is a textbook based on both a need and a vision. When technology courses for teachers were first offered many years ago, the emphasis was primarily on learning “computer fundamentals”—what a computer is, its historical development, how to operate it, and how to operate its software tools. Most textbooks for use in these courses still focus on these topics.

As the field of educational technology evolved so, too, did the needs of classroom teachers and those who help prepare them to use technology. This textbook reflects the need for a new kind of teaching resource in which the perspective is not just on the electronic technologies, which change rapidly, but on the principles underlying the teaching strategies they make possible, which are more stable. The emphasis is on learning both the skills in using equipment and software as well as on how to integrate these resources into daily classroom activities. In addition, this discussion of technology integration strategies is linked to both learning theories and effective classroom practice.

Integrating Educational Technology into Teaching focuses on this “theory-based integration” perspective. The purpose of this *Instructor's Manual* is to describe how to make most effective use of this textbook – and all online resources available through the MyEducationLab (MEL) site – in teaching a technology integration course or workshop for both pre-service and current educators.

Structure and Contents of this Manual

This *Instructor's Manual* offers several kinds of resource materials and information to help Instructors use *Integrating Educational Technology into Teaching, Fifth Edition* in a course or workshop. These include: an introduction to teaching a course, teaching and assessment resources for each chapter, and leveraging the use of the online resources available with this textbook.

An Introduction to Teaching the Course

The Introduction to this *Manual* offers a course philosophy, a sequence for teaching the course that makes best use of media, a guide to teaching and assessment/evaluation materials and strategies, and recommended preparation for teaching the course or workshop. These are all based on the approaches the author has used in her own course for pre-service teachers. However, these strategies and materials can be adapted as needed to teach workshops or units of in-service training.

Teaching and Assessment Resources for Each Chapter

For each of the 15 chapters of the textbook, this *Manual* contains the following:

- **Chapter Overview** – A chapter overview and concepts to emphasize.
- **Suggested Instructional Strategies** – Suggestions are also provided for how to adapt this text for use with either undergraduate students (or those with less technology knowledge) or graduate students (or those with more technology knowledge). Each chapter is categorized by Pre-class, In-class, and Post-class teaching recommendations. The categorized sections include the following sub-categories of methods to optimize learning for your students:
 - **Student Assignments** - Suggestions for discussions, demonstrations, and individual/group work to help teach each chapter are provided for each specific chapter.
 - **Presentation Assets** – A list of related presentation assets from the textbook and from MEL. Some, or all of these stimuli, can be woven into instruction, along with end-of-chapter activities, at the Instructor’s discretion.
 - **Class Activities** – Ideas for engaging the class in activities that provide opportunities for student performance-feedback-revision.
 - **Assessment Strategies & Criteria** – Recommended materials and strategies to help assess students' progress and grade their products throughout a course or workshop. For the convenience of Instructors, the answer guides for all end-of-chapter questions in the Technology Integration Workshops are included within the chapters.
- **Professional Development** – Students are encouraged to continually update their individual portfolios during this course. Resources and activities are defined that support the exploration of professional development opportunities and connections through associations and online resources.

Course Philosophy

The textbook and the instructional activities described in this *Manual* support an effective approach to teaching teachers about technology. The following characterize this approach.

Model What You Teach

Research confirms the old adage that students teach as they are taught. *Talking or reading about* using technology in the classroom – or even just *demonstrating how it works* – will make little impression on students unless instructors themselves *use technology to teach*. This means using technologies for class presentations, demonstrating concepts graphically, showing visual examples, keeping grades, preparing handouts, giving practice, and supporting group learning.

Emphasize Cooperative Skills

Learners typically are not fond of group work, but it is important that they learn to work well in cooperative groups as students and how teachers assign and facilitate group work. Cooperative learning presents unique planning and logistical issues, as well as unique learning opportunities. Prentice Hall's textbook *Reflective Planning, Teaching, and Evaluation: K-12* (Eby, Herrell, & Hicks, 2002) gives valuable advice on planning for and implementing cooperative learning activities. They give the following guidelines for arranging the classroom for cooperative learning, reminding us that "cooperative groups can degenerate to chaotic groups if they do not meet certain conditions" (p. 227):

- **State clearly** the goals and expectations of each group task, and provide them with a written or web-based copy.
- **Make sure students know the value of the activity**; they need to see that doing it is worth their time and effort.
- **Group size of 3-5 is optimal**; the shorter the time available, the smaller the groups should be.
- **Assign task-oriented and non-task-oriented students** to the same group so peer pressure might play a role.
- **Make sure groups have a comfortable space** to work where members may have eye contact; give groups separate space.
- **Encourage interdependence among members** by assigning only one task or product, giving only one set of materials to a group, and assigning "complementary and interconnected roles." Make sure they know each member will be held accountable for the product. Each should submit a statement identifying what they contributed.

Provide for Hands-on Practice

The assignments given in the textbook and in this *Manual* acknowledge that learners must have opportunities to *use* technology resources, as well as *read about* and *study* them. This means providing the resources and learning activities required for hands-on experiences. Students must "walk the walk" as well as "talk the talk." Assignments also require learners to use terms and descriptions that will allow them to communicate effectively with other technology users.

Create Scaffolds for Learning

Flexibility is key where teaching teachers about technology is concerned. Because technology is so pervasive in our society, most students bring a good deal of background experiences to a technology course, as well as a lot of preconceptions and “emotional baggage.” You will have different expectations for students who have limited prior experience or are fearful and worried about their ability to use electronic technologies than you will for more experienced, self-confident learners.

Find out where each student is in developing an effective philosophy and approach to using technology, and help each one build or “scaffold” from wherever they are in their continuing evolution as technology-using teachers. Encourage them by trying to address all of their concerns—emotional and cognitive—and by setting high, but realistic, expectations for their achievement. Use of cooperative group work will aid this scaffolding process, as students share their knowledge and concerns and teach each other.

An Overview of Textbook Features and Supporting Tools from *MyEducationLab* (MEL)

A wealth of features and ancillary materials are available to support learning the concepts in the textbook. Some of these are in the textbook chapters; others are at the following location:



MEL Website (<http://www.myeducationlab.com>) – Signified in the book by the icon above, the materials located on the myeducationlab.com site, or MEL, include an index of multimedia, topical areas with assignments, activities, and applications. A number of tools, tutorials, templates, and other online resources are available and searchable by topic area. Additionally, resources are available that support career planning and state licensing requirements. Finally, a number of interactive web activities allow “virtual discussions” between student and instructor, which are managed through the Grade Tracker and Class Manager online functions.

The matrix on the next three pages summarizes all the features and materials available to help teach the course and help students learn, indicates general types of uses, and shows where each one may be found. Each chapter in this manual gives specific ways to use the items for in-class discussions and activities:

Recommended Use	Feature/ Material	Location			
		Text	MEL Home	MEL Student Topics & Resources	MEL Instructor Resources
Teacher organizing and communication tools; general references	<i>Lesson Plans</i> - Step-by-step process for planning and designing instructional lessons	X	X (Index of Multi-media)	X (Instructional Planning)	
	List of ISTE NETS for Teachers and Students	X	X (Index of Multi-media)		
	Install wizard for necessary plug-ins for MEL resources.	X			
	User manual for <i>Integrating Technology Across the Curriculum</i> and Test Bank				X
	Instructor and student Access Code information for MEL.				X
Student before-class comprehension checks	Self-assessment multiple choice, true/false, and short answer questions with automatic grading and immediate feedback			X (Practice Tests)	
	Key terms list and web sites for additional information	X (Key Terms)	X (Index of Multi-media)	X (Topics)	
	Interactive summary of chapter content and links to examples of concepts	X (Interactive Summary)	X	X (Topics)	
Aids for in-class discussions/ activities	Chapter-opener Technology Integration Example (TIE): Scenario of a TIP Model application	X			
	Brief video clips of classroom technology uses and interactive discussion		X (Index of Multi-media)	X (Web Activities)	

Recommended Use	Feature/ Material	Location			
		Text	MEL Home	MEL Student Topics & Resources	MEL Instructor Resources
	Video clip table of Contents and chapter correlations		X (Index of Multi-media)		
	<i>TIP Model in Action</i> scenarios and questions; feedback	X		X (Web Activities)	
	<i>Top Ten</i> : Best practices for each type of technology resource and content area	X			
Aids for in-class OR after-class group activities	<i>Making the Case for Technology Integration</i> questions for discussion	X			
	<i>TIE into Practice</i> exercises: Hands-on tutorial and exercises to build on each chapter TIE	X			
	<i>Strategies Software and Online Resources</i> : Hands-on, print-based tutorials and exercises to build skills in using popular software and hardware	X			
	<i>Strategies Software and Online Resources</i> : Hands-on video tutorials on popular software and hardware		X (Index of Multi-media)	X (Web Activities)	
	<i>Instructional Strategies</i> collection of lesson ideas			X (Topic: Instructional Strategies)	
Aids for after-class individual or group activities	Web links and web enrichment activities: Connect chapter content to web resources	X	X (Index of Multi-media)	X (Topics/Web Activities)	

Recommended Use	Feature/ Material	Location			
		Text	MEL Home	MEL Student Topics & Resources	MEL Instructor Resources
	Interactive assessment instruments: modifiable chapter rubrics, checklists, evaluation forms	X	X (Index of Multi-media)	X (Topics/Web Activities)	
	<i>Grade Tracker and Class Manager</i> tools to manage and communicate student grades and assignment completions	X			X
Teacher assessment and grading resources	<i>TestGen Computerized Test Bank</i> : multiple-choice, true-false, short answer, and essay items for each chapter; generates multiple test forms				X
	<i>Teaching Portfolio</i> : Tips for building a portfolio and career planning. Access to the Portfolio Builder.			X (Resources)	

The following general sequence is recommended to make best use of these resources in teaching a face-to-face course or workshop. An online course will follow the same general sequence, but guiding questions, discussions, and answers will be in the course space.

Pre-class Activities

- **Students read the chapter and review key terms and summary concepts** – Students can use the key terms and interactive summary activities in the text or in MEL to reinforce their comprehension, help them prepare for the MEL Practice Tests, and allow them to participate fully in class discussions.
- **Students take MEL Practice Test** – The MEL Practice Tests are a great way for students to review the material in the chapter to make sure they have read and remembered important background information.

In-class Activities

- **Introduce the chapter topics with *PowerPoint Slides*** – Use the slides as a way to introduce the topics in class, review main ideas, and clarify questions students have from their readings. This sets the stage for the discussions and hands-on work in the class.
- **Review the chapter-opener *Technology Integration Example (TIE)*** – Approach this activity in different ways depending on the background of the students:

For undergraduate students or those with less technology experience, a brief discussion of the example may be followed by in-class, instructor-assisted sessions (individual for basic tools, small group for advanced ones) to work on the chapter tutorial product.

For graduate students or those with more technology experience, a brief discussion of the example may be followed by whole-class discussions.

- **Review video clips, *TIP Model in Action scenarios and questions*** – Depending on time available during the class, review and discuss information in the Top Ten feature, encourage discussion of the video clips located in MEL, and allow in-class time for small group work and presentations on the TIP Model in Action scenarios and questions, either through the use of the text or through Web Activities in the Topics area of MEL.

Post-class Activities

Depending on the needs of the students and Instructor preferences, students can do any of the following as after-class learning and reinforcement activities:

- **Hands-on skills activities** – Use *Strategies for Software and Online Resources* and/or the *Activities and Applications* in MEL.
- **Exercises to build insights** – Use the activities in the *Technology Integration Workshop* found at the end of each chapter and the *Web Activities* in MEL, *TIE into Practice Questions*, and supplemental web resources in the text and on MEL.
- **Online Discussions** – Use the *Making the Case* questions for discussion through an online medium or use the MEL Web Activities under related topics.
- **Product evaluations** – Use the Rubric resources found in MEL's *Topics/Assessments* to have students design lesson rubrics and to evaluate materials.

Teacher Assessment Activities

Two kinds of activities can be useful for final assessments: tests generated from the *TestGen Computerized Test Bank* and the *For Your Teaching Portfolio* activities. Instructors may choose to do these at the end of Parts (e.g., once a month or so), or at the end of each chapter, if time allows.

Assessment and Evaluation Strategies and Resources

Since assessment strategies should be matched carefully to each kind of learning activity in the course, the following suggestions are provided for assessing group work, individual development of productivity skills, and multimedia and web page products.

Assessing Group and Individual Work

Instructors may find that several of the instruments on the MEL site are useful in measuring growth and evaluating students' work. For example:

1. **Cooperative Group Work Rubrics** (Pearson) – To assess students' ability to work together cooperatively on group products and processes – [MEL/Topics/Assessments/Rubrics/Checklists].
2. **Checklists for Assessing Multimedia Products** (Roblyer) – To assess any multimedia products (e.g., *HyperStudio*) that students design – (Text- p. 178).
3. **Web Page Rubric** (John Pilgrim & Pearson) – To assess student web pages – (Text - p. 266-267) & [MEL/Internet/Rubrics/Checklists].
4. **PowerPoint Rubric** (University of Wisconsin-Stout) – To assess students' *PowerPoint* presentations – [MEL/Topics/Software/Rubrics/Checklists].
5. **Video Project Rubric** (University of Wisconsin-Stout) – To assess students' videos.
6. **Brochure Rubric** (Kent School District) – To assess student-designed brochures – [MEL/Topics/Assessments/Rubrics/Checklists].
7. **Preparing a Portfolio** (Pearson) – Use this to assess students' portfolios – [MEL/Resources].

Student Skills Self-Assessment

1. **Productivity Skills Self-Assessment Rubric** (iAssessment) – To assess students' progress in developing skills with software tools – [MEL/Topics/Assessments/Rubrics/Checklists].
2. **Technology Skills Self-assessment Rubric** (Doug Johnson) – To help students assess their own progress in developing skills with various technologies – [MEL/Topics/Assessments/Rubrics/Checklists].

Suggested Cumulative Evaluations and Grading

Participation in class activities (9 chapters @ 10 pts.) = 90 pts. (18% of grade)

Individual and group after-class exercises (9 chapters @ 10 pts.) = 90 pts. (18% of grade)

Individual Portfolio Activities (9 chapters @ 20 pts.) = 180 pts. (36% of grade)

Individual CTB tests (9 chapters @ 10 pts.) = 90 pts. (18% of grade)

Miscellaneous (attendance, on-task behaviors, etc.) = 50 pts. (10% of grade)

TOTAL = 500 pts. (100%)

The following scale is recommended for course assessment:
90-100% = A; 80-89% = B; 70-79% = C; 60-69% = D; Below 60=F

Recommended Preparation for Teaching the Course or Workshop

Teaching technology courses successfully requires more planning and preparation than other courses. In addition to the usual planning for how to teach each topic well, the instructor must plan how groups will work together, how students will get access to the equipment and software they need, and how they will have sufficient time on the technology resources to complete the tasks assigned to them. All this is in addition to making sure equipment and software are working properly and are maintained throughout the course. To help make sure things go as smoothly as possible, planning tasks for teaching this course should include the following:

- **Obtaining required resources** – Plan for sufficient learning stations to allow the required group and individual work on software, online media, and other online resources (e.g., the Internet). *MyEducationLab* (MEL) is a valuable resource to help facilitate instruction with this text. Be sure to preview all MEL resources prior to integration into the instruction. This approach ensures relevance and familiarity with the content and how it best relates to the topic.
- **Preparing the classroom environment** – If at all possible, have a projection system or large monitor so students can see demonstrations on the computer clearly. *Before each demonstration*, make sure equipment is working properly. Ensure that appropriate plug-ins have been downloaded to the instructor computer station or the student stations. The plug-ins support online media and can be found on the Home page at MEL.
- **Allowing time for “play”** – Especially in the case of learning new tool software, the course schedule should allow sufficient time for students to get used to a new resource before a graded assignment is due.
- **Preparing for group work** – Develop sheets to document students that are in each group. Make sure there is a place on the assignment sheets for students to sign their names and indicate what work they did in the group. Be prepared for group conflicts! This is a normal part of learning how to work together cooperatively.

Suggested Syllabus for a 16-Week Course

Week #	Chapters	Focuses
1	1 – Educational Technology in Context: The Big Picture	Overview of course and the educational technology field
2	2 – Theory and Practice: Foundations of Effective Technology Integration	Learning theory foundations, the TIP Model, essential conditions
3	3 – Teaching with Instructional Software	Types of software: Evaluation of and uses for each type
4	4 – Teaching with the Basic Three Software Tools: Word Processing, Spreadsheet, and Database Programs	WP, SS, and DB applications
5	4 – continued	WP, SS, and DB applications (cont.)
6	5 – Teaching with Software Tools: Beyond the Basic Programs	Review of software and media tools throughout education
7	6 – Teaching with Multimedia and Hypermedia	Commercial multimedia, introduction to multimedia authoring tools
8	6 – continued	Multimedia authoring tools (cont.)
9	6 – continued	Multimedia authoring tools (cont.)
10	7 –Distance Learning Tools and the Role of the Internet in Education	Distance learning/Internet issues, evaluating Internet information
11	7 – continued	Review of distance learning tools, navigating, searching, etc.
12	8 – Integrating the Internet into the Curriculum	Web-based lessons and projects
13	8 – continued	Web page and site development
14	9-15 – Integrating Technology Across the Curriculum	Choose an area for in-depth study
15	9-15 – continued	Choose an area for in-depth study
16	Assessment activities	Portfolio presentations; tests; grading

Suggested Syllabus for an 8-Week Course

Week #	Chapters	Purpose
1	1 and 2	Overview of course/field; foundations of technology integration
2	3	Types of software: Evaluation of and uses for each type
3	4	WP and SS
4	4-5	DB applications; other software tools
5	6	Commercial multimedia, multimedia authoring tools
6	7	Introduction to distance learning; Internet issues and tools
7	8	Web-based lessons; web page/site development
8	9-15	Choose one area for in-depth study; assessment activities

References

- Eby, E., Herrell, A., & Hicks, J. (2002). *Reflective planning, teaching, and evaluation: K-12*. Upper Saddle River, NJ: Prentice Hall Merrill.
- iAssessment. (2005). *Productivity skills self-assessment rubrics*. (On MEL MATERIALS and MEL MATERIALS)
- Johnson, D. (2005). *Technology skills self-assessment rubrics*. Available at: <http://www.doug-johnson.com/dougwri/rubrics2002.html#int>
- Kent School District. (2005). *Brochure rubric*. Available at: http://www.kent.k12.wa.us/curriculum/tech/K6/3/puget_sound/brochure_rubric.htm
- Pilgrim, J. (1995). *Rubric for evaluation of older learners' web pages*. Available at <http://www.edtech.sandi.net/rubric>
- Prentice Hall. (2005). *Cooperative group work rubrics*. Available at: http://www.phschool.com/professional_development/assessment/rub_coop_process.html and http://www.phschool.com/professional_development/assessment/rub_coop_product.html
- Prentice Hall. (2005). *Portfolio rubric*. Available at: http://www.phschool.com/professional_development/assessment/rub_electronic_portfolio.html
- Roblyer, M. D. (2005). *Checklist for assessing multimedia products*. (On MEL MATERIALS and MEL MATERIALS)
- San Diego City Schools. (2005). *Web page rubric for older learners*. Available at: <http://edtech.sandi.net/rubric/>
- University of Wisconsin-Stout. (2005). *PowerPoint rubric*. Available at: <http://www.uwstout.edu/soe/profdev/pptrubric.html>
- University of Wisconsin-Stout. (2005). *Video rubric*. Available at: <http://www.uwstout.edu/soe/profdev/videorubric.html>

Part 1: Introduction and Background on Integrating Technology in Education

Instructors can use Part 1 chapters to lay the foundation for teaching about technology integration:

- **Chapter 1: Educational Technology in Context: The Big Picture** – Provides a “Big Picture” overview of technology resources in use in today's education and reviews the current environment for technology use.
- **Chapter 2: Theory and Practice: Foundations for Effective Technology Integration Models** – Describes the learning theories that shape various approaches to technology integration, introduces the Technology Integration Planning (TIP) Model, and reviews essential conditions for effective technology use.

Chapter 1 - Educational Technology in Context: The Big Picture

Chapter 1 Overview

This chapter emphasizes that educational technology is a complex topic that reflects the complexity of modern education and society. Technology uses are defined and shaped by the perspectives of various education groups, by past and current applications of its resources, and by many issues. Teachers must be prepared to learn about a field characterized by conflicting opinions and perspectives on best practices.

Chapter 1 Concepts to Emphasize

1. **Definitions** – There are at least four views for the term "educational technology" derived from differing philosophies among educational professional organizations.
2. **Lessons learned** – The history of computer technologies is in three "eras": pre-microcomputer, microcomputer, and Internet. We have learned important lessons from this history about how we should integrate technology in the future.
3. **Technology use rationale** – Research results alone offer insufficient guidance on how to use technology effectively; each teacher must develop a personal rationale for using technology in the classroom, based upon findings from research and practice on the contributions of technology to teaching and learning.
4. **Categories of educational technology resources** – Electronic technologies may be categorized as hardware (stand-alone computer, network, and related device/system) or software (instructional, productivity, and administrative).
5. **Appropriate configurations of technology resources** – Resources are configured for specific educational needs: laboratories, mobile workstations, mobile PCs (e.g., laptops or handheld computers), classroom workstations, and single-classroom PCs.
6. **Categories of educational technology instructional/productivity resources** –These resources support instruction and productivity with instructional software, software tools, multimedia, distance learning, and virtual reality environments.
7. **Current issues shaping technology integration** – Many societal, cultural/equity, educational, and technical issues shape how technology is used and will be used.
8. **Trends in emerging technologies** – Several new technologies will have great impact on the ways teaching and learning will take place in the future.

9. **Required technology skills** – ISTE National Educational Technology Standards (NETS) define technology skills that students, teachers, and administrators will need to be prepared for work and study in an Information Age.

Suggested Instructional Strategies

Pre-class: Establishing learning goals and structure

Before the class meeting (or in the case of online courses, before completing other posted activities), ask students to do some or all of the following:

Student Assignments

- Read the Chapter 1 Interactive Technology Integration Example (p. 4) located in the front of the chapter then review the Interactive Summary (p. 26) located at the end of the chapter.
- Look up the Chapter 1 key terms (p. 27) for additional information on chapter content.
- Read chapter 1 – Educational Technology in Context: The Big Picture (pp. 3-30).

Assessment Strategies

- Complete the Chapter 1 self-test located on the MEL site (*Topics/Practice Tests/Educational Technology into Teaching, 5th ed., Chapter 1*) and email results to the Instructor.

In-class: Providing stimulus and engaging performance

Concept 1: Definitions

Class Activities

- **TIE-into Practice #1: Perspectives on educational technology** – Whole-class or small-group discussion addresses the questions at the end of this scenario about the different ways people define technology's role in education and the impact this has on their uses (Text – p. 28).

Concept 2: Lessons learned

Presentation Assets

- **Video Activity** – Have students view the video: *Culture of Technology* (MEL: Topics/Instructional Planning/Activities and Applications/Video Activities).

Class Activities

- **TIE-into Practice #2: History of educational technology** – Whole-class or small-group discussion addresses the questions at the end of this scenario about how lessons learned from the history of educational technology can help guide our current and future applications (Text – p. 28).

Concept 3: Technology use rationale

Presentation Assets

- **Video Activity** – Have students view the video: *Incentives for Technology Integration* (MEL: Topics/Technology Integration Models/Activities and Applications/Video Activities).
- **Video Activity** – Have students view the video: *Tablet Computers Facilitate Learning* (MEL: Topics/Instructional Planning/Activities and Applications/Video Activities).
- **Video Activity** – Have students view the video: *Secondary Students Respond Positively* (MEL: Topics/Instructional Strategies/Activities and Applications/Video Activities).

Class Activities

- **TIE-in #3: A "Why Use Technology" Rationale** – Whole-class or small-group discussion addresses the questions at the end of this scenario about the lack of research to make a good case for technology use and how teachers can form a good rationale for integrating technology-based teaching strategies (Text - p. 28).

Concepts 4-5-6: Categories and configurations of technology resources

Presentation Assets


- **Video Activity** – Have students view the video: *Technology Improves Teaching Skills* (MEL: Topics/Ethical, Legal, and Social Issues/Activities and Applications/Video Activities).

Class Activities

- **TIE-in #4: Current Technology Resources** – Whole-class or small-group discussion addresses the questions at the end of this scenario about the difference between hardware and software resources (Text – pp. 28-29).
- **Online Activity** - Have students complete the online activity: *Teaching with Handheld Technology Devices* (MEL: Topics/Emerging Trends/Building Teaching Skills and Dispositions).

Concept 5: Current issues shaping technology integration

Class Activities

-  (Text-p. 17) – Go to <http://www.myeducationlab.com>, and access the video *Student Achievement Increases* and consider how technology can affect what and how students are able to learn. Complete the activity that follows. (MEL: Topics/Assessment/Activities and Applications/Video Activities).
- **TIE-into Practice #5 - #10: Issues** – Whole-class or small-group discussion addresses the questions at the end of this scenario about how teachers can address various issues that often arise regarding technology uses in education (Text – p. 9 & p. 10).

- **Lesson Plan Activity** - Have students complete the survey activity: *Surveying Activities for All Ability Levels* (MEL: Topics/Diverse Populations/Lesson Plans).

Concept 6: Trends in emerging technologies

Presentation Assets

- **Video Activity** – Have students view the video: *Tablet Computers in Spanish* (MEL: Topics/Foreign Language Integration/Activities and Applications/Video Activities).

Class Activities

- **Group Discussion Activity** (Text-p. 21) – Have students review the Top Ten list and share what issues they feel could be added to shaping today’s technology uses in education.

Concept 7: Required technology skills

Presentation Assets

- **Video Activity** – Have students view the videos: *Assessment Examples Illustrated, Assessing Mrs. Oberle* (MEL: Topics/Assessment/Activities and Applications/Video Activities).
- **Video Activity** – Have students view the video: *Managing Technology in the Classroom* (MEL: Topics/Ethical, Legal, and Social Issues/Activities and Applications/Video Activities).

Class Activities

- **Online Activity** - Have students go to the International Society for Technology in Education website and review and reflect on **Activity** (Text-p. 14) – Have students review the *Making the Case for Technology Integration* and in small groups, address questions about creating a rationale for technology use and address issues concerning the role of technology in teaching and learning.

Post-class: Tuning skills and reinforcing comprehension

Student Assignments

- **Web Activity** – Select from one of the three interactive readings and have students submit their comments via email to the instructor: *Using 21st Century Technology, Current Research, or Three Emerging Trends* (MEL: Topics/Emerging Trends/Activities and Applications/Web Activities).

Assessment Strategies

- **Practice Tests** - Have students revisit the Chapter 1 self-test located on the MEL site (*Topics/Practice Tests/Educational Technology into Teaching, 5th ed., Chapter 1*) in preparation for a summative assessment for the chapter.

- **TestGen Computerized Test Bank** - Create a test from the Chapter 1 items. Administer the test on paper or on the computers screens, if enough computers are available. Review test results in class and answer questions students may have.

Professional Development

Individual Portfolio Activities

- **Professional Development Activity** – Have students review the following resources: *The Teaching Portfolio*, *Reflection as an Essential Component of the Teaching Portfolio*, *Planning a Digital Portfolio*, and *21 Questions to Help You Create an Effective Portfolio* (MEL: Resources/Preparing a Portfolio).
- **Video Activity** – Have students view the video: *Digital Portfolios* (MEL: Topics/Ethical, Legal, and Social Issues/Activities and Applications/Video Activities).

Professional Development Activities

- **Educational technology professional organizations** – Ask students to select one or more professional associations they would like to join. See the Professional Organization Evaluation sheet at the end of this chapter to help structure their search.

Professional Organization Evaluation

In this assignment, you will learn about a professional organization you may want to join in order to keep up with technology integration in your area. Look carefully at its journals and its Internet site; these are important resources that represent the organization and help teachers become acquainted with its publications and services.

I am/expect to be certified in: _____

The professional organization I selected is: _____

The URL for this organization is: _____

List the title, publication date, and topic of the journal issue you examined:

Publication date

Theme/topic of issue

Use the journal and the Web site to respond to the following questions:

1. How many different journals does this organization publish? _____

2. How many members are there in this organization? _____

3. How much does a basic membership cost? _____ Student membership? _____

4. When and where is the next conference? _____

5. When and where was a recent conference? _____

6. Does this organization issue position statements? Yes _____ No _____

A recent position statement issued was:

Copy this page and use the back to outline what you feel are the organization's most important contributions to the profession. Include an explanation of why you feel it would be valuable for you as an educator to join this organization.

Name: _____

Chapter 1 Test Bank

TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.

- 1) The term educational technology has evolved over time to mean the array of electronic devices used for education.
- 2) Technological literacy cannot serve as the primary rationale for integrating educational technology.
- 3) One thing we have learned from the history of technologies in education is that teachers rarely have time to develop their own instructional media for teaching.
- 4) Microcomputers were the first computer technology to be implemented in K-12 schools.
- 5) Research over the past 40 years has shown conclusively that technology-based methods are usually superior to traditional ones.
- 6) Wireless connectivity makes computer networks more complex and even more difficult to maintain.
- 7) The number of students learning through virtual systems is steadily increasing.
- 8) The No Child Left Behind Act requires that all students meet high standards of achievement, with the exception of students with disabilities.
- 9) Studies show that technology works best when it directly supports the curriculum objectives being assessed.

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

- 10) Educators who come from a vocational background and belong to the ITEA professional organization use this term to refer to uses of technology for teaching and learning.
 - A) educational technology
 - B) instructional systems
 - C) technology education
 - D) instructional technology
- 11) In which of the following eras did Integrated Learning Systems (ILSs) become popular?
 - A) Post-Internet Era
 - B) Microcomputer Era
 - C) Pre-microcomputer Era
 - D) Internet Era

- 12) What is one thing we have learned from the history of technology in education about the role teachers will play in the future?
- A) To be effective, schools must keep up with new technology-based methods.
 - B) Due to technological innovations, human teachers gradually will be phased out.
 - C) Despite technological innovations, human teachers will always be very important.
 - D) The most successful teachers are ones who integrate technology into their methods.
- 13) What does AUP stand for?
- A) Authorized Use Procedures
 - B) Authorized Uniform Policies
 - C) Authorized Use Policies
 - D) Authorized Uniform Procedures
- 14) Which of the following is one of the "big issues" shaping the current and future climate of educational technology?
- A) cooperative vs. individualized learning strategies
 - B) Macintosh vs. Windows platform usage in schools
 - C) directed vs. constructivist learning strategies
 - D) web-based vs. broadcast distance learning delivery
- 15) Which of the following best describes ISTE-NETS?
- A) educational software to support teaching and learning
 - B) educational materials to consider when designing instruction
 - C) educational technology standards for students
 - D) educational technology standards for students and teachers
- 16) Cellular phones with the capability to send digital images and text messages is an example of:
- A) intelligent applications
 - B) destructive functionalities of devices
 - C) merging of technologies
 - D) visual immersion systems
- 17) What is the main advantage of handheld computers?
- A) AI applications
 - B) GPS
 - C) portability
 - D) small screen size
- 18) Which of the following statements **does not** justify the use of technology in education?
- A) technology use can improve student motivation and attitude
 - B) technology use can address the needs of students with learning handicaps
 - C) technology use can help prepare students for the workforce
 - D) technology use can be a great reward for student behavior

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

- 19) Though many educators tend to think of technology as devices, Saettler reminds us that the historical function of educational technology was a/an _____ rather than a product.
- 20) What kind of software, first introduced in 1994, marked the beginning of more widespread Internet use?
- 21) Attacks on computer systems by hackers and viruses make it necessary for schools to install firewalls and this kind of software.
- 22) What term is used to describe the disparity between the use of computers by girls and boys which some people feel leads to girls entering science and mathematics fields less often than boys?
- 23) ISTE has worked with groups such as NCATE to identify this set of technology skills that should be required of all American teachers.
- 24) What phrase refers to a discrepancy in access to technology resources among socioeconomic groups?
- 25) This is an organized collection of a student's work products over time to demonstrate their level of accomplishment in their field.
- 26) A category of programs designed to help teachers and students plan, develop materials, and keep records.

ESSAY. Write your answer in the space provided or on a separate sheet of paper.

- 27) Discuss three (3) of the issues you feel are most important in shaping the role of technology in education. Tell why they are the most important ones.
- 28) Discuss at least three (3) of the things we have learned from the history of educational technology that can help us shape today's uses.

Chapter 1 Answer Key

- 1) FALSE
- 2) TRUE
- 3) TRUE
- 4) FALSE
- 5) FALSE
- 6) FALSE
- 7) TRUE
- 8) FALSE
- 9) FALSE
- 10) C
- 11) B
- 12) C
- 13) C
- 14) C
- 15) D
- 16) C
- 17) C
- 18) D
- 19) process
- 20) browser
- 21) virus protection software
- 22) gender inequity
- 23) NETS
- 24) digital divide
- 25) electronic portfolio
- 26) productivity applications
- 27) Answers vary and may include descriptions and discussions of why each of the following is an important issue: *societal issues* (pro-technology and anti-technology movements, socialization needs, dangers of online uses, plagiarism), *cultural and equity issues* (economic and ethnic inequity, multicultural inequity, gender inequity, equity for students with special needs), *educational issues* (directed vs. constructivist methods, interdisciplinary vs. single-subject instruction, role of distance learning), and *technical issues*.
- 28) Answers vary and include: technology is not a panacea; skills required to be computer or technology literate are changing constantly; computer or technology literacy are not an adequate integrate rationale; teachers do not develop software and media; technically feasible does not mean desirable or inevitable; teachers will always be important

Chapter 2 - Foundations of Effective Technology Integration Models: Theory and Practice

Chapter 2 Overview

This chapter sets the stage for effective technology use by providing the learning theories and procedures that can guide integration. The emphasis here is on two concepts: (1) knowing *why* we use technology as we do and (2) *how* we can implement it to get best results. Teachers can use technologies for a variety of different purposes, depending on the instructional need and the learning theory they believe applies in the situation. Regardless of the learning theory they attend to or the strategy they use, they need a systematic planning procedure (described in the Technology Integration Planning (TIP) Model) to help them get best results.

Chapter 2 Concepts to Emphasize

- 1. Learning theories serve as the bases for integration** – Two lines of learning theories have given rise to two kinds of integration models: directed and constructivist. *Directed models* were shaped by objectivist theories, and *constructivist models* were shaped by constructivist theories.
- 2. The Technology Integration Planning (TIP) Model** – The six phases of this model are designed to help teachers (especially those new to technology) plan for effective classroom uses of technology.
- 3. Planning is key in effective integration of technology** – The use of objective and assessment plans, instructional plans, logistical plans, and evaluation plans ensure a lesson is pedagogically sound. Planning ensures that equity and classroom implementation needs are met, as well as all logistical issues. The evaluation of technology impact allows for a design-in-process approach to enhancing delivery and learning.
- 4. Essential conditions support effective technology integration** – For technology to have the desired impact on improved teaching and learning, several conditions must be in place. These include:
 - A shared vision for technology integration among education community members
 - Standards and curriculum support for activities
 - Required policies to assure legal/ethical use, safe Internet use, and equity.
 - Access to adequate funding for purchasing and maintaining hardware, software, and other resources
 - Trained personnel who have received a hands-on, integration emphasis over time, and have seen effective practices modeled during training
 - Technical assistance in the form of continuing support for diagnostic and maintenance problems for both teachers' and students' computers

- Appropriate teaching approaches that are matched to needs, and assessment strategies that are matched to the type of learning being measured

Suggested Instructional Strategies

Pre-class: Establishing learning goals and structure

Before the class meeting (or in the case of online courses, before completing other posted activities), ask students to do some or all of the following:

Student Assignments

- Read the Chapter 2 Interactive Technology Integration Example (p. 32) located in the front of the chapter then review the Interactive Summary (p. 67) located at the end of the chapter.
- Look up the Chapter 2 key terms (p. 68) for additional information on chapter content.
- Read chapter 2 – Theory and Practice: Foundations for Effective Technology Integration (pp. 31-70).

Assessment Strategies

- Complete the Chapter 2 self-test located on the MEL site (*Topics/Practice Tests/Educational Technology into Teaching, 5th ed., Chapter 2*) and email results to the Instructor.
- **Reflection Activity**– Have students prepare a definition of their personal philosophy on how students learn. See In-class Group Discussion Activity for follow-up on this assignment.

In-class: Providing stimulus and engaging performance

Concept 1: Learning theories serve as the bases for technology integration strategies

Presentation Assets

- **Video Activity** – Have students view the video: *Geometer's Sketchpad for Inductive Reasoning* (MEL: Topics/Math Integration/Activities and Applications/Video Activities).
- **Video Activity** – Have students view the video: *Technology Manages Flow of Activities* (MEL: Topics/Instructional Planning/Activities and Applications/Video Activities).

Class Activities


- **Group Discussion Activity** - Following up on the pre-class Reflection Activity, have students form small groups and share their philosophies, or epistemologies, on how students learn most effectively. From that discussion, students can classify their perspectives as directed or constructivist, or a combined integration approach.
- **Group Discussion Activity** - If there is time, have students pair up to role-play learning theorists addressing the use of various technologies in the classroom. How would Dewey and Gagné look at the role of the Internet in learning? How would Skinner and Vygotsky view it?

Concept 2: The Technology Integration Planning (TIP) Model

Presentation Assets


- **Video Activity** – Have students view the video: *Planning for Technology* (MEL: Topics/Technology Integration Models/Activities and Applications/Video Activities).
- **Video Activity** – Have students view the video: *Teaching Content with Technology* (MEL: Topics/Technology Integration Models/Activities and Applications/Video Activities).

Class Activities

- **Web Activity** – Complete the interactive reading and have students submit their comments via email to the instructor: *Why Integrate Technology?* (MEL: Topics/Technology Integration Models/Activities and Applications/Web Activities).
- **TIE-in #1: Phase 1-Determining the Relative Advantage** – Whole-class or small-group discussion addresses the questions at the end of this scenario on how best to establish relative advantage (Text – p. 69).
- **TIE-in #2: Phase 2-Deciding on Objectives and Assessments** – Whole-class or small-group discussion addresses the questions at the end of this scenario on how to state measurable outcomes (Text – p. 69).
-  (Text-p. 50) – Go to <http://www.myeducationlab.com>, and access the activity *TPACK Identification Model*. Guide students to reflect on where they might fit within the TPACK Model. Complete the activity that follows. (MEL: Topics/Technology Integration Models/Rubrics and Checklists).

Concept 3: Planning is key in effective integration of technology

Class Activities

- **TIE-in #3: Phase 3-Designing Integration Strategies** – Whole-class or small-group discussion addresses the questions at the end of this scenario on how to use technologies effectively (Text – p. 69).
- **TIE-in #4: Phase 4-Preparing the Instructional Environment** – Whole-class or small-group discussion addresses the questions at the end of this scenario on how to prepare an instructional environment for technology use (Text – p. 69).
-  (Text-p. 61) – Go to <http://www.myeducationlab.com>, and access the checklist *Technology Integration Planning Checklist*. Instruct students to use this checklist when designing lessons. (MEL: Topics/Instructional Planning/Rubrics and Checklists).
- **TIE-in #5: Phase 5-Evaluating and Revising Integration Strategies** – Whole-class or small-group discussion addresses the questions at the end of this scenario on how to collect and interpret data to determine needed changes to integration strategies (Text – pp. 69-70).

- **Group Discussion Activity** – Form students into small groups and designate a *Classroom Example* to each group, they will answer the Analysis Questions from their designated case study. (Text – pp. 52, 53, 55, 58, 59, and 60).

Concept 3: Essential conditions for effective technology integration

Presentation Assets


- **Video Activity** – Have students view the video: *Parent Pleased with Son's Opportunities* (MEL: Topics/Music and Art Integration/Activities and Applications/Video Activities).
- **Video Activity** – Have students view the video: *Using Technology to Meet Objectives* (MEL: Topics/Diverse Populations/Activities and Applications/Video Activities).

Class Activities

- **Web Activity** – Assign one of the three interactive readings to each student: *American Sign Language, Assistive Technology Training, and Working with Gifted Populations* - (MEL: Topics/Diverse Populations/Activities and Applications/Web Activities).
- **Online Activity** - Have students complete the online activity: *Creating an Inclusive Classroom* (MEL: Topics/Diverse Populations/Building Teaching Skills and Dispositions).

Post-class: Tuning skills and reinforcing comprehension

Student Assignments

- **Web Activity** – Assign the three Web-Enrichment Activities to each student to review the listed website and then respond to the questions. Students should submit to the instructor their responses to these activities. - (Text – p. 68).
-  (Text-p. 68) – Go to <http://www.myeducationlab.com> and assign one of the two videos or the *Building Teaching Skills* exercise. Instruct students to address the video questions or complete the activity in Building Teaching Skills as defined in the textbook.
- **Review of directed and constructivist strategies** – An activity that helps shed light on societal forces that led to constructivism is to have students read the "Poor Scholar's Soliloquy" (located at the end of this chapter). This article is often used to point out problems with required curriculum and skills that were present in schools as far back as 1944. Have student create a summary of the problems and how constructivist strategies address them.

Assessment Strategies

- **Practice Tests** - In preparation for a summative assessment for the chapter, have students revisit the Chapter 2 self-test located on the MEL site (Topics/Practice Tests/Educational Technology into Teaching, 5th ed., Chapter 2).

- **TestGen Computerized Test Bank** - Create a test from the Chapter 2 items. Administer the test on paper or on the computers screens, if enough computers are available. Review test results in class and answer questions students may have.
- **Making the Case for Technology Integration** - Assign small group work to address the questions in the Chapter 2 *Making the Case* feature (Text – p. 66).

Professional Development

Individual Portfolio Activities

- **Professional Development Activity** – Have students access the Portfolio Builder and create a starting portfolio on skills and knowledge gained. The development of the portfolio will be ongoing throughout the course. (MEL: Resources/Portfolio Builder).
- **Professional Development Activity** - Review the following portions of students' portfolio, which they were to add per directions at the end of Chapter 2 under *For Your Teaching Portfolio*:
 - **Findings from their research** – Descriptions of two or more studies at the CARET web site that they feel offer convincing evidence that a technology-based method has more impact on student learning than another method.
 - **NETS for Teachers Profile** – A chart of their own General Performance profile, based on skills ISTE cites in the website given in *For Your Teaching Portfolio* at the end of Chapter 2.

Professional Development Activities

- **CARET and other research findings** – Ask students to go to the CARET website and review the findings on each of the five questions CARET says teachers can ask to determine if technology-based methods have impact on student learning.

The Poor Scholar's Soliloquy

No, I'm not very good in school. This is my second year in the seventh grade, and I'm bigger and taller than the other kids. They like me all right, though, even if I don't say much in the classroom, because outside I can tell them how to do a lot of things. They tag me around and that sort of makes up for what goes on in school.

I don't know why the teachers don't like me. They never have very much. Seems like they don't think you know anything unless you can name the books it comes out of. I've got a lot of books in my room at home--books like Popular Science Mechanical Encyclopedia, and the Sears & Wards catalogues--but I don't sit down and read them like they make us do in school. I use my books when I want to find something out, like whenever mom buys anything second-hand I look it up in Sears or Wards first and tell her if she's getting stung or not. I can use the index in a hurry.

In school, though, we've got to learn whatever is in the book and I just can't memorize the stuff. Last year I stayed after school every night for two weeks trying to learn the names of the presidents. Of course, I knew some of them--like Washington and Jefferson and Lincoln, but there must have been thirty altogether, and I never did get them straight. I'm not too sorry though, because the kids who learned the presidents had to turn right around and learn all the vice-presidents. I am taking the seventh grade over, but our teacher this year isn't so interested in the names of the presidents. She has us trying to learn the names of all the great American inventors.

I guess I just can't remember the names in history. Anyway, this year I've been trying to learn about trucks because my uncle owns three, and he says I can drive one when I'm sixteen. I already know the horsepower and number of forward and backward speeds of twenty-six American trucks, some of them Diesels, and I can spot each make a long way off. It's funny how that Diesel works. I started to tell my teacher about it last Wednesday in science class when the pump we were using to make a vacuum in a bell jar got hot, but she, didn't see what a Diesel engine had to do with our experiment on air pressure, so I just kept still. The kids seemed interested though. I took four of them around to my uncle's garage after school, and we saw the mechanic, Gus, tear a big truck Diesel down. Boy does he know his stuff!

I'm not very good in geography either. They call it economic geography this year. We've been studying the imports and exports of Chile all week, but I couldn't tell what they are. Maybe the reason is I had to miss school yesterday because my uncle took me and his big truck down and we brought almost 10 tons of livestock to the Chicago market.

He had told me where we were going, and I had to figure out the highways to take and also the mileage. He didn't do anything but drive and turn where I told him to, Was that fun. I sat with a map in my lap, and told him to turn south, or southeast, or some other direction. We made seven stops, and drove over 500 miles round trip. I'm figuring now what his oil cost, and also the wear and tear on the truck--he calls it depreciation--so we'll know how much we made.

I even write out all the bills and send letters to the farmers about what their pigs and beef cattle brought at the stockyards. I only made three mistakes in 17 letters last time, my aunt said, all commas. She's been through high school and reads them over. I wish I could write school themes that way. The last one I had to write was on, "What a Daffodil Thinks of Spring," and I just couldn't get going.

I don't do very well in school in arithmetic either. Seems I just can't keep my mind on the problems. We had one the other day like this:

"If a 57 foot telephone pole falls across a cement highway so that 17 $\frac{3}{6}$ feet extended from one side and 14 $\frac{9}{17}$ feet from the other, how wide is the highway?"

That seemed to me like an awfully silly way to get the width of a highway. I didn't even try to answer it because it didn't say whether the pole had fallen straight across or not.

Even in shop I don't get very good grades. All of us kids made a broom holder and bookend this term, and mine were sloppy. I just couldn't get interested. Mom doesn't use a broom anymore with her vacuum cleaner, and all our books are in a bookcase with glass doors in the living room. Anyway, I wanted to make an end gate for my uncle's trailer, but the shop teacher said that meant using metal and wood both, and I'd have to learn how to work with wood first. I didn't see why, but I kept still and made a tie rack at school and the tail gate after school at my uncle's garage. He said I saved him ten dollars.

Civics is hard for me, too. I've been staying after school trying to learn the "Articles of Confederation" for almost a week, because the teacher said we couldn't be a good citizen unless we did. I really tried, though, because I want to be a good citizen. I did hate to stay after school because a bunch of boys from the south end of town have been cleaning up the old lot across from Taylor's Machine Shop to make a playground out of it for the little kids from the Methodist home. I made the jungle gym from old pipe. We raised enough money collecting scrap this month to build a wire fence clear around the lot.

Dad says I can quit school when I am sixteen, and I am sort of anxious because there are a lot of things I want to learn--and as my uncle says, I'm not getting any younger.

Corey, S. M. (1944). The poor scholar's soliloquy. *Childhood Education*, 33, 219-220.

Chapter 2 Test Bank

TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.

- 1) Although they differ in many ways, both directed and constructivist theories agree on what Gagné called the "conditions of learning," or the sets of circumstances that are required to bring about learning.
- 2) Using drill and practice to promote automaticity is a directed strategy.
- 3) Having small groups work cooperatively to develop a hypermedia product is identified more with constructivist models than with directed instructional ones.
- 4) John Dewey is more closely identified with directed instructional practices than with constructivist ones.
- 5) An activity in the second phase of the TIP Model is determining the relative advantage of technology-based methods.
- 6) One of the essential conditions for effective technology integration is adequate technical assistance for teachers.
- 7) When writing objectives, teachers should focus on outcomes that are observable.
- 8) Technology standards and content area standards should be designed to support each other.
- 9) The TPACK model represents the independence of the two most important knowledge domains: technological and pedagogical.

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

- 10) Which of the following technology-based strategies might Skinner have considered an effective way to shape learned behavior?
 - A) drill and practice that gives reinforcement for correct answers
 - B) forming responses through multimedia rewards for good behavior
 - C) using Internet illustrations to stimulate recall of prerequisite skills
 - D) using visual examples to bridge adult/expert and child/novice levels
- 11) Which of the following might be a kind of technology strategy based on constructivist learning models?
 - A) Identifying skill weaknesses and targeting tutorial and drill software to them
 - B) Giving students a German language tutorial because a teacher is not available
 - C) Letting students write papers by word processing, rather than by hand
 - D) Showing video-based problems that students solve through small group work

12) What two kinds of instruments can teachers design or select during Phase 3 of the TIP Model to assess changes in attitudes during a technology-enhanced lesson?

- A) Rubrics and semantic differentials
- B) Rubrics and observation checklists
- C) Likert scales and semantic differentials
- D) Likert scales and rubrics

13) In writing objectives for technology-enhanced lessons, which of the following would be an observable outcome?

- A) know
- B) appreciate
- C) demonstrate
- D) understand

14) What is one of the most important recommendations when writing proposals to obtain technology funding?

- A) Make sure your idea addresses directly the primary goals of the funding agency.
- B) Give descriptions of relevant background for all personnel.
- C) Make sure sufficient research history and background is included.
- D) Give detailed explanation to justify funds for technology resources.

15) Software that prevents access to specific websites or to sites that contain certain keywords is called:

- A) Sensory registers
- B) Antispam software
- C) Firewall software
- D) Malware detection software

16) Questions related to changes that need to be made to ensure even better technology integration in the future should be asked in what phase of the TIP model?

- A) Phase 5
- B) Phase 4
- C) Phase 3
- D) Phase 6

17) Which of the following knowledge domains does not belong to the TPACK model?

- A) Content knowledge
- B) Pedagogical knowledge
- C) Technological knowledge
- D) Theoretical knowledge

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

- 18) Howard Gardner would probably approve of assigning different roles in small group multimedia development projects because they can help address this concept that is central to his theory.
- 19) What would Vygotsky call a process of helping students develop new math skills by using video-based problems to build on their own knowledge and experience?
- 20) What do teachers see when they determine that a technology-based strategy is better than the traditional one they were using?
- 21) This model gives teachers a general approach to address challenges involved in integrating technology into teaching.
- 22) This software prevents access to specific web site addresses or to web sites that contain certain keywords or phrases.
- 23) What is the name for the policy that schools should have students sign to help make sure they are aware of appropriate behaviors on the Internet?
- 24) This is an abbreviation for the U.S. DOE initiative to provide preservice teacher training programs to integrate technology into teaching.
- 25) When students must create complex multimedia products, the teacher should provide students with this to specify the requirements that each product must meet.

ESSAY. Write your answer in the space provided or on a separate sheet of paper.

- 26) Suppose Vygotsky and Skinner were having a conversation about effective learning strategies. What areas of agreement would they have? What areas of disagreement would they have?
- 27) Suppose there is a student who has failed at learning mathematics skills and is very unmotivated. What strategy would advocates of directed instruction suggest? What would constructivists recommend?

Chapter 2 Answer Key

- 1) FALSE
- 2) TRUE
- 3) TRUE
- 4) FALSE
- 5) TRUE
- 6) TRUE
- 7) TRUE
- 8) TRUE
- 9) FALSE
- 10) A
- 11) D
- 12) C
- 13) C
- 14) A
- 15) C
- 16) D
- 17) D
- 18) multiple intelligences
- 19) scaffolding
- 20) relative advantage
- 21) TIP model
- 22) firewall
- 23) AUP
- 24) PT3
- 25) evaluation criteria checklist
- 26) Agreement: Not much! Perhaps they would agree that learners acquire skills at different rates. Disagreement: Whether or not individual differences in background experiences play a critical role in learning; if we should require uniform mastery-type learning across all students
- 27) *Directed*: Try to identify gaps in prerequisite skills and target specific remedial instruction delivered at the student's own pace. *Constructivist*: Engage the student in more visually interesting tasks linked to topics that he can relate to from his own experience; let him build knowledge based on these experiences

Answer Guidelines for Scenario Exercises: Chapters 1-2 TIE-into Practice

The answers to the end-of-chapter questions on how to implement the TIP Model will vary considerably, and Instructors should encourage student analysis and creativity. Instructors may use the following information to determine if students are addressing the types of concepts called for in each item.

Chapter 1 Answer Guidelines

TIE-in #1:

1. Different backgrounds lead to different perspectives on what "educational technology" means.
2. None is "most" correct; they need to be merged.

TIE-in #2:

1. Technology materials such as teaching videos usually take too much time for teachers to develop.
2. Review already-developed materials to see if any fit; or develop them professionally at the district level.

TIE-in #3:

1. Consistent evidence of technology benefits in any area is difficult to find.
2. "Hard evidence" is another term for the "scientifically-based research" (SBR) described in the NCLB Act.

TIE-in #4:

1. Multimedia stations are hardware; purchasing agents would consider them as such or would ask that the costs of a station be broken into hardware and software.
2. Hardware requires on-going expenses for maintenance.

TIE-in #5:

1. Students need supervision when they are on the Internet; otherwise, safety and legal problems can arise.
2. Digital Divide issues have more to do with lack of at-home use and the ways technology is applied in curriculum than with simple at-school access. Simply providing access to computers after school may not address these problems.

TIE-in #6:

1. This would probably not prevent these kinds of problems, since they occur in library media centers, as well; but would have the effect of curtailing useful classroom Internet activities.
2. The district or school needs to put Appropriate Use Policies and training in place to inform students and teachers about proper online behaviors and punishment for infractions.

TIE-in #7:

1. Positives: More emphasis on the need for girls to use technology and encourage their exploration in science careers. Negatives: Problems arise not from materials but the ways they are used. There are no hardware-software resources specifically geared to girls.
2. Provide good female science teacher role models; invite female scientists to speak; training teachers in methods that encourage female involvement in science.

TIE-in #8:

1. All students do not perform equally well in online environments. Courses would have to meet district requirements for course credit.
2. Make sure students have adequate preparation for online learning; provide assistants for students having difficulties; establish guidelines for online courses that meet district requirements.

TIE-in #9:

1. Although similar objectives arise from time-to-time, there is limited support for and agreement with their positions. Their objections have not been proven to have merit. Technology use in education is not a fad, but a movement that is growing and needs to be shaped by wise decisions.
2. Answers will vary. Should be based on growing body of evidence about ways that supports students' learning, productivity, and communication.

TIE-in #10:

1. Unsupervised chat rooms present serious safety concerns. People can misrepresent themselves in virtual environments.
2. Students should not converse online with people whose identity cannot be confirmed.

Chapter 2 Answer Guidelines

TIE-in #1:

1. They did not see how they would use them to replace or enhance other activities they needed to do. They did not have opportunities for trialability or observability to aid them in drawing these conclusions.
2. Show them specific activities they could do with the Internet that would help address already-identified teaching and learning problems and needs.

TIE-in #2:

1. That the students would learn similar concepts they learned from "live" dissections, as reflected in usual tests.
2. Answers will vary. Should address knowledge of anatomy concepts, attitudes toward doing dissections.
3. Comparison of costs of materials in both settings. Comparison of time to carry out a typical dissection lab in both settings.

TIE-in #3:

1. Directed
2. Probably not, since they have to take the exams individually and learning rates/needs will vary.
3. Probably should expand to 30 minutes per day (but no more).

TIE-in #4:

1. No, students need more supervision while online.
2. She is having them give out too much personal information.
3. Send from school email addresses, and provide more supervision.

TIE-in #5:

1. No, if teachers would not adopt it, it was not a success.
2. Interview or survey teachers.
3. Assess quality of students' assignments to see if it improved.

PART 2

Integrating Software Tutors and Tools into Teaching and Learning

Chapters in this part provide an overview of all the available technology resources, ranging from instructional software to multimedia/hypermedia. Strategies are described and illustrated for using each kind of resource to enhance teaching and learning.

- **Chapter 3: Teaching with Instructional Software** – Describes and gives practice in using each of the functions of instructional software: drill and practice, tutorial, simulation, instructional game, and problem solving.
- **Chapter 4: Teaching with the Basic Three Software Tools: Word Processing, Spreadsheet, and Database Programs** – Describes and gives hands-on practice in and classroom integration strategies for the "basic three" software tools: word processing, spreadsheets, and databases.
- **Chapter 5: Teaching with Software Tools: Beyond the Basic Programs** – Describes and gives hands-on practice in classroom integration strategies for the other software tools.
- **Chapter 6: Teaching with Multimedia and Hypermedia** – Describes and gives hands-on practice in resources that combine and link media to support learning.