

# Chapter VIII

## E–Learning for All? Maximizing the Impact of Multimedia Resources for Learners with Disabilities

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### ABSTRACT

*This chapter examines some of the tensions that may exist between e-learning and accessibility in higher education, and aims to redress the balance between them. The chapter necessarily involves some significant technical detail. It examines and reports on the accessibility issues associated with particular e-learning technologies that are either current or emerging in this dynamic field. Nonetheless, the discussion attempts to provide practitioners with practical advice that will assist them in designing multimedia-based e-learning that is both innovative and inclusive. Integral to this is a framework for best practice for the development of accessible educational multimedia.*

### INTRODUCTION

E-learning has significant potential to enhance, or even transform, the learning experience for all students in higher education (HE). It creates pedagogical opportunities that were previously

too impractical, or even impossible, to implement in the traditional lecture, tutorial, or laboratory setting. It also generates options for participation that are independent of time and place (Bradley, Haynes, & Boyle, 2005; Downes, 2005; Gil, Blanco, & Auli, 2000; Tuthill & Klemm, 2002).

E-learning in the specific form of educational multimedia, for example, animations, simulations, games, and video, may also generate opportunities for disabled students, in particular, to participate more fully and more independently in HE (D. Sloan, Stratford, & Gregor, 2006). It is ironic then that e-learning resources and activities often actually disadvantage students with disabilities, reinforcing old barriers, building new ones, and even contributing to a second digital divide (Seale, 2006). Given that the use of multimedia-based e-learning is likely to become increasingly prevalent in HE, students with disabilities may be further disadvantaged, stigmatised, or even discouraged from entering postcompulsory education if this is not addressed.

## **BACKGROUND**

The term *e-learning* pertains to a range of applications of technology in support of teaching and learning, including materials and activities delivered via the Internet, via a local intranet, or via CD-ROM. This chapter focuses specifically on the accessibility of educational multimedia, including text and hypertext, images, photographs, diagrams and charts, animation and interaction, and video and audio. We define designing for accessibility in e-learning in this context as the practice of ensuring that all teaching and learning resources and activities can be used by the widest possible range of potential students, regardless of any visual, aural, motor, cognitive, or neurological impairments.

Although some guidelines for developing accessible e-learning resources exist, these have been criticised for being difficult to interpret and implement, especially where educational multimedia is concerned. In addition, educators and designers may be confused or apprehensive about whether they should incorporate multimedia into their designs (Mirabella, Kimani, Gabrielli, & Catarci, 2004; D. Sloan & Stratford, 2004). A

further concern is that, given that much of the current literature is focused on guidelines, standards, and legislation, some HE practitioners may have begun to consider that the objective of accessible design is primarily to comply with rules rather than to help learners learn (Seale, 2006).

## **ISSUES, CONTROVERSIES, PROBLEMS**

### **Educational Multimedia: A Double-Edged Sword?**

Although e-learning has potential to enhance and support teaching and learning in HE, a significant number of students entering postcompulsory education have disabilities that may impact on their ability to engage with educational multimedia. In this section, we highlight, via a case study, some of the barriers to learning that multimedia may impose on students with disabilities.

### **Opportunities Presented by Educational Multimedia for Students with Disabilities**

Well-designed e-learning resources and activities may enhance the learning experience for students in HE on many levels. For example, Web-based resources and activities can provide opportunities for individualised, self-directed learning and may facilitate more flexible participation options (Cairncross & Mannion, 2001). The Web 2.0 technologies (such as social computing networks, communications tools, blogs, and wikis) may create new opportunities for collaboration, dialogue, and shared knowledge construction (Downes, 2005).

Animations, simulations, and games can generate further teaching and learning possibilities. Multimedia can appeal to different learning styles and preferences. For example, visual, auditory,

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