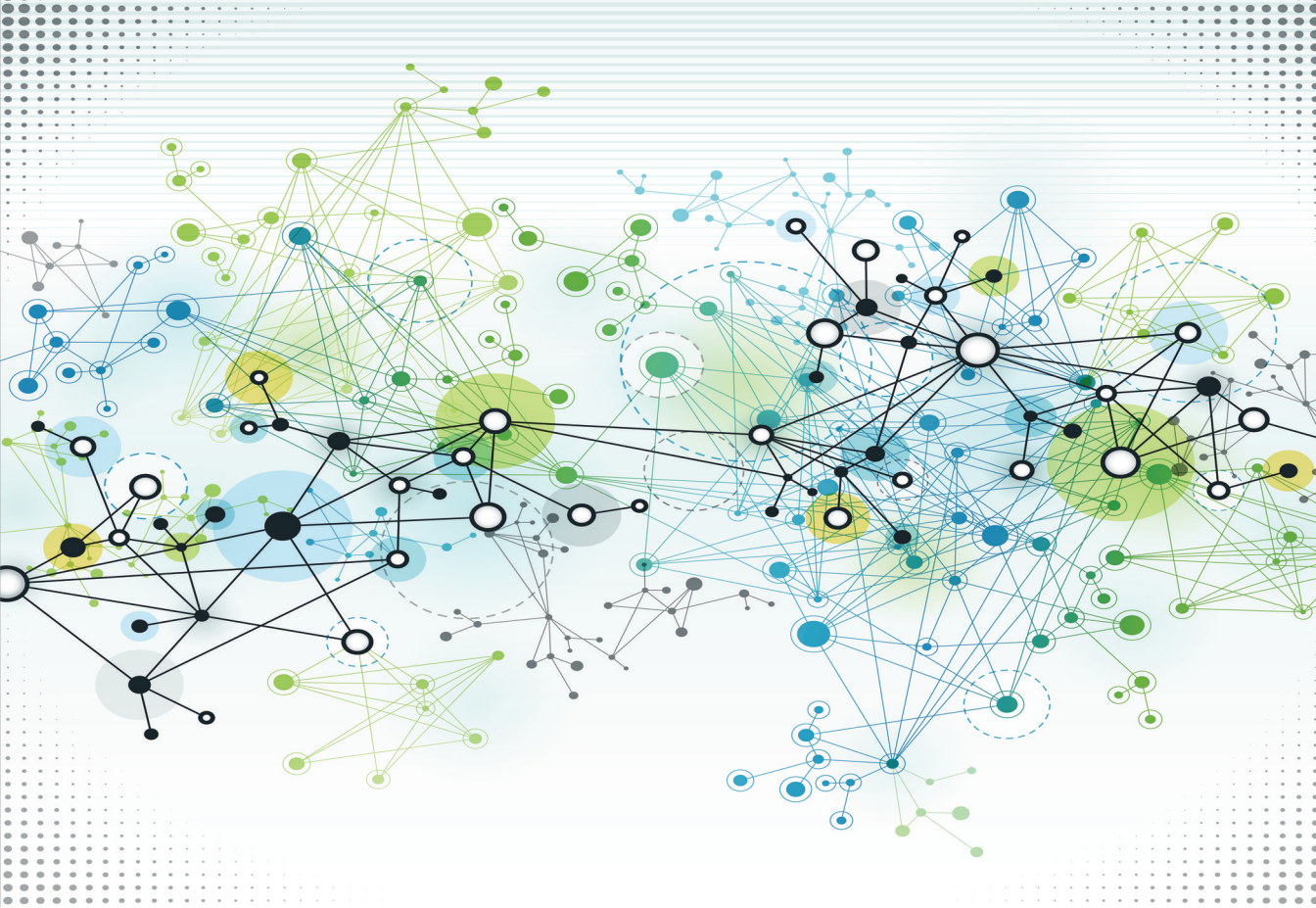

TEACHING AND LEARNING AT A DISTANCE

Foundations of Distance Education

SIXTH EDITION

Michael Simonson

Sharon Smaldino

Susan Zvacek

Teaching and Learning at a Distance

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Susan M. Zvacek has been involved with higher education for more than 20 years and has worked in community college, corporate, and university environments. Currently, she is associate provost of teaching and learning at the University of Denver. Her scholarly work has been primarily in the field of educational technology, with publications and presentations at national and international conferences on topics such as higher order thinking skills, distance education, and the assessment of learning using online tools. She is one of the founding directors of the Exemplary Course Program for Blackboard, the longest running project of its kind, reviewing and recognizing outstanding course design for online and blended teaching environments. Consulting, workshops, and keynote presentations have taken her to the Czech Republic, Cyprus, Slovakia, Austria, Germany, Portugal, Estonia, and the United Kingdom, as well as across the United States. Dr. Zvacek holds a BA in speech from Iowa State University, a master's in education from the University of Utah, and a PhD in curriculum and instructional technology, also from Iowa State University.

BRIEF CONTENTS

CONTENTS

Preface

Teaching and Learning at a Distance is written for introductory distance education courses for preservice or in-service teachers, and for training programs that discuss teaching distant learners or managing distance education systems. This text provides readers with the basic information needed to be knowledgeable distance educators and leaders of distance education programs.

The teacher or trainer who uses this book will be able to distinguish between appropriate uses of distance education. In this text we take the following themes:

The first theme is the definition of distance education. Before we started writing the first edition of *Teaching and Learning at a Distance* we carefully reviewed the literature to determine the definition that would be at the foundation of our writing. This definition is based on the work of Desmond Keegan, but is unique to this book. This definition of distance education has been adopted by the Association for Educational Communications and Technology and by the *Encyclopedia Britannica.*

The second theme of the book is the importance of research to the development of the contents of the book. The best practices presented in *Teaching and Learning at a Distance* are validated by scientific evidence. Certainly there are "rules of thumb," but we have always attempted to only include recommendations that can be supported by research.

The third theme of *Teaching and Learning at a Distance* is derived from Richard Clark's famous quote published in the *Review of Educational Research* that states that media are mere vehicles that do not directly influence achievement. Clark's controversial work is discussed in the book, but is also fundamental to the book's advocacy for distance education—in other words, we authors do not make the claim that education delivered at a distance is inherently better than other ways people learn. Distance delivered instruction is not a "magical" approach that makes learners achieve more.

The fourth theme of the book is equivalency theory. Here we present the concept that instruction should be provided to learners that is equivalent rather than identical to what might be delivered in a traditional environment. Equivalency theory helps the instructional designer approach the development of instruction for each learner without attempting to duplicate what happens in a face-to-face classroom.

The final theme for *Teaching and Learning at a Distance* is the idea that the book should be comprehensive—that it should cover as much of the various ways instruction is made available to distant learners as is possible. It should be a single source of information about the field.

ORGANIZATION OF THE TEXT

Teaching and Learning at a Distance has three types of chapters—foundation chapters, teaching and learning chapters, and managing and evaluating chapters. Chapters 1 through 4 provide a conceptual, theoretical, and research-based foundation for the rest of the text.

Chapters 5 through 9 provide educators with the practical skills and information they need to function in a distance learning environment. Chapters 10 through 12 discuss managerial and administrative concerns in distance education environments.

Chapter 1 discusses the status of distance education and also explains what distance education is and its impact on education. This chapter concludes with a vision for schools and learning that is possible because of distance education.

Chapter 2 reviews definitions of distance education that have been and still are used. Since distance education is a field with a long history, that background is discussed. This chapter covers the field, beginning with correspondence study and up through today. Finally, theories related to the practice of distance education are presented, including a proposed American theory of distance education called equivalency theory.

Chapter 3 reviews the extensive research on distance education, including specific areas of practice as well as more general and comprehensive summaries of what the research says. *Teaching and Learning at a Distance* is a research-based textbook based on a thorough study of the empirical information about distance education. This research-based approach is found in all chapters, but is emphasized in Chapter 3.

Chapter 4 presents comprehensive information about the technologies used in distance education systems. Technology generally, and instructional or communications technology specifically, are broadly defined, and this chapter includes discussions, explanations, and many visuals to provide the reader with practical knowledge about how information is communicated and how synchronous and asynchronous distance education systems operate. The use of the Internet and the World Wide Web for distance education is discussed extensively, also.

Chapter 5, the first of the teaching and learning chapters, presents instructional design, which is the systematic process of using technology followed by educators. This chapter presents the procedures to be followed when courses, or components of courses, are designed for distance delivery. In this edition the Unit-Module-Topic approach for organizing instruction is emphasized.

Chapters 6 and 7 explain the unique responsibilities of the instructor and learner involved in distance education. It is clear from the research and from practical experience that learning and teaching at a distance are not significantly different from traditional education. However, there are some special responsibilities and expectations for students and instructors involved in distance education.

Chapter 8 is one of the most important chapters of the book. Handouts, study guides, and visuals are important tools and techniques of the effective educator, generally, and the distance educator, specifically. The interactive study guide with its word pictures, visual analogies, and visualization is a significant tool used in distance education systems.

Chapter 9 presents thoroughly revised techniques for assessing learning, assigning grades, and determining academic progress of students in a distance learning environment. Many educators question the fidelity of assessment at a distance. This chapter provides research-based approaches for valid assessment of learning.

Chapter 10 deals with the rules, regulations, and procedures related to intellectual property that the distance educator needs to understand. This edition reflects major updates in the interpretation of intellectual property, ownership, and copyright case law, providing a more comprehensive and applied perspective. Distance educators transmit information, much of which may be copyrighted.

Chapter 11 illustrates how distance education has become an enterprise, even a business, and discusses the techniques for managing and leading an organization dedicated to

the delivery of distance instruction. Of special emphasis is the idea of the distance learning leader.

Chapter 12 discusses the evaluation of distance teaching and distance education systems, and gives specific examples of procedures to follow. New examples and approaches are included in this chapter. Assessment and evaluation are closely related, but evaluation is special to the distance educator.

FEATURES OF THIS EDITION

- Chapter **goals and objectives** provide an organizational plan for the student and structure the information.
- **A Look at Best Practice Issues,** a new feature found throughout the text, presents critical issues in the field of distance education. This feature is designed to be the starting point for discussions about how distance education is changing teaching and learning.
- Dozens of new **visuals** have been added to clarify ideas and explain procedures, and references and resources have been updated in each section and every chapter to make this book as current and relevant as possible.
- Chapter **scenarios** and /or **discussion questions** are provided to review key ideas.
- Stronger emphasis is placed on **how to design, deliver, and evaluate** online instruction as distance education has matured and the importance of online, World Wide Web–based instruction has grown.
- Increased coverage of **course management systems** is provided.
- Finally, each chapter has a comprehensive list of **references and suggested readings.** In some instances, nonprint resources, especially web locations, are provided.

ADDITIONAL RESOURCES

Support Materials for *Teaching and Learning at a Distance: Foundations of Distance Education*

The materials listed next were created by the authors of this book and are available for use by students and instructors using *Teaching and Learning at a Distance: Foundations of Distance Education* or by those interested in distance education.

Many additional materials, including PowerPoint slides, documents, links to references, and podcasts can be found at:

http://www.nova.edu/~simsmich/distance_ed_res.htm

Chapter 1: Foundations of Distance Education

- Simonson on the five themes at the foundation of *Teaching and Learning at a Distance: Foundations of Distance Education*

  https://vimeo.com/76984144

- Simonson Discusses Richard Clark's "Mere Vehicles" Statement

  https://vimeo.com/77513306

- Distance Education in South Dakota – The Capital City Conclave on Distance Education

  Part 1: https://vimeo.com/49383526

  Part 2: https://vimeo.com/49384048

- Star Schools: Three Statewide Approaches to Distance Education

  Part 1: https://vimeo.com/49381680

  Part 2: https://vimeo.com/49382319

  Part 3: https://vimeo.com/49383086

- Army and Navy Staff Officer Training and Distance Education

  http://www.youtube.com/watch?v=m3B5jfm_vww&list=PLLfZk-j6DDwUq2lfiE-dgbt4YRxSyeJ1_&index=8

- Distance Education in Turks Caicos

  http://www.youtube.com/watch?v=dJKr-baGi_s&list=PLLfZk-j6DDwUq2lfiE-dgbt4YRxSyeJ1_&index=9

- Wired for Success: Alabama's ACCESS to Distance Learning

  http://www.youtube.com/watch?v=s73YkD09TGY

- Global Collaboration for Healthcare

  http://www.youtube.com/watch?v=2CLIO0SEbww&list=PLLfZk-j6DDwVk59HaCj45PIcjjkXZNT6J&index=11

- Distance Education in Portugal – Interview with Dr. Pedro Reis

  https://vimeo.com/8100057

Chapter 2: Definitions, History, and Theories of Distance Education

- Simonson on Equivalency Theory

  https://vimeo.com/77512842

- Transactional Distance Theory

  http://www.youtube.com/watch?v=Qph1gbQhK_8&list=PLLfZk-j6DDwUq2lfiE-dgbt4YRxSyeJ1_&index=3

- Definition and Background of Distance Education—a classic video from the Iowa Star Schools project

  https://vimeo.com/77514955

- Research and Theory

  http://www.youtube.com/watch?v=WqbBBFnNUiA

Chapter 3: Research and Distance Education

- Simonson on Trends in Instructional Technology and Distance Education

  https://vimeo.com/35260851

Chapter 4: Technologies, the Internet, and Distance Education

Chapter 5: Instructional Design for Distance Education

- Simonson on Organizing Online Courses

  http://www.youtube.com/watch?v=qzwRIMzZZdA&list=PLLfZk-j6DDwUq2lfiE-dgbt4YRxSyeJ1_&index=6

- The Curriculum—this classic video was produced as part of the Iowa Star Schools project

  https://vimeo.com/77516590

Chapter 6: Teaching and Distance Education

- The Shadow technique for involving online students in their distance delivered courses

  https://vimeo.com/76985274

- Simonson on Grading Threaded Discussions

  http://www.youtube.com/watch?v=8VT_35m15Lc&list=PLLfZk-j6DDwUq2lfiE-dgbt4YRxSyeJ1_&index=7

- Retention of Students in Online Courses—A Presentation to Faculty

  https://vimeo.com/76984837

- The Teacher—This video is part of the classic series produced as part of the Iowa Star Schools project

  https://vimeo.com/77515914

Chapter 7: The Student and Distance Education

- Top Ten Tips for Student Success in Online Courses

  https://vimeo.com/50630107

Chapter 8: Support Materials and Visualization for Distance Education

- Digital Media Single Concept Videos for Distance Education—a series of video definitions of terms used by distance educators in the creation of teaching and learning materials.
  - Narrowcasting

    http://www.youtube.com/watch?v=NM2R_BYs-Rg&list=PLLfZk-j6DDwVk59HaCj45PIcjjkXZNT6J&index=1

- Storyboards

  http://www.youtube.com/watch?v=NwjXTcfe1ck&list=PLLfZk-j6DDwVk59HaCj45PIcjjkXZNT6J&index=2

  http://www.youtube.com/watch?v=AmrTD9StoDM&list=PLLfZk-j6DDwVk59HaCj45PIcjjkXZNT6J&index=8

  http://www.youtube.com/watch?v=mwoWqGd_KIE&list=PLLfZk-j6DDwVk59HaCj45PIcjjkXZNT6J&index=27

  http://www.youtube.com/watch?v=v0aFjLE6Rpo&list=PLLfZk-j6DDwVk59HaCj45PIcjjkXZNT6J&index=28

  http://www.youtube.com/watch?v=cbr3LsLLR7w&list=PLLfZk-j6DDwVk59HaCj45PIcjjkXZNT6J&index=29

- Mash-up

  http://www.youtube.com/watch?v=tm4biZ69OR0&list=PLLfZk-j6DDwVk59HaCj45PIcjjkXZNT6J&index=3

  http://www.youtube.com/watch?v=spOWx2ARm_I&list=PLLfZk-j6DDwVk59HaCj45PIcjjkXZNT6J&index=20

- Podcasts

  http://www.youtube.com/watch?v=UZcu5m8zH64&list=PLLfZk-j6DDwVk59HaCj45PIcjjkXZNT6J&index=4

- Aggregators

  http://www.youtube.com/watch?v=jughwdnbaKA&list=PLLfZk-j6DDwVk59HaCj45PIcjjkXZNT6J&index=5

- VoIP

  http://www.youtube.com/watch?v=vCnVLRpv3-w&list=PLLfZk-j6DDwVk59HaCj45PIcjjkXZNT6J&index=6

  http://www.youtube.com/watch?v=zeiSiUJlwNw&list=PLLfZk-j6DDwVk59HaCj45PIcjjkXZNT6J&index=18

- Twitter

  http://www.youtube.com/watch?v=wTDRTGVkGyY&list=PLLfZk-j6DDwVk59HaCj45PIcjjkXZNT6J&index=7

- HD Technologies

  http://www.youtube.com/watch?v=VtqMRQMXaRc&list=PLLfZk-j6DDwVk59HaCj45PIcjjkXZNT6J&index=9

- CODEC

  http://www.youtube.com/watch?v=xiix10GIQjg&list=PLLfZk-j6DDwVk59HaCj45PIcjjkXZNT6J&index=10

- iTunes U

  http://www.youtube.com/watch?v=0zBe6RcrXRo&list=PLLfZk-j6DDwVk59HaCj45PIcjjkXZNT6J&index=12

- MPEG

  http://www.youtube.com/watch?v=eLyLBkn5-xk&list=PLLfZk-j6DDwVk59HaCj45PIcjjkXZNT6J&index=13

- PDA

  http://www.youtube.com/watch?v=bdqeXFu3QDM&list=PLLfZk-j6DDwVk59HaCj45PIcjjkXZNT6J&index=14

- QR Code

  http://www.youtube.com/watch?v=S2t_wz-Rru4&list=PLLfZk-j6DDwVk59HaCj45PIcjjkXZNT6J&index=15

- SCORM

  http://www.youtube.com/watch?v=Gwo0QmfvTtQ&list=PLLfZk-j6DDwVk59HaCj45PIcjjkXZNT6J&index=16

- Smartphones

  http://www.youtube.com/watch?v=IAJOrI7HzG4&list=PLLfZk-j6DDwVk59HaCj45PIcjjkXZNT6J&index=17

  http://www.youtube.com/watch?v=_Z6S3vZzPI4&list=PLLfZk-j6DDwVk59HaCj45PIcjjkXZNT6J&index=30

- .GIF

  http://www.youtube.com/watch?v=UYjpcOVuI6A&list=PLLfZk-j6DDwVk59HaCj45PIcjjkXZNT6J&index=19

- .mov

  http://www.youtube.com/watch?v=XlPP5Cn4PPU&list=PLLfZk-j6DDwVk59HaCj45PIcjjkXZNT6J&index=21

- Episodes

  http://www.youtube.com/watch?v=onzy2dqUHog&list=PLLfZk-j6DDwVk59HaCj45PIcjjkXZNT6J&index=22

- Screencast

  http://www.youtube.com/watch?v=aAymX6ej43Q&list=PLLfZk-j6DDwVk59HaCj45PIcjjkXZNT6J&index=23

- White Balance

  http://www.youtube.com/watch?v=hdujeBDFxM4&list=PLLfZk-j6DDwVk59HaCj45PIcjjkXZNT6J&index=24

- Tilt

  http://www.youtube.com/watch?v=iFupyacdIuI&list=PLLfZk-j6DDwVk59HaCj45PIcjjkXZNT6J&index=25

- .MPG3

  http://www.youtube.com/watch?v=HcMyeRjIJXA&list=PLLfZk-j6DDwVk59HaCj45PIcjjkXZNT6J&index=26

Chapter 9: Assessment for Distance Education

Chapter 10: Intellectual Property: Ownership, Distribution, and Use

Chapter 11: Managing and Leading a Distance Education Organization

- Introduction to the Virtual School Summit

  https://vimeo.com/8974652
- Virtual Schooling: What Administrators Should Know

  https://vimeo.com/9024384
- Virtual Schooling: Legal Issues

  https://vimeo.com/9023507
- Virtual Schooling: Experiences

  https://vimeo.com/9003477
- Virtual Schooling: Funding the Virtual School

  https://vimeo.com/9001271
- Virtual Schooling: Teaching Online

  https://vimeo.com/8999696
- Virtual Schooling: Selecting Vendors

  https://vimeo.com/8997446

Chapter 12: Evaluating Teaching and Learning at a Distance

- South Dakota Evaluation Report—Simonson summarizes the evaluation process followed in South Dakota near the conclusion of that's State's Star Schools Project.

  https://vimeo.com/77514339

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Many individuals participated in the development of the ideas presented in this text. In particular, Dan Hanson, Nancy Maushak, Charles Schlosser, and Mary Anderson of the Technology Research and Evaluation Group at Iowa State University contributed a great deal to the development of *Teaching and Learning at a Distance.*

PART 1

Foundations

CHAPTER 1

Foundations of Distance Education

CHAPTER GOAL

The purpose of this chapter is to discuss the importance of distance education and the impact that distance education has on the improvement of education.

CHAPTER OBJECTIVES

After reading and reviewing this chapter, you should be able to

1. Explain why students demand to learn at a distance even though they may prefer to learn in the classroom with the teacher and their classmates.
2. Define *distance education.*
3. Explain Coldeway's quadrants.
4. Discuss Richard Clark's "mere vehicles" quote as it relates to distance education.
5. Explain how Jim Finn might compare stirrups to distance education.
6. Give examples of how distance education is being used in several locations of the world and in the United States.
7. Discuss telemedicine and relate the topic to distance education. Explain a vision for education and schooling in the future.
8. Define disruptive technology and relate distance education to this concept.

CHEMISTRY AT A DISTANCE? A TRUE STORY

Chemistry is a hands-on, laboratory-based course that many consider one of the most rigorous in the average high school curriculum. Many students dread taking chemistry, and in many small communities there is only one chemistry teacher in the school.

Recently, four high school chemistry teachers decided that they could improve their basic chemistry course if they collaborated and team-taught. The only problem was that their schools were about 60 miles from each other.

This did not stop them, however, because their schools were connected with a fiber-optic network that permitted full-motion video signals to be sent between the four schools. The network also carried a high-speed Internet connection that allowed easy access to the World Wide Web.

Not only did the four teachers want to collaborate, but more important, they wanted their students to collaborate. To accomplish this, they decided on some basic objectives and then planned the curriculum.

The teachers decided that they would teach concepts cooperatively, act as laboratory supervisors for each other's students, and serve as partners with student collaborators. They also decided upon another important goal: to have their students cooperate across schools. Finally, they decided that the chemistry projects should be authentic and deal with local, real-world issues.

Courtesy of AT&T Archives and History Center

Increasingly, courses such as chemistry are being taught to distant and local learners synchronously and asynchronously.

Next, the four teachers met to plan their curriculum. They identified eight modules that could be shared among the four schools. These modules were taught by one or two of the four chemistry teachers, and required collaboration by the students from the four schools. The modules included live television instruction presented by one of the teachers, collaborative work by students who communicated with each other by television and the Internet, and class assignments that dealt with various aspects of a specific chemistry concept, such as the local ecology. Students investigated their portion of the problem and then shared results with their distant classmates. Each module ended with a live, interactive discussion, presentation, and sharing of information over the fiber-optic television network.

For all practical purposes, the students in the four schools became one large class, with subgroups of students who worked with classmates from their own school and also with distant friends. The teachers served as presenters some of the time, but most often as tutors who worked with subgroups of students. The Internet and e-mail were used to keep everyone communicating outside of class, and even outside of school.

By any measure, the course was a huge success. Students learned chemistry; test scores showed that. They also discovered how to collaborate as real scientists with colleagues at distant locations, and they discovered the power of distance education to open up their school to resources available elsewhere.

Telecommunications technology made this possible. Their chemistry classroom became a "room with a view," connected to other chemistry classrooms and to the resources of the world available through the Internet. The course became more like real chemistry—chemistry practiced to solve actual problems outside the school involving experts from a number of areas brought together because of their expertise, without regard for geography or time.

Distance education is one of the most dramatic of the recent technology-based innovations influencing education. The scenario just described is only one of thousands of examples of how distance education is changing learning and teaching.

DISTANCE EDUCATION TODAY AND TOMORROW

In the last few years, distance education has become a major topic in education. In a recent year, more than 100 professional conferences dealt with some aspect of distance education,

and almost every professional organization's publications and conferences have shown a huge increase in the number of presentations and articles related to distance education. Many educators are making grand claims about how distance education is likely to change education and training. Certainly, the concept of distance education is exciting, and recent hardware and software innovations are making telecommunications distance education systems more available, easier to use, and less costly. Distance education has entered the mainstream.

Whether distance education is a mainstream form of education has been examined for several years by the Sloan Consortium. *Digital Faculty* (Allen & Seaman, 2012) is a recent annual report by the Sloan Consortium, and presents the latest data about the growth and spread of online education in higher education in the United States. The first report, *Sizing the Opportunity* (Allen & Seaman, 2003), indicated that online and/or distance education was growing rapidly and was perceived positively by faculty and administrators. The authors of this report defined online learning to be courses where most or all of the content is delivered online. Typically, these courses have no face-to-face meetings. In 2013, it was reported that distance education was significantly more popular and mainstream.

One indication that online courses are a regular activity of institutions of higher education is the role of core faculty in online instruction. There has been a long-held belief that online courses are taught by adjunct professors, rather that full-time staff. *Growing by Degrees* (Allen & Seaman, 2005) refutes this perception. It reports that about two thirds of online courses are taught by regular faculty, a percentage that is often higher than the percentage of regular courses taught by core faculty.

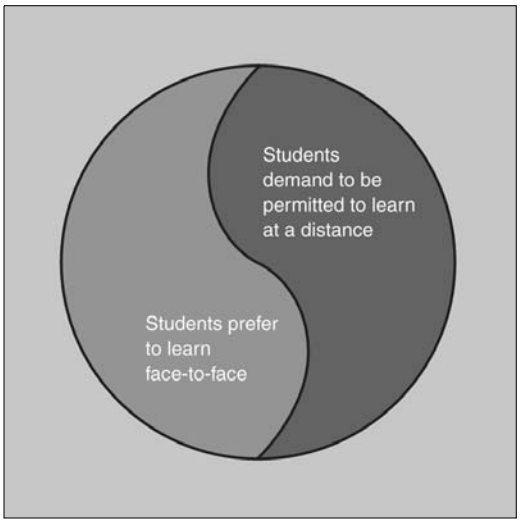
Another indicator of the growth of online education is the importance of this instructional approach to the long-term strategy of the institution. In 2013, approximately 70% of institutions indicated that online instruction was critical to their long-term plans, up from 49% in 2003. The only institutions that did not see online instruction as part of their long-term strategies were the smallest nonprofit colleges. In 2013, enrollment in online courses had increased to about 6.7 million from 2 million in 2003. Growth has been continuous, often exceeding the expectations of organizational planners. In other words, over 30% of colleges students are enrolled in at least one online course.

Another interesting report dealing with distance education in the Midwest was released by the Sloan Consortium (Allen & Seaman, 2007). This report indicated that:

- The 11 Midwestern states represent about 15% of online enrollment, with over 460,000 students taking at least one online course in fall 2005.
- The proportion of Midwestern institutions with fully online programs rises steadily as institutional size increases, and about two thirds of the very largest institutions have fully online programs, compared to only about one sixth of the smallest institutions.
- Midwestern doctoral/research institutions have the greatest penetration of offering online programs as well as the highest overall rate (more than 90%) of having some form of online offering (either courses or full programs).
- The proportion of people who think that online learning outcomes are superior to those for face-to-face learning is still relatively small but has grown by 34% since 2003, from 10.2% to 13.7%. This is okay, since distance education should not be considered as better but as equivalent.

The Sloan Consortium reports (Allen & Seaman, 2012) also provide excellent criteria for distinguishing between online courses, blended/ hybrid courses, and web-facilitated

FIGURE 1–1 There are conflicting pressures on distance educators—students prefer to learn in a classroom, but demand to be permitted to learn at a distance.



courses. An online course is one where most of the content is delivered online, which means at least 80% of the course content. A blended or hybrid course combines online and face-to-face delivery; thus, 30% to 79% of the course's content is delivered online. A web-facilitated course uses web-based technology, but less than 30% of the content is delivered online.

In spite of the phenomenal growth of distance education two conflicting pressures confront distance educators (Figure 1–1). First, *students say their first choice is not to learn at a distance.* When asked, they say they prefer meeting with the learning group and the instructor in the classroom, the lecture hall, the seminar room, or the laboratory. Students report that they value the presence of a learning group, and that the informal interactions that occur before and after, and sometimes during, a formal class are valuable components of the total learning experience. Second, and conversely, evidence suggests that *students are increasingly demanding to be allowed to learn at a distance.* They want to be able to supplement, and even replace, conventional learning experiences with distance education experiences. Learners say this is because many other considerations besides personal preferences motivate them, especially considerations about where and when they learn (Picciano & Seaman, 2007).

These opposing preferences pose a dilemma for the educational community. Should resources be dedicated to improving the traditional educational infrastructure of buildings, classrooms, laboratories, and offices, and should students be transported to these facilities? Or should money be used to develop modern and sophisticated telecommunications systems? The trend seems to be toward telecommunications. Because of advances in technology, effective educational experiences can be provided for learners, no matter where they are located. In other words, technologies are now available to develop cost-effective distance learning systems.

Virtual schools are becoming important in many locations (Berge & Clark, 2009). The Florida Virtual School, established in the late 1990s, offers a wide selection of courses

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Compressed video systems use telephone lines and Internet connections to permit live, two-way, interactive televised instruction.

(Johnson, 2007). The Arkansas Virtual School is another successful example of a state-adopted distance education program (Falduto & Ihde, 2007).

Universities are also offering virtual schools. Indiana University High School and the University of Missouri's Columbia High School are examples of university-sponsored virtual schools. The North Central Association of Colleges and Schools has accredited both schools. The Indiana and Missouri schools are financially independent of their universities. Students pay tuition for courses that are developed and taught by certified teachers. A large number of other states are following the lead of Florida, Arkansas, Indiana, and Missouri. Concepts such as the virtual school have caused the practice of distance education to dramatically change in the last decade. Traditional approaches to distance education based on the delivery of print and broadcast media technologies are no longer as relevant to the field as it is practiced in the United States as they once were.

As a matter of fact, a redefinition of distance education has occurred. Distance education is now often defined as:

> institution-based, formal education where the learning group is separated, and where interactive telecommunications systems are used to connect learners, resources, and instructors. (Schlosser & Simonson, 2009, p. 1)

This definition has also been adopted by the *Encyclopaedia Britannica* in 2009 (Simonson, 2009).

THE EFFECTIVENESS OF DISTANCE EDUCATION—IN CASE YOU WONDER

Many who begin studying distance education wonder about the effectiveness of this approach to teaching and learning, and while Chapter 3 discusses distance education research in depth, this section summarizes that research and briefly describes what we know about the effectiveness of distance teaching and distance learning. Simonson, Schlosser, and Orellana (2011) completed a review of research on distance education and concluded that "it is not different education, it is distance education" (p. 124), and "research clearly shows that distance education is an effective method for teaching and learning" (p. 139). Another indication that distance education has become a dominant trend in education and training is the publication of comprehensive references about the field. For example, Moore's (2013) *Handbook of Distance Education* is in its third edition and contains 44 chapters and more than 700 pages.

Additionally, in 2009 the United States Department of Education published a meta-analysis and review of online learning studies and concluded that online learning students achieved better than traditional students because they tended to allocate more time to their studies. These studies build on and support previous research about the effectiveness of distance education.

> According to the 248 studies that were compiled by Russell (1999), there is no significant difference between distance learning and traditional classroom learning. In other words, distance learning (can be) considered as effective as face-to-face learning, and our results support this conclusion. (Dean, Stahl, Sylwester, & Peat, 2001, p. 252)

Simonson et al. (2011) reported results that are indicative of the research on the field of distance education. Most who are deeply involved in the field of distance education are unsurprised by these summaries of the research. As a matter of fact, it is very clear that instruction delivered to distant learners is effective and that learning outcomes can be successfully attained when offered to students at a distance (Anglin & Morrison, 2000; Cavanaugh, Gillan, Kromrey, Hess, & Blomeyer, 2004; Hanson, Maushak, Schlosser, Anderson, & Sorensen, 1997; Simonson, 2002; Simonson et al., 2011).

In 2012 and 1983, Clark clearly stated that the media used to deliver instruction had no significant impact on learning. Clark stated that:

> The best current evidence is that media are mere vehicles that deliver instruction but do not influence student achievement any more than the truck that delivers our groceries causes changes in nutrition … only the content of the vehicle can influence achievement. (p. 445)

After more than a decade of criticism and attempts to refute his review of over 50 years of instructional technology research, Clark (1994, 2012) once again reviewed the research on technology used to deliver instruction and noted:

> It is likely that when different media treatments of the same informational content to the same students yield similar learning results the cause of the results can be found in a method which the two treatments share in common … give up your enthusiasm for the belief that media attributes cause learning. (p. 28)

Since the publication of Clark's widely distributed comments, a number of researchers have attempted to find fault with his premise. They have not been successful. It is currently the consensus that "media are mere vehicles" and that we should "give up [our] enthusiasm" that the delivery media for instructional content significantly influences learning.

Unfortunately, some have misinterpreted the "no significant differences" phenomenon and assumed that instructional technology and distance education do not promote learning. This is incorrect. Actually, the evidence is quite clear that students of all ages can learn from instruction delivered using technology, and that distance education works.

In the first years of widespread growth of distance education in the United States, Hanson et al. (1997) summarized the research on distance education in a publication of the Association for Educational Communications and Technology. This widely distributed review concluded that:

> comparative research studies on achievement tend to show no significant difference between different delivery systems and between distance education and traditional education … several recent studies indicate a significant higher achievement level in those learning at a distance … the accepted position is that the delivery system affects no inherent difference on achievement. (p. 22)

In other words, it is not the fact that instruction is delivered in a traditional, face-to-face environment or at a distance that predicts learning (Anglin & Morrison, 2000; Berge & Mrozowski, 2001; Darwazeh, 2000; Simonson, 2002; Simonson et al., 2011).

It is clear from the research literature that distance education works (e.g., Hanson et al., 1997; Simonson, 2002; Simonson et al., 2011). Why it works and how it works are important concepts to understand, however. The following conclusions about instruction delivered to distant learners are directly related to effectiveness:

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Distance education efforts are increasingly being concentrated on K–12 education.

- Training in effective instructional strategies is critical for teachers of distant learners.
- Distance education courses should be carefully designed and developed before instruction begins.
- Visualization of ideas and concepts is critical when designing instruction to be delivered to distant learners.
- Adequate support systems must be in place to provide the distant learner with access to resources and services.
- Interaction between the instructor and students and among students must be possible and encouraged.
- Assessment should be designed to relate to the specific learning outcomes of the instructional experiences.

In summary, distance education can be as effective as any other category of instruction. Learning occurs and knowledge is retained. Students report that they have learned and that they think their distance learning experiences are as successful as more traditional education. The keys to successful distance education are in the design, development, and delivery of instruction, and are not related to geography or time.

WHAT IS DISTANCE EDUCATION?

It is the nature of questions that they are easier to ask than to answer. This is true of the question "What is distance education?" for at least several reasons. First, *distance* has multiple meanings, although this book advocates the definition presented earlier and in Chapter 2. *Distance* can mean geographical distance, time distance, and possibly even intellectual distance.

Second, the term *distance education* has been applied to a tremendous variety of programs serving numerous audiences via a wide variety of media. Some use print, some use telecommunications, and many use both. Finally, rapid changes in technology challenge the traditional ways in which distance education is defined.

Dan Coldeway, of South Dakota's Dakota State University, provided a framework useful in helping to define four ways in which education can be practiced. This framework, which considers the two variables of time and place, gives insight into different approaches to the practice of education and distance education. Combinations of time and place result in four approaches to education: same-time, same-place education (ST-SP); different-time, same-place education (DT-SP); same-time, different-place education (ST-DP); and different-time, different-place education (DT-DP).

Traditional education takes place at the same time in the same place. This is typically the regular self-contained classroom that most often is teacher centered. Different-time, same-place education means that individual learning occurs in a learning center, or that multiple sections of the same classes are offered so students can attend the class in the same place at a time they choose. This is education that is available at different times to students but in the same place, such as the media center or computer laboratory.

The last two categories focus on education occurring in different places. Instruction can be delivered to different places at the same time when telecommunications systems are used. Often, television is used to connect the local classroom with the teacher and students to learners at a distance. Satellite, compressed video, fiber-optic systems, and webcasting are increasingly used for same-time, different-place education. Increasingly, web-based video systems such as Zoom are being used to deliver live instruc-