

## Chapter 2.27

# Web-Based Distance Learning and the Second Digital Divide

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### INTRODUCTION

In no field have we witnessed a greater impact of emerging technologies than in that of distance learning. Correspondence courses using printed material and postal mail have been replaced by Web-based courses with the potential to make learning available to anyone, anywhere at anytime. This potential cannot be realized, however, unless two digital divides are eliminated. Some people are on the wrong side of the first “digital divide” between the technology “haves” and the technology “have-nots”. The benefits of technology are less available to those who are poor, who live in rural areas, who are members of minority racial or ethnic groups, and/or who have disabilities (Kaye, 2000; U.S. Department of Commerce, 1999). Lack of access to new technologies limits their options for taking and teaching technology-based courses. This is true for individuals with disabilities, even though the rapid development of assistive technology makes it possible for an individual with almost any type of disability to operate a computer (2003 Closing the Gap Re-

source Directory, 2003). Unfortunately, many people with disabilities still do not have access to these empowering tools, putting them on the “have not” side of the first digital divide.

Within the group of “haves” with respect to the first digital divide, however, many people with disabilities face a “second digital divide.” This line separates people who can make full use of the technological tools, services, and information to which they have access, from those who cannot. Too often people with disabilities lucky enough to be on the right side of the first digital divide, find themselves on the wrong side of this second digital divide (Waddell, 1999). For example, a person who is blind may use a text-to-speech system that reads aloud text that appears on the screen. Because it cannot interpret graphics, it will simply say “image map” at a place where an image map would be displayed to someone using the full features of a multimedia Web browser. It cannot read aloud information within this and other graphic images. This person cannot access the content presented unless this content is provided in a text-based form.

## **BACKGROUND**

Section 504 of the Rehabilitation Act of 1973 mandated that qualified people with disabilities be provided with access to programs and services that receive federal funds. The Americans with Disabilities Act (ADA) of 1990 reinforced and extended Section 504, requiring that people with disabilities have access to public programs and services, regardless of whether or not they are federally funded. According to these laws, no otherwise qualified individuals with disabilities shall, solely by reason of their disabilities, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination in these programs and services, unless it would pose an undue burden to do so. A United States Department of Justice ruling (ADA Accessibility, 1996) clarified that ADA accessibility requirements apply to programs offered on the Internet by stating, "Covered entities that use the Internet for communications regarding their programs, goods, or services must be prepared to offer those communications through accessible means as well." Clearly, if qualified individuals with disabilities enroll in distance learning courses or are qualified to teach them, these opportunities should be made accessible to them. However, the inaccessible design of most Web-based distance learning courses imposes barriers to people with some types of disabilities (Schmetzke, 2001).

## **UNIVERSAL DESIGN**

If an applicant who is blind is the best candidate to teach a Web-based course which has been developed without text alternatives for critical content displayed using graphics, the course will need to be modified in order for him to teach it. If planning for access was done as the course was being developed, this costly redesign would not be necessary. Simple design decisions could have

been made to assure accessibility to potential students and instructors with a wide range of abilities and disabilities. This proactive process is called "universal design". Universal design is defined as "the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design" (National Center for Universal Design, 2003, p.1). Applying universal design principles makes products and environments usable by people with a wide variety of characteristics, including gender, height, age, ethnicity, primary language, and level of ability to see, hear, speak, and move.

The concept of universal design was first applied to architecture. It has since been applied to the design of household appliances, instructional learning environments, Web sites and other products and environments (Bar & Galluzzo, 1999; Bowe, 2000; Burgstahler, 2001). When the wide range of characteristics of potential students and instructors is considered, distance learning course designers can create learning environments that are accessible to all participants, just as sidewalks with curbscuts are used by everyone, including those who push delivery carts, baby strollers, and wheelchairs.

For many years, examples of isolated distance learning courses designed to be accessible to individuals with disabilities could be found, including a course co-taught by the author of this chapter and a professor who is blind (Burgstahler, 2000). However, few distance learning programs have policies and guidelines that specifically address the accessibility of distance learning tools and resources (Burgstahler, 2000; Kessler & Keefe, 1999; Schmetzke, 2001). Comprehensive policies, such as the mandate that distance learning options offered by California Community Colleges must afford students with disabilities maximum access (Distance education: Access guidelines for students with disabilities, 1999), are rare.

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