



Equal Access: Universal Design of Computer Labs

DO-IT

A checklist for making computer labs welcoming, accessible, and usable
by Sheryl Burgstahler, Ph.D.

As increasing numbers of people with disabilities pursue educational opportunities that require computer use, accessibility of computing facilities is critical. The vision is simply equal access. Everyone who needs to use your lab should be able to do so comfortably.

Universal Design

To make your lab accessible, employ principles of universal design (UD). Universal design means that rather than designing your facilities and services for the average user, it is designed for people with a broad range of abilities, disabilities, ages, reading levels, learning styles, native languages, cultures, and other characteristics. Keep in mind that individuals using your lab may have learning disabilities or visual, speech, hearing, and mobility impairments. Preparing your computer lab accessible to them will minimize the need for special accommodations for those who use your services and for future employees as well. Make sure everyone

- feels welcome,
- can get to the facility and maneuver within it,
- is able to communicate effectively with support staff
- is able to access printed materials and electronic resources, and
- can make use of equipment and software.

Train staff to support people with disabilities. Have a plan in place to respond to specific accommodation requests in a timely manner.

Guidelines and Examples

The following questions can guide you in making your computer lab universally accessible. To clarify legal issues, consult your campus legal counsel or ADA/504 compliance officer or call your regional Office for Civil Rights (OCR).

First Steps

To begin the process of making your computer lab accessible to everyone, take the following steps.

1. Include students with disabilities in planning and evaluating lab products and services.
2. Develop policies and procedures that ensure access to lab facilities, computers, and electronic resources for people with disabilities. Require that accessibility be considered in the procurement process.
3. Ensure that the facility and services are wheelchair-accessible and publications can be reached from a seated position.
4. In key lab documents, include a statement about your commitment to universal access and procedures for requesting disability-related accommodations.
5. Make signs with high contrast and large print.
6. Make key documents available in formats accessible to those who have low vision and those who are blind (e.g., large print, Braille, electronic).
7. Although a lab cannot be expected to have specialized equipment for every type of disability on hand, staff should make equipment available that they anticipate will be most often used or that is available at relatively low cost. This might include
 - an adjustable table for each type of workstation in your lab;
 - a wrist rest and forearm rest;



- a trackball;
 - software to modify keyboard response such as sticky keys, repeat rate, and keystroke delay (that may be available in the operating system);
 - software to enlarge screen images (that may be available in the operating system), along with a large monitor;
 - large-print keytop labels; and
 - web resources that adhere to accessibility standards or guidelines adopted by the lab.
8. Once a lab is established and serves a large number of users, consider adding
- text-to-speech software;
 - scanner and optical character recognition (OCR) software;
 - CCTV to enlarge printed documentation;
 - Braille translation software and printer;
 - word prediction software;
 - hearing protectors;
 - keyboard guards to assist those who have limited fine motor skills;
 - alternative keyboards, mini-keyboards, or extended keyboards for users with mobility impairments;
 - speech input software; and
 - one-handed keyboards or “keyboard layout” software.
9. Develop a procedure to ensure quick responses to requests for assistive technology that you do not currently have available or for other disability-related accommodations.
10. Train staff on available accessible products in the lab, on appropriate communication, and on procedures for addressing requests for accommodations. Include accessibility issues in all training offered in the lab.
11. Include people with disabilities when addressing accessibility in periodic lab evaluations.

Planning, Policies, and Evaluation

Consider diversity issues as you plan and evaluate your computer lab.

- Are people with disabilities, racial and ethnic minorities, men and women, young and old students, and other groups represented on your staff, faculty, and student body in numbers proportional to those of the whole campus or community?
- Are people with disabilities, racial and ethnic minorities, men and women, young and old students, and other groups represented in lab planning and review processes and advisory committees in numbers proportional to those of the whole campus or community?
- Do you have policies and procedures that ensure access to facilities, printed materials, computers, and electronic resources for people with disabilities?
- Do policies and procedures require that accessibility be considered in the procurement process for software and other information technology? (See the federal government’s *Section 508 Standards for Accessible Electronic and Information Technology* at www.access-board.gov/guidelines-and-standards/communications-and-it/about-the-section-508-standards.)
- Do you have a procedure to ensure a timely response to requests for disability-related accommodations?
- Are disability-related access issues addressed in your evaluation methods?

Physical Environments

Ensure physical access, comfort, and safety within an environment that is welcoming to visitors with a variety of abilities, racial and ethnic backgrounds, genders, and ages.

- Can at least one public telephone be reached from a seated position?
- Are there parking areas, pathways, and entrances to the building that are wheelchair-accessible and clearly defined?



- Is adequate light available?
- Are all levels of the facility connected via an accessible route of travel?
- Are there ample high-contrast, large-print directional signs to and throughout the lab? Is braille signage available when appropriate?
- Do elevators have auditory, visual, and tactile signals and are elevator controls accessible from a seated position?
- Are wheelchair-accessible and child-friendly restrooms with well-marked signs available in or near the lab?
- Is at least part of a service counter or desk accessible from a seated position?
- Are aisles wide and clear of obstructions for wheelchair users who have mobility or visual impairments?
- Are there quiet work or meeting areas where noise and other distractions are minimized and/or facility rules in place (e.g., no cell phone use) to minimize noise?

Lab Staff

Make sure staff are prepared to work with all students.

- Are staff members familiar with the availability and use of the Telecommunications Relay Service, assistive technology, and alternate document formats?
- 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 students with different characteristics regarding race and ethnicity, age, and disability? (See the Communication Hints at the end of this publication.)
- Do staff members have ready access to a list of on- and off-campus resources for students with disabilities?
- Is the Webmaster knowledgeable about accessible web design?

Information Resources and Technology

Ensure that lab publications and websites welcome a diverse group and that information is accessible to everyone.

- Do pictures in your publications and website include people with diverse characteristics with respect to race, gender, age, and disability?
- In key publications, do you include a statement about your commitment to universal access and procedures for requesting disability-related accommodations? For example, you could include the following statement: “Our goal is to make all materials and services accessible. Please inform staff of accessibility barriers you encounter and request accommodations that will make activities and information resources accessible to you.”
- Are all printed software and hardware documentation and other publications available (immediately or in a timely manner) in alternate formats such as Braille, large print, and electronic text?
- Do electronic resources, including web pages, adhere to accessibility guidelines or standards adopted by your institution or your specific project or funding source? *Section 508 Standards for Accessible Electronic and Information Technology* (www.access-board.gov/guidelines-and-standards/communications-and-it/about-the-section-508-standards/section-508-standards) and *Web Accessibility Initiative (WAI)* (www.w3.org/WAI/) are most commonly used. For information about making your website accessible to everyone, consult *World Wide Access: Accessible Web Design* video and publication at www.washington.edu/doit/videos/index.php?vid=35.
- Are key documents provided in language(s) other than English?



- Are printed materials within easy reach from a variety of heights and without furniture blocking access?
- Do video presentations used by the lab have captions? Audio descriptions?
- Are accessibility issues incorporated into mainstream web design and other technology training for students and staff?
- Is an adjustable-height table available for each type of workstation in the lab? Can the height be adjusted from a seated position?
- Do some keyboards have large-print key labels, Braille labels, or home-row key indicators to help users with visual impairments locate keys?
- Is screen enlargement software available for users with low vision, perhaps in the operating systems of the computers? Is a large monitor available so that a larger amount of screen can be viewed while magnified?
- Is a trackball available for those who have difficulty controlling a mouse?
- Are a wrist rest and forearm rest available for those who require extra support while typing?
- Is equipment marked with large-print and Braille labels?
- Is software available to modify keyboard response, such as sticky keys, repeat rate, and keystroke delay, perhaps by making accessibility features of operating systems readily available?
- Is word prediction software available to reduce the number of keystrokes needed for text entry?
- Can controls on computers, printers, scanners, and other information technology be reached from a seated position?
- Are adequate work areas available for both right- and left-handed users?

Checklist Updates

This checklist was field tested at more than twenty postsecondary institutions nationwide (see www.washington.edu/doit/do-it-admin-project-help-postsecondary-student-services-administrators-work-successfully-students). To increase the usefulness of this working document, send suggestions to sherylb@uw.edu.



Additional Resources

An electronic copy of the most current version of this publication can be found at www.washington.edu/doit/equal-access-universal-design-computer-labs. A 10-minute video, *Equal Access: Universal Design of Computer Labs*, demonstrates key points summarized in this publication. An online version may be freely viewed at www.washington.edu/doit/videos/index.php?vid=12 or purchased in DVD format.

For further guidelines and suggestions on how to create accessible computer labs consult the *ADA Checklist for Readily Achievable Barrier Removal* at www.ada.gov/checkweb.htm.

A useful online interactive tool for learning about IT accessibility and managing your lab's IT accessibility goals is the *Information Technology in Education Accessibility Checklist* at www.uw.edu/accessit/



it-checklist/. For more information about assistive technology, consult the videos and publications at www.uw.edu/doit/resources/popular-resource-collections/accessible-technology.

The Student Services Conference Room at www.washington.edu/doit/distance-learning-course-serving-students-disabilities includes a collection of documents and videos to help you make student services accessible to everyone. Included are checklists for career services, distance learning, computer labs, recruitment and admissions, registration, housing and residential life, financial aid, libraries, tutoring and learning centers, and student organizations. The Student Services Conference Room also hosts a searchable Knowledge Base of questions and answers, case studies, and promising practices.

For more information about applications of universal design consult www.washington.edu/doit/resources/popular-resource-collections/applications-universal-design or 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 DO-IT

DO-IT (Disabilities, Opportunities, Internetworking, and Technology) serves to increase the successful participation of individuals with disabilities in challenging academic programs such as those in science, engineering, mathematics, and technology. Primary funding for the DO-IT program is provided by the National Science Foundation, the State of Washington, and the U.S. Department of Education.

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

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Communication Hints

Treat people with disabilities with the same respect and consideration with which you treat others. Here are some helpful hints when it comes to delivering a presentation, hosting an exhibit, and otherwise relating to people with disabilities.

General

- Ask a person with a disability if that person needs help before providing assistance.
- Talk directly to the person with a disability, not through their companion or interpreter.
- Refer to a person's disability only if it is relevant to the conversation.
- Avoid derogatory slang or negative descriptions of a person's disability. For example, "a person who uses a wheelchair" is more appropriate than "a person confined to a wheelchair." A wheelchair is not confining—it's liberating!
- Provide information in alternate means (e.g., written, spoken, diagrams).
- Do not interact with a person's guide dog or service dog unless you have received permission to do so.
- Do not be afraid to use common terms and phrases, like "see you later" or "let's go for a walk" around people with disabilities.
- Do not touch mobility devices or assistive technology without the owner's consent.
- Do not assume physical contact, like handshakes, high-fives, or hugs are okay.
- Understand that not everyone uses eye contact.

Blind or Low Vision

- Be descriptive. Say, "The computer is about three feet to your left," rather than "The computer is over there."
- Speak all of the projected content when presenting and describe the content of charts, graphs, and pictures.
- When guiding people with visual impairments, offer them your arm rather than grabbing or pushing them.

Learning Disabilities

- Offer directions or instructions both orally and in writing. If asked, read instructions to individuals who have specific learning disabilities.

Mobility Impairments

- Consider carrying on a long conversation with an individual who has a mobility impairment from a seated position.

Speech Impairments

- Listen carefully. Repeat what you think you understand and then ask the person with a speech impairment to clarify or repeat the portion that you did not understand.

Deaf or Hard of Hearing

- Face people with hearing impairments, and avoid covering your mouth, so they can see your lips. Avoid talking while chewing gum or eating.
- Speak clearly at a normal volume. Speak louder only if requested.
- Repeat questions from audience members.
- Use paper and pencil, or type things out on your cell phone, if the person who is deaf does not read lips or if more accurate communication is needed.
- When using an interpreter, speak directly to the person who is deaf; when an interpreter voices what a person who is deaf signs, look at the person who is deaf, not the interpreter.

Psychiatric Impairments

- Provide information in clear, calm, respectful tones.
- Allow opportunities for addressing specific questions.