AccessCyberlearning

Equal Access: How to Broaden Participation in Cyberlearning Projects to Ensure Access to People with Disabilities

by Sheryl Burgstahler, Ph.D.

As increasing numbers of students with disabilities participate in educational opportunities, increasing opportunities for learning are provided online and increasing numbers of educational entities are forced to address legal complaints regarding the inaccessibility of their technology-based resources. Addressing accessibility issues in current and future cyberlearning tools has increased in importance. The goal is simply equal access; any potential student, including those with disabilities, can engage in the learning opportunities offered.

Thousands of assistive hardware and software products make basic access to computers and other devices possible for everyone. Screen readers read aloud text presented on the screen to students who are blind or who have learning disabilities that impact their ability to read the printed word (e.g., dyslexia). For those who cannot operate a standard keyboard there are many alternative keyboards and pointing devices that allow access to all functions of the keyboard, but not necessarily the mouse. However, access barriers can be created by those who develop online products. They include the following examples:

- Image content is only available for students who are blind if programmers include alternative text so that it can be read by screen readers.
- Since you can assume that assistive technology provides full access to the keyboard but not necessarily the mouse, developers should make their products usable with the keyboard alone.
- To make audio content available to students who are deaf, videos should be captioned and audio clips should be transcribed.
- Since screen readers can tab from link to link and from heading to heading, it is important to make links descriptive and structure documents with hierarchical headings.

Many potential access problems have well-documented solutions that everyone can routinely incorporate into their design processes. Many significant accessibility barriers can be eliminated by focusing on the "low hanging fruit." More cyberlearning advanced features may require more complex solutions.

Assistive Technology:	Therefore:
Emulates the keyboard, but may not emulate the mouse	Design websites, tools, and software to operate with keyboard alone
Cannot read content presented in images	Provide alternative text
Can tab from link to link	Make links descriptive of the resource linked to
Can skip from heading to heading	Structure documents with hierarchical headings
Cannot accurately transcribe audio	Caption video, transcribe audio

The University of Washington is funded by the National Science Foundation (NSF) for the *AccessCyberlearning* capacity building project within the Cyberlearning and Future Learning Technologies program. *AccessCyberlearning* activities and resources help cyberlearning researchers and educators develop online experiences effective for students with diverse characteristics, including varying levels of ability with respect to seeing, hearing, moving, processing information, attending to tasks, understanding English, and other skills. *AccessCyberlearning* helps cyberlearning projects to

- design innovative learning technologies and teaching strategies that are welcoming to, accessible to, and usable by everyone, including people with disabilities; and
- ensure that project materials (e.g., project websites, videos, cyberlearning tools) and activities (training, meetings) are welcoming to, accessible to, and usable by all participants.

This short publication shares legal issues, a design approach, and first steps cyberlearning projects can take to reach these objectives.

Legal Issues

Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990 and its Amendments of 2008 mandate that no otherwise qualified person with a disability shall, solely by reason of his or her disability, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination in public programs. See Resolution Agreements and Lawsuits at *www. uw.edu/accessibility/requirements/accessibility-cases-and-settlement-agreements/* for information about outcomes from recent civil rights complaints with respect to inaccessible IT at postsecondary institutions. This publication does not provide legal advice. Contact the U.S. Department of Education's Office for Civil Rights (OCR) about legal mandates relevant to your project and institution.

Universal Design

But what does "accessible" mean with respect to an online course? According to the Office of Civil Rights "accessible" means that a person with a disability "is afforded the opportunity to acquire the same information, engage in the same interactions, and enjoy the same services as a person without a disability in an equally effective and integrated manner, with substantially equivalent ease of use. The person with a disability must be able to obtain the information as fully, equally, and independently as a person without a disability."

An approach to making facilities, information, and activities accessible to and usable by everyone is called universal design (UD). Universal design means that rather than designing for the average user, you design for people with differing native languages, genders, racial and ethnic backgrounds, abilities, and disabilities. The universal design of cyberlearning project offerings can make everyone feel welcome and minimize the need for special accommodations for individual participants. Some UD features are built into a product to benefit all learners; adaptable features are built in so that students (and teachers) can make choices that adjust a product to be more usable for them. See the Center on Universal Design in Education at *www. uw.edu/doit/cude* for guidelines on applying UD to on-site, online, and blended learning.

Guidelines and Examples

Cyberlearning project leaders can apply UD to make their products and activities more inclusive. Addressing the following questions provides a good starting point.

Planning, Policies, Recruitment, and Evaluation. Consider disability along with other diversity issues as you plan and evaluate project offerings.

- Are people with disabilities—along with racial and ethnic minorities, men and women, young and old students, and other relevant groups—represented in planning and testing processes? For example, test your product at all stages of development with students with disabilities; *AccessCyberlearning* can help locate them.
- Are disability-related issues addressed along with other diversity issues in project data collection, evaluation plans, and instruments? For example, consider asking survey respondents if they have disabilities.
- Do you address issues related to the inclusion of participants with disabilities in reporting the broader impacts of your project? Consider contacting *AccessCyberlearning* for help with this and partnering with the disability services office on a postsecondary campus or other organization with expertise in this area.

Information Resources and Technology. Ensure that websites, videos, and cyberlearning products are accessibly designed. For guidance, consult the *AccessCyberlearning* website at *www.washington.edu/ doit/programs/accesscyberlearning/overview.*

- Do pictures in your publications and website include people with diverse characteristics with respect to race, gender, age, and disability? This is a way to make people with disabilities know that they are welcome and your product is accessible.
- Do electronic resources adhere to accessibility guidelines or standards adopted by your institution, or your project or funding source (e.g., the Web Content Accessibility Guidelines [WCAG] 2.0 at *www.w3.org/WAI/intro/wcag*)? WCAG 2.0 Level AA is used as the standard by many institutions.

- Is all content available in accessibly designed electronic formats (e.g., documents with text descriptions for content within images and using structured headings, PDFs that are text-based)? They can then be read by screen readers used by students who are blind or have reading-related learning disabilities. Minimize the use of PDFs, especially when presented as an image; make sure the text is accessible by testing to see if you can copy and paste it.
- Do you structure headings and use built-in designs/layouts? For example, use style features built into the Learning Management System, Word, PowerPoint (PPT), and PDFs and use build-in layouts in PPT. This practice will make your documents easier to navigate by screen readers, since they can skip and read from heading to heading to present an outline of the document to a person who is blind. For more information, see Creating Accessible Documents at *www.uw.edu/accessibility/documents*.
- Use descriptive wording for hyperlink text (e.g., "DO-IT Knowledge Base" rather than "click here"). Screen readers are able to skip from link to link, reading the text provided, for a blind students trying to determine the basic content on the page. You want to avoid having them hear "click here, " "click here, " "click here, "… when they try to determine to what resources your links connect.
- Is all content and navigation accessible using the keyboard alone? This is important for individuals who cannot use the mouse or a mouse alternative.
- Do you provide scaffolding tools, adequate practice, and other options to help students learn? These strategies benefit many students, but particularly students with learning disabilities and English language learners.
- Do you include a statement on your website affirming your commitment to accessible design? For example, you could include the following statement: "We strive to make our website accessible to everyone. Suggestions for increasing the accessibility of these pages should be sent to [email address]."

- Are video presentations captioned and audio clips transcribed? This will ensure access to students who are deaf, but also benefit English language learners and those who want to know the spelling of a word or to search the captions for specific content. For more information, see Creating Accessible Videos at *www.uw.edu/accessibility/videos*.
- Do you assume students have a wide range of technology skills and therefore provide options for gaining the technology skills needed for engagement with the product? Link to supplementary materials for students that need additional assistance with using the technology.

Instructor Preparation. Provide guidance to instructors who use your product.

- Do you include in instructions to faculty information about how to use your product in such as way that the instruction is welcoming, to, accessible to, and usable by all students, including those with disabilities? Tell the instructor about features you have included to address various abilities, including aspects of the product that can be adapted for specific student populations. Further guidance can be found in the publication *20 Tips for Designing an Accessible Online Course* at *www.washington.edu/doit/20-tips-teaching-accessible-online-course*.
- Do you provide guidance to instructors using your project that addresses accessibility barriers? If, after you have employed basic accessibility techniques, your product is not fully accessible to a specific group, provide instructor guidance regarding how to handle inaccessibility issues in their class. For example, tell which aspects of the simulation are not accessible to a student who is blind and using a screen reader and suggest alternative activities (e.g., an online resource that includes the same content) or interventions (e.g., working with a sighted assistant or student partner) that could help that student reach the objectives of the activity.

Presentations, Exhibits, and Activities. Make sure faculty and staff are prepared to engage with all project participants, including those with disabilities.

- Do staff members know how to respond to requests for disability-related accommodations, such as sign language interpreters?
- Are staff members aware of issues related to communicating with participants who have disabilities?
- Do staff deliver conference presentations and exhibits that are accessible to all participants?

For further information see *Equal Access: Universal Design of Conference Exhibits and Presentations* at *www.uw.edu/doit/equal-access-universal-design-conference-exhibits-and-presentations*.

Checklist Updates
To increase the usefulness of this working document, send suggested improvements to *sherylb@uw.edu*.

Additional Resources
For more information about applications of universal design consult The Center for Universal Design in Education at *www.uw.edu/doit/programs/center-universal-design-education/overview*. The book *Universal Design in Higher Education: From Principles to Practice, Second Edition*, published by Harvard Education Press, shares perspectives of UD leaders nationwide. Learn more or order online at *www.uw.edu/doit/universal-design-higher-education-principles-practice-1*.

About *AccessCyberlearning*
AccessCyberlearning is a Capacity Building Project (CAP) within the Cyberlearning and Future Learning Technologies program of the NSF. Learn more at *www.uw.edu/doit/programs/accesscyberlearning*. *AccessCyberlearning* is led by the DO-IT (Disabilities, Opportunities, Internetworking, and Technology) Center. DO-IT serves to increase the successful participation of individuals with disabilities in challenging academic programs and careers such as those in science, engineering, mathematics, and technology.

For further information, to be placed on the DO-IT mailing list, to request materials in an alternate format, or to make comments or suggestions about DO-IT publications or web pages, contact:

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