Chapter 7.3
Web Accessibility for Users with Disabilities:
A Multi-faceted Ethical Analysis

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ABSTRACT

When designing information systems, it is important to consider the needs of users with disabilities, including those with visual impairment, hearing impairment, or color-blindness. This is especially important for designing Websites. It takes time and money to create or redesign Websites for easy access for users with disabilities. This is also known as Web accessibility. This chapter will discuss the ethical implications involved with Web accessibility. An ethical analysis of Web accessibility will be performed using a partial combination of two structured analysis approaches. It is the position of the authors of this chapter that Website development should consider accessibility for users with sensory and motor disabilities as an ethical requirement.

INTRODUCTION

It is always important to consider the needs of users when building an informational system (Hoffer, George & Valacich, 2002). One portion of the user population is users with disabilities. Accessibility means to make a system or building usable by a person with a disability. When applied to informational systems, accessibility means that an information system is flexible enough to be utilized by someone using alternative input and/or output methods. These alternative input/output methods are known as assistive technologies (Alliance for Technology Access, 2000). Assistive technologies include screen readers (where the output on the screen is presented as speech synthesis output), voice recognition, and Braille output. When an information system provides flexibility for those using assistive technology, this is called an accessible information system.

There are specific guidelines for making accessible information systems and accessible Websites. An important question to consider is "Why make a Website accessible?" While Web accessibility is an important goal, making a Website accessible costs money, and therefore it is important to identify clearly the stakeholders, the various concerns, and the benefits. The purpose of this chapter is to perform an ethical analysis of Web accessibility.

WEB ACCESSIBILITY

For a user with an assistive technology to fully utilize a Website, this site must be very flexible to meet different user needs. Only then can the Website be called an accessible Website. To make a Website accessible, all forms of multimedia (such as graphic, audio, and video) must be available in a textual format (Paciello, 2000). Site navigation must work without graphics, applets, or other plug-ins, because otherwise a user cannot get past the home page (Lazar, 2001). For that matter, all portions of the Website must be available to someone who can browse using only text (Paciello, 2000). There are other challenges in making a Website that is accessible. For instance, tables that are used for page layout, instead of for presenting data, can be problematic if not clearly marked. Since many users with disabilities create and apply their own style sheets (also known as cascading style sheets or CSS), a Web page must still work properly when an associated style sheet is turned off. Important data must also be presented in a way that is useful to users with color-blindness. For instance, a color pie chart would not be a sufficient presentation of data. The actual numerical data, in a text form, should also be presented along with the pie chart.

To assist with making a Website fully accessible, there are two major sets of design guidelines. These guidelines help turn the high-level concept of Web accessibility into specific ways of implementing Websites that are accessible. The World Wide Web Consortium, as a part of the Web Accessibility Initiative, has a set of design guidelines called the Web Content Accessibility Guidelines (WCAG) to specifically guide those who strive to create an accessible Website. The guidelines are split up into three priority levels—Priority Levels 1, 2, and 3. Priority Level 1 includes guidelines that are a must for accessibility. Priority Level 2 includes guidelines that are important for accessibility. Priority Level 3 includes guidelines that are helpful for accessibility. The idea is that Priority Level 1 guidelines are most important, while Priority Level 3 guidelines are least important. The specific guidelines are available at http://www.w3.org/WAI. Another set of guidelines comes from the U.S. Federal Government. These guidelines for Web design, as a part of the "Section 508" initiative, specify rules that are similar to WCAG Priority Level 1, but are a bit more stringent. More information about those guidelines is available at http://www.section508.gov.

Because many people (including designers) are not very familiar with the guidelines and how to apply them, a number of software testing tools have been introduced to assist those who want to make their Websites accessible. These software tools essentially take the existing sets of guidelines (either the Web Accessibility Initiative or Section 508) and apply the guidelines to a specific Web page, looking for possible problems. Tools currently out there include LIFT, InFocus, PageScreamer, A-Prompt, and BOBBY. These tools, while helpful, tend to have limited effectiveness, since some of the guidelines still require human expertise to determine if the page is accessible (Lazar, Beere, Greenidge & Nagappa, 2003). For instance, alternative text is required for any graphic, but if the alternative text is "graphic here," this would be considered as accessible by a software testing tool, while realistically, it would not be helpful at all for the user. The testing software can also not determine whether Web pages are accessible when

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