Chapter 1: Exploring 21st Century Learning

INSTRUCTOR NOTES

This chapter addresses ISTE NETS-T 3, 4 and 5.

Chapter Goal

Learn about the uses of technology and media to ensure successful student learning in the 21st century.

Knowledge Outcomes

By the end of the chapter, students should be able to do the following:

1. Identify key components of the framework for 21st century learning.
2. Discuss the status of the technology and media in today's PK–12 schools.
3. Describe the roles of technology and media in learning.
4. Explain the roles of the typical 21st century teacher and the typical learner.
5. Discuss the framework for 21st century learning literacies.
6. Identify 21st century learning environments.
7. Explain the role of standards.
8. Describe the key concerns regarding copyright law for educational uses.

Chapter Overview

Chapter 1 is an introduction and overview for the textbook. The chapter sets the stage for 21st century learning as the authors discuss the influence of technology and media on the roles of teachers and students in the classroom. The text expresses the need for students to master core skills and gain 21st century knowledge. Teachers are thereby challenged with facilitating this process by selecting appropriate media and technologies, and creating learning experiences that effectively use available tools and resources.

Chapter 1 opens with a discussion of a *Framework for 21st Century Learning, The 21st Centrury Teacher, The 21st Century Learner, 21st Century Learning Literacies, and 21st Century Learning Environments,* followed by The Role of Standards, and finally, *Copyright Concerns*. The authors point out the difference between technology and *instructional technology and* discuss the status of the *technology gap*. This chapter discusses both the digital teacher and the digital student, as well as NETS for teachers and common core. The chapter concludes with a discussion of copyright law.

Using This Chapter

Chapter 1 provides background information about 21st century classrooms, teachers, and students and it is an advance organizer for the rest of the book. Undergraduate students in teacher preparation programs and in-service teachers will most likely prefer dealing with those parts of Chapter 1 that relate directly to the role of the teacher and to the teaching process. If the book is being used as an introduction to graduate study in our field, then Chapters 1 and 2 can be used as a conceptual framework for the course. The students should be directed to material that might be optional for undergraduates. For example, a graduate class could study the history of the field.

Professional Vocabulary

BLOG- Web log serving as a publicly accessible personal journal for an individual.

COPYRIGHT- Regulations that describe the manner in which an original work can be used and copied. Copyright laws regulate the manner in which authors or artists can be reimbursed for their creative work.

DIGITAL STUDENT- learn in classrooms where the technology is a seamless component of learning that extends learning beyond the physical classroom walls.

DIGITAL TEACHER – Instruction includes presentations that are media rich and interactive.

FAIR USE- Provides copyright exception for teachers and students, small portions of copyrighted works may be used in teaching, if properly cited etc.

INSTRUCTIONAL MATERIALS- The specific items used within a lesson that influence student learning.

INSTRUCTIONAL TECHNOLOGY- The integration of teacher and student use and knowledge of tools and techniques to improve student learning.

MEDIA - Means of communication; anything that carries information between a source and receiver.

MEDIA CENTER – School facilities that offer traditional library reading resources as well as a variety of information technology assets.

MEDIA FORMATS – The physical forms in which message are incorporated and displayed (slides, DVD, CD, etc.).

NETS-S- National Education Technology Standards for Students; six critical skills students need to achieve success in school and in future careers.

NETS-T- National Education Technology Standards for Teachers; provide five basic guidelines for becoming a digital teacher.

PERSONAL RESPONSE SYSTEM- Handheld wireless devices (similar to TN remotes) used to collect and graphically display student answers to teacher questions.

PODCAST – Internet-distributed multimedia file formatted for direct download to mobile devices.

RESPONSE TO INTERVENTION – A program of assessment and appropriate instructional assistance in schools.

TECHNOLOGY GAP- The gap between people with access to digital and information technology and individuals with limited or no access. Also known as the *digital divide.*

WIKI – A web-based document subject to edit by any of its users.

INSTRUCTIONAL ACTIVITIES

Suggested Materials

1. Locate a short video about the progression of technology advancement; there are many high quality videos available for free on the Internet.
2. Have students bring their mobile devices, laptops, and/or smart phones to class.

Introduction

Suggested Activity. Begin the course with an informal discussion using the following questions:

How has technology changed the last 10 years, 20 years?
How do you use technology today in your personal, professional, or academic life?
How did your students use technology in their high schools?
How do your students currently use technology in and out of school?

You might also have your students view a video on the subject of technology advancement. Such videos can be streamed for free from a variety of Internet sources such as YouTube.

Instructional Technology

Technology and 21st century learning are introduced early in the chapter. The relationship between technology and instructional strategies should be pointed out, i.e., *instructional technology*. Technology is not a classroom cure-all but it does offer benefits to teachers and students. Discuss the technology gap and the benefits of instructional technologies.

Suggested Activity. You may want to assign individual students or groups of students a specific topic (the technology gap, Internet safety, communities of practice, etc.) and ask them to make a brief presentation to the class or to write a short paper. An excellent resource for K-12 technology research can be found at PBS Teachers on the PBS website.

Media Formats

Suggested Activities.

1. Divide the class into groups. Each group should use a laptop or mobile device to connect to their social media website of choice (Facebook, Twitter, Instagram, etc.) The group should discuss how this social media can be of benefit to a classroom. How can it be used? What is the advantage? What is the limitation or danger?
2. Differentiate between technology and media. Differentiate among media, media format, and instructional materials. Share examples with your students. Have the students look around the classroom or flip through the text for ideas to share with the class. Possible discussions: Which examples are technology-based? Does technology improve the quality of instructional materials?

Teacher Use of Technology and Media

Teacher-centered instruction uses technology and media to support the presentation of instruction. Point out that an entire chapter (chapter 3) is devoted to integrating technology and media into instruction. Help your students make connections to class discussions/activities and the ASSURE model, NETS-T, and CCLS.

Suggested Activities.

1. Describe a digital teacher.
2. If available, use mobile devices or Personal Response Systems for formative assessment and student engagement during class. *Poll Everywhere* is a free audience response system that uses mobile phones, Twitter, and the web. Responses are displayed in real-time.
3. Have your students observe a K-12 teacher and report the learning activities in which the teacher used technology. Or, interview a teacher to find out about their experiences with instructional technology.
4. Have students locate and consider joining communities of practice. CoPs can be local groups meeting in physical spaces (call your local school district or ask local teachers for suggestions) and online. Internet-based communities can be found with a simple Internet

search. Groups are often designed around content and grade level. Try searching for groups within Twitter, Diigo, Ning, and EdTech Talk.

Student Use of Technology and Media

When instruction is student-centered, the primary users of technology and media are the learners. *Suggested Activity.* When discussing this section, you might want to ask your students to describe actual or hypothetical examples of learners using technology and media or have them define *digital students*. Entire chapters are devoted to this topic; Chapter 5 focuses on learners and computers, Chapter 6 is devoted to Web 2.0 tools and Chapter 7 to distance learning.

The Classroom Continuum: Traditional to Digital

Suggested Activity. Ask your students to think about something they use every day, a tool or technology they cannot live without. Then, ask your students to think about a time in which the item was new to them. How did they learn to use it? How has their use of the tool changed over time? Use the conversation to begin talking about the classroom continuum.

The Role of Standards

Suggested Activity. Ask students to explore the Common Core State Standards website to investigate how technology integration can be used in lessons that are aligned to the Common Core Learning Standards.

Copyright Concerns: The Copyright Law

Suggested Activity. After a review of copyright and fair use, ask your students to consider ways they will not only model appropriate use of copyrighted materials but also teach their students about copyright.

- The *TeachersFirst* website provides additional resources and links to activities about teaching copyright.

Questions for Thought

At the end of each chapter the authors have included *Demonstrating Professional Knowledge and Skills*. Included in those questions and activities are opportunities for students to reflect on their learning. You might wish to expand their reflections by asking questions such as these:

1. What issues might be important for a teacher to address when selecting a particular technology or medium?
2. What issues might be important for a teacher to address when considering teacher or student use of technology and media?
3. Why should teachers be aware of the copyright laws?

TEST BANK

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True-False.

1. Student interaction with instructional materials does NOT influence learning. (p.6)
A. TRUE
B. FALSE

2. When selecting a media format, teachers should consider the instructional setting. (p.4-5)
A. TRUE
B. FALSE

3. When instruction is teacher-centered, technology and media are used to support the presentation of instruction. (p.7)
A. TRUE
B. FALSE

4. The effectiveness of instruction depends on the teacher's careful planning and selection of appropriate resources. (p.7)
A. TRUE
B. FALSE

5. Copyright refers to the legal rights to an original work and it protects the financial interests of the creators, producers, and distributors. (p.14)
A. TRUE
B. FALSE

6. Material on the Internet is NOT subject to copyright law. (p.14)
A. TRUE
B. FALSE

7. Teachers can receive financial penalties and prison time for knowingly violating the copyright law. (p.15)
A. TRUE
B. FALSE

Multiple Choice Questions.

8. Which statement best defines instructional technology? (p.2)
A. Anything that carries information between a source and a receiver
B. A systematic approach for using technology and media to facilitate student learning
C. Online courses
D. The integration of teacher and student use and knowledge of tools and techniques to improve student learning

9. _____ is the six-step model that will guide teacher planning and provide structure for creating effective lessons using technology. (p.2)
A. Framework for 21st Century Learning
B. Technology Integration
C. ASSURE
D. Smart Board

10. Which of the following is NOT a benefit of using technology? (p.4)
A. Digital storage of information
B. Additional time required to learn new technologies
C. Tools to differentiate instruction
D. Learning can be extended beyond the physical classroom

11. The purpose of instructional media is (p.10)
A. Entertainment and advertisement
B. Replacement of the teacher
C. Reduction of planning time
D. Communication and learning

12. Assistive technologies can be described as (p.3):
A. Low tech (magnifying glass, for example)
B. Medium tech (such as a book light for increased reading visibility)
C. High tech (an assistive device requiring a computer)
D. All of the above

13. Which of the following is NOT a media format? (p.4)
A. LCD projector
B. Music CD
C. PowerPoint Slide
D. DVD

14. _____ is a general term for specific items used within a lesson. It is the interaction of the students with the _____ that generates and reinforces actual learning. (p.6)
A. Educational games
B. ASSURE
C. Instructional materials
D. General Literacy

15. Mr. Radley is preparing instructional materials for the media component of his social studies lesson. Which of the following is an example of an instructional material? (p.6)
A. The radio
B. *The Rainforest*, National Geographic DVD
C. The teacher's computer
D. A Nintendo Wii

16. Which of the following best describes a digital teacher? (p.7-10)
A. Mr. Myers teaches Algebra II for Florida Virtual School.
B. Mr. Kaderli begins each US History lesson with a PowerPoint he has downloaded from the Internet. One student is in charge of advancing the slides while the other students take notes. While the class views the PowerPoint, Mr. Kaderli enters grades into the electronic gradebook on his computer.
C. Mrs. Zimmerman's 4th grade class regularly makes use of videoconferences to interview professionals in the field of science. Recently, Mrs. Zimmerman showed the class a short Brain Pop video about fossils. After the video, she used Prezi to present additional information about the topic. Some of the Prezi slides were hyperlinked to external websites with additional resources and educational games online. Following the lesson, Mrs. Zimmerman uploaded the Prezi to her class website. She then instructed the class to brainstorm questions for interviewing an archeologist. Students take turns writing interview questions on the teacher's smart board.
D. Although she primarily uses the curriculum provided by her school system Miss Wood also uses the Internet to research ideas for her 8th grade Social Studies classes. Miss Wood combines the topics she finds online with the textbook curriculum. In class, students participate in group discussions and debate current events.

17. Which of the following is an example of "TeacherFocus"? (p.8)
A. A digital student assessment tool
B. An Internet based bank of instructional videos
C. A virtual community of practice for teachers
D. A manufacturer of clicker systems

18. Which of the following describes NETS-T? (p.9)
A. A "T" shaped mobile device for recording student-reading progress
B. National Education Technology Standards for Teachers
C. Nationwide Educator Teaching Simulations for Technology
D. A software program designed to "catch" teachers using technology

19. When students use technology to direct their own instruction, what is the role of the teacher? (p.10)
A. Disciplinarian
B. None; the technology is the teacher.
C. Casual observer
D. Facilitator of learning

20. Which of the following statements does NOT describe a digital student. (p.10-11)
A. Checks YouTube for a video tutorial about creating a homemade volcano
B. Uses social media such as Facebook to discuss homework assignments
C. Uses the computer to research and type a term paper for 10th grade English
D. Plays video games on a home gaming system

21. Which of the following describes NETS-S? (p.11)
A. An educational mobile device for students
B. Nationwide Educator Technology Simulations for Students
C. National Education Technology Standards for Students
D. A technology-enhanced tool for science labs

22. How might the ASSURE model help teachers address the needs of learners with physical challenges? (p.12)
A. It will help teachers assess the need of the student and then design instruction that addresses the objective.
B. ASSURE includes a list of assistive technologies specific to learners with physical needs.
C. This model encourages the teacher to ask the student how he/she learns best.
D. ASSURE does not address learners with physical challenges.

23. As a classroom teacher, what resources are available to you that can help you gain additional knowledge about technology? (p.12)
A. Media Specialists
B. Technology Coordinators
C. Area universities
D. All of the above

24. The instructional strategy that combines the use of video and Constructivist learning strategies is known as: (p.6)
A. Personal response systems
B. Response to Intervention
C. NETS-S
D. Flipped Classroom

Short-Answer and Essay Questions.

25. Differentiate between technology and media. (p.2-4)

26. Discuss the status of the technology gap in today's PK-12 schools. (p.4)

27. Discuss how instructional technologies might help students with unique learning needs. (p.12)

28. List three instructional uses and/or benefits of PRS (clickers). (p.7)

29. The classroom shift from traditional to digital is varied. It differs "from teacher to teacher and school to school." What are the four phases of moving toward digital integration? (p.12-13)

30. Explain the three types of instruction as described in the classroom continuum: face-to-face, distance learning, and blended learning. (p.13)

31. Copyright Law contains Fair Use guidelines to provide educational exceptions for teachers and their students. Outline the four basic criteria for determining fair use in an educational setting. (p.14-16)

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Answer Key

1. B. FALSE
2. A. TRUE
3. A. TRUE
4. A. TRUE
5. A. TRUE
6. B. FALSE
7. A. TRUE
8. D. The integration of teacher and student use and knowledge of tools and techniques to improve student learning
9. C. ASSURE
10. B. Additional time required to learn new technologies
11. D. Communication and learning
12. D. All of the above
13. A. LCD projector
14. C. Instructional materials
15. B. "The Rainforest," National Geographic DVD
16. C. Mrs. Zimmerman
17. C. A virtual community for teachers
18. B. National Education Technology Standards for Teachers
19. D. Facilitator of learning
20. D. Plays video games on a home gaming system
21. C. National Education Technology Standards for Students
22. A. Helps assess the needs of students
23. D. All of the above
24. D. Flipped Classroom

25. Answers will vary. Technology is a general term used to describe the knowledge and use of materials. Media however, is the vehicle by which information is communicated to learners.

26. Answers will vary. Today, students of all economic levels are likely to have access to the Internet at their schools. The current ratio is approximately one computer per four students and therefore narrowing the technology gap for students who may not have computers at home.

27. Answers will vary. Assistive technology is used to address a variety of learning and physical challenges. Additionally, Response to Intervention allows students to be recognized earlier and their needs are more quickly met. Often these challenged students who are in the regular classroom setting are provided with technology resources that aid their ability to be successful in the classroom.

28. Answers may vary. Clickers are interactive; they measure understanding and can measure student attitudes. They also provide the teacher and students with immediate feedback.

29. 1) dabbling, 2) doing old things in old ways, 3) doing old things new ways, 4) doing new things in new ways.

30. Face-to-face: instruction occurs in the classroom, at home and at extracurricular activities. Distance learning: teachers and students are not in the same physical location. Blended learning: combination of face-to-face instruction and distance learning.

31. 1) Purpose and character of use: Will the work be used for an educational objective? 2) Nature of the copyrighted work: Is the original work created for a general readership or for education? If the work is educational in nature, use could impact sales. 3) Amount and substantiality of the portion used in relation to the copyrighted work as a whole: The amount of copied work should be small. 4) Effect of the use on the potential market: Does the use affect potential sales of the original work?