

WEB ACCESSIBILITY OF COMMUNITY COLLEGES' WEB PAGES

Marty Bray*

Claudia Flowers*

Access and opportunity have become the hallmarks of post-secondary education. The community college extends far beyond the traditional, limited freshmen-sophomore experience and provides a setting where almost anyone can learn (Parlinchak, 1998). Community colleges serve all citizens and provide a range of services that support special populations. As the number of students continues to increase, especially among special populations, so does the need for support programs and services.

The World Wide Web (WWW) has become an invaluable resource for many people with disabilities. Accessibility across platforms and geographic distance makes the WWW an ideal universal tool for gathering and disseminating information (Heflich & Edyburn, 1998). In fact, it is estimated that 34.4% of community colleges use the Internet to disseminate training and educational programs to special populations (Gibson, 2000). Wong (1997) discussed using the Internet for increased self-advocacy by individuals with physical impairments. It is ironic, however, that while technological developments have enhanced and provided new exciting opportunities for the WWW, they have at the same time complicated and limited the accessibility of the content and resources for individuals with disabilities. Physical barriers are obvious accessibility concerns. Web page developers need to be just as aware that on-line barriers can create significant problems for some users.

The Americans with Disabilities Act (ADA) of 1990 provides the same civil rights protection to individuals with disabilities that apply as a result of race, gender, national origin, and religion (Button & Wobschall, 1994). Title III of the ADA directs that public facilities make reasonable modifications to control discrimination and support accessibility in policies, practices, and procedures (Council for Exceptional Children, 1994). In addition, the Perkins Vocational Act of 1984 has called attention to America's need to support individuals less fortunate as a result of birth or economic circumstances. The Act underscored the need for improving vocational programs and serving special populations of students.

Building Web sites that comply with standards for accessibility should be a high priority for Web page developers. To date, little research has documented the extent to which accessibility goals have been reached. The purpose of this study is to examine the accessibility of community college home pages and provide information on making them accessible (if they are not) to individuals with disabilities.

*Marty Bray is an assistant professor in the department of Educational Administration Research and Technology at the University of North Carolina at Charlotte.

**Claudia Flowers is an assistant professor in the department of Educational Administration Research and Technology at the University of North Carolina at Charlotte.

METHOD

To examine the accessibility of community college home pages a descriptive study was conducted. The sampling technique used to select community college Web sites and the evaluation procedures are discussed in the following section.

Sampling

The population Web sites for this study was community colleges located in the United States. A list of 720 community college Web sites was generated using the search engine *go.com* (2000). A random sample of 260 community college home pages was selected for content accessibility evaluation in this study.

Procedures

Each home page was analyzed using the software package *Bobby 3.2* (Center for Applied Special Technology, 2000), which allows researchers and other professionals to evaluate Web pages in accordance with the W3C Web Accessibility Initiative's guidelines. *Bobby 3.2* produces a summary report that consists of (a) the number of Priority 1, Priority 2, and Priority 3 access errors, (b) user check data, (c) the types of accessibility errors, and (d) the ease in correcting the accessibility error. Priority 1 access errors are problems that seriously affect the page's usability by people with disabilities. Priority 2 access errors are considered important for access but are not as vital as Priority 1. Priority 3 access errors are third-tier access problems that a Web developer should consider correcting.

Some accessibility errors cannot be confirmed using *Bobby 3.2*, but *Bobby 3.2* provides user check data that informs the user that manual examination and human judgment are required for examining a specific area of the home page. For a full description of the types of access errors see the *Techniques for Web Content Accessibility Guidelines 1.0* (Chisholm & Vanderheiden, 1999b). In this study only the initial home page was evaluated; that is, no links from the home page within the domain were evaluated. Scores for each home page were tabulated and further analyzed.

RESULTS

Of the 260 community college home pages randomly selected for this study, only 253 pages were available for evaluation. Approximately three-fourths (77.1%) of the home pages ($n=195$) were not approved by *Bobby 3.2* (2000) as content accessible. This indicates that at least one Priority 1 error (seriously affects accessibility) was detected on these pages. There was an average of 1.01 Priority 1 accessibility errors on the community college home pages. In addition, the average number of potential Priority 1 accessibility errors was 8.48.

There were three types of Priority 1 accessibility errors detected on the home pages. Most of the community college home pages (64.2%) did not provide alternative text for all images. A few of the home pages did not provide alternative text for image map hot-spots (17.3%) and did not provide alternative text for each applet (5.5%). All the Priority 1 accessibility errors were rated as easy to correct.

Almost all the home pages (99.2%) did not identify the language of the text. Approximately 90% of all community colleges home pages (a) did not specify a logical tab order among form controls, links, and object, (b) did not provide keyboard shortcuts to links, (c) did not provide a descriptive title to links, and (d) used deprecated (i.e., included elements that have been replaced by newer elements) language features. Using

tables in home pages create additional types of accessibility problems. Community college home pages used tables to format text documents in columns (77.2%), did not provide a linear text alternative for tables (81.9%), and did not provide a summary and caption for tables (77.6%). Many of the home pages used movement in their images (78.7%).

Using color on home pages can create problems in differentiating items on the page. Most of the pages needed examining for foreground and background color contrast (92.1%) and used color fonts to convey information (87.4%). The majority of sites did not use an extended description to convey information beyond what was in the alternative text (84.2%). Again, the inclusion of tables on home pages could create potential accessibility problems. Most of the home pages needed to be examined for the use of structural markup to identify their hierarchy and relationship (80.7%) and examined for the presence of headers for the table rows and columns (72.4%). When scripts are used to convey information or functionality, alternative content needs to be provided (54.3%).

DISCUSSION

Community colleges have played an important role in the training and education of individuals with disabilities. This study provides empirical evidence that most community college home pages are not accessible to individuals with disabilities. With very little effort all the home pages could easily be corrected to eliminate the more severe Priority 1 accessibility errors.

Web developers at community colleges need to examine their Web sites for accessibility problems. It is strongly recommended that validation methods be used in the early stages of Web development, which will help make problems easier to correct and assist developers in avoiding many accessibility problems. Also, a knowledgeable individual and individuals with disabilities to ensure clarity of language and ease of navigation should examine each site. Creating home pages that are accessible to a diverse group of users would insure the universality of the WWW.

REFERENCES

- Center for Applied Special Technology (1998). Bobby 3.0 [computer program]. Available: <http://www.cast.org/bobby/>
- Chisholm, W., & Vanderheiden, G. (1999a). Web content accessibility guidelines 1.0 [on-line]. Available: <http://www.w3.org/TR/WAI-WEBCONTENT/>
- Chisholm, W., & Vanderheiden, G. (1999b). Techniques for Web content accessibility guidelines 1.0 [on-line]. Available: <http://www.w3.org/TR/WCAG10-TECHS/>
- Go.com (2000). Search engine [on-line]. Available: www.go.com/.
- Heflich, D, & Edyburn, D. L. (1998). Getting ready to connect to the World Wide Web [and] World Wide Web self-assessment checklist. Teaching Exceptional Children, 30 (5), 6-7.
- Wong, M.A. (1997). Disability and the Internet: Access and use as means toward greater self-advocacy. Physical Disabilities: Education and Related Services, 15 (2), 23-36.