

## Chapter 8.2

# Maximizing Web Accessibility Through User–Centered Interface Design

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### **ABSTRACT**

Digital inclusion and Web accessibility are integral parts of modern culture and, as such, have implications for social accountability. The World Wide Web Consortium (W3C) has suggested standards and guidelines regarding the inclusion of people with special needs, with an emphasis on higher accessibility and adaptability as the main goal of Web design. The user interface is the place where users can interact with the information by using their minds. Users with special needs can acquire information by using a human centered user interface. This article highlights the need to investigate the relationship between cognition and user interface.

### **INTRODUCTION AND BACKGROUND**

A highly developed digital society needs to be integrated in order to function to meet each individual's differentiated needs. Inclusion is reflected in the modern special education classroom. This practice of teaching and learning mirrors the changes in society because the classroom is the place where a collaborative, collective and real-time community is built consisting of teachers, educational executives, administrators, researchers, and parents. The terms inclusion, zero reject, and universal design, characterize a fully inclusive classroom. Zero reject means "students cannot be excluded from educational services based on their disability, severity of disability, contagious conditions, or costs of services" (Wood, 2006, p.9). The term inclusion is used to designate educational services and placement of students

with disabilities in the general education classroom, facilitated by classroom-provided supports, adaptation, modification, and accommodation for each individual student (Hunt & Marshall, 2006; Wood, 2006). Finally, universal design for learning refers to a curriculum or educational approach using assistive or educational technology to individualize teaching and learning (Turnbull, Turnbull, & Wehmeyer, 2005). In the inclusive classroom, the learning characteristics of the student with the disability are analyzed, and all characteristics are integrated into a teaching unit that best meets the student's needs.

## **DIGITAL INCLUSION AND WEB ACCESSIBILITY**

Digital inclusion and Web accessibility are leading the change of the digital Web culture. This movement brings about zero reject and differentiated inclusion on the Web by using universally designed content with built-in flexibility. Digital inclusion involves "social inclusion, the ever-developing information and communication technologies," and Web design for "equal accessibility and opportunity" for all the individuals, especially for the individuals with disabilities; Web accessibility is therefore, "social inclusion" (Bradbrook & Fisher, 2004, p. 2; World Wide Web Consortium [W3C], 2005, ¶ 5).

The ultimate goal of Web access is to improve productivity and the quality of communication. Productivity is improved as individual's social function improves as a result of his or her efforts in a social unit. The term *Web accessibility* means that individuals with disabilities are able to function on the Web, including engaging in cognitive and physical activities, such as navigating, comprehending, analyzing, synthesizing, manipulating, producing and evaluating information. They can also communicate with others on the Web for their own purposes, and contribute to the Web culture. In short, Web accessibility results

in productive and universal access to information and other individuals (Bowie, Adler, Civile, & Gill, 1996; W3C, 2005).

Web accessibility brings about social accountability for individuals who would otherwise be placed outside the Internet culture because of their physical, sensory, or cognitive limitations, as well as different cultural and linguistic backgrounds. The term disability is often not defined in a Web context, although it is broadly used in Section 508 of the American law, W3C, and other legal documents. This is because some individuals with special needs regard themselves as not having a disability and being very independent, although they may have functional limitations or barriers imposed by society and the environment (Hunt & Marshall, 2006; Thatcher, 2006; W3C, 2005). Multiple social attempts have been made to facilitate and build Web accessibility, including guidelines, standards, and Website evaluation efforts established by the Americans with Disabilities Act, Section 508, the W3C, the Center for Applied Special Technology (CAST), the British Broadcasting Corporation (BBC), IBM, and Microsoft (Thatcher, 2006).

## **GUIDELINES FOR WEB ACCESSIBILITY**

The ADA is a piece of civil rights legislation that protects people with disabilities from discrimination in four major areas: (a) private-sector employment, (b) public services, (c) public accommodations, and (d) telecommunications. When passed in 1990, the ADA sought to reduce obstacles to "equal access to employment, state and local government programs, transportation, public buildings, and communication technology" (Wisdom, White, Goldsmith, Bielavitz, Davis, & Drum, 2006, p. 20). While the ADA attempts to include the Internet and other services, the law itself is not explicitly clear on the Internet access.

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