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About the Editor

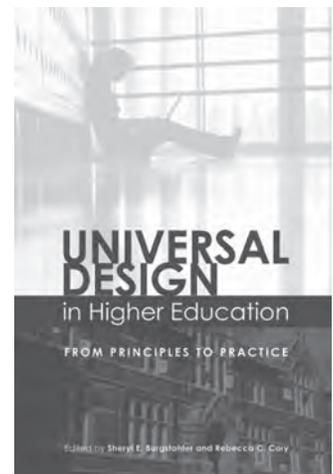


Dr. Sheryl Burgstahler directs the DO-IT (Disabilities, Opportunities, Internetworking, and Technology) Center at the University of Washington (UW). DO-IT promotes the success of students with disabilities in postsecondary education and careers, employing technology as an empowering tool. DO-IT sponsors programs that increase the use of assistive technology and promote the development of accessible facilities, computer labs, electronic resources in libraries, webpages, educational multimedia, and Internet-based distance learning programs.

Dr. Burgstahler has published dozens of articles and book chapters and delivered presentations at national and international conferences that focus on universal design of distance learning, websites, computer labs, instruction, student services, and other applications in education, and the management of electronic communities, work-based learning activities, and transition programs for youth with disabilities. She is the author or co-author of eight books on using the Internet with pre-college students and directing e-mentoring and transition programs.

She is the lead editor of a book on universal design, *Universal Design in Higher Education: From Principles to Practice*. Information about purchasing this book can be found at <http://www.washington.edu/doi/UDHE/>.

Dr. Burgstahler is an Affiliate Associate Professor in the College of Education at the UW. More about Dr. Burgstahler can be found on her website at <http://staff.washington.edu/sherylb/>.





Building the Team



In 1999, the U.S. Department of Education Office of Postsecondary Education (OPE) funded *DO-IT Prof* (grant # P333A990042), which created professional development materials and trained faculty and academic administrators nationwide to more fully include students with disabilities in their courses. In 2002, OPE funded *DO-IT Admin* (grant #P333A020044), which expanded *DO-IT Prof* efforts to train student service administrators and staff. Project team members further identified the critical need to systematically change policies, procedures, and practices in order for both universal design and reasonable accommodations for students with disabilities to be embraced at an institutional level.

In 2005, OPE funded *AccessCollege* (grant #P333A050064) to continue to offer and refine the successful professional development practices and resources for faculty and administrators of earlier projects, and complement them with the identification, validation, and application of Campus Accessibility Indicators to document institutional change toward more accessible campuses and programs. It also funded the creation of *The Center for Universal Design in Education* at <http://www.washington.edu/doit/CUDE/>.

AccessCollege staff worked with a team of faculty and administrators representing twenty-three two- and four-year institutions, each paired with another campus during this project. They created new materials and updated the materials created in earlier projects, including these training materials. Specifically, staff and team members

- developed and delivered professional development and technical assistance using multiple delivery systems.
- developed and validated Campus Accessibility Indicators to document institutional changes in policies, procedures, and practices that lead to campuses that are more inclusive of students with disabilities.
- published articles and distributed training videos, publications, and web resources to share successful practices in training faculty and staff and promoting applications of universal design in higher education.
- further developed websites and searchable databases of questions and answers, case studies, and promising practices for faculty, administrators, and other postsecondary audiences (<http://www.washington.edu/doit/kb.html>).
- edited a book, *Universal Design in Higher Education: From Principles to Practice*, that features the perspectives and expertise of more than forty authors and shares promising practices regarding applying universal design in postsecondary settings.

On the following pages are lists of *DO-IT Prof* and *AccessCollege* project team members.



AccesCollege Team, 2005-2009

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Project staff at the UW include the following:

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DO-IT Prof Team, 1999-2003



DO-IT Prof Team

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Advancements in technology and increased job specialization have resulted in career opportunities in fields that were once considered unattainable for individuals who have disabilities. Many of these careers require knowledge and skills obtained through postsecondary education. Although the number of individuals with disabilities seeking postsecondary education continues to increase, these students experience lower success rates than their non-disabled peers. Individuals with disabilities continue to be underrepresented in many challenging academic and career fields.

Federal legislation mandates that academic accommodations be made to ensure that qualified postsecondary students with disabilities have educational opportunities that are equivalent to others. Faculty and staff members who are familiar with disabilities, accommodation strategies, and resources are better prepared to make arrangements that will ensure that students with disabilities have equal opportunities to participate in their programs.

Since 1992, DO-IT has promoted the success of individuals with disabilities in postsecondary education and employment through direct work with students who have disabilities, and through professional development for educators, service providers, and employers. DO-IT has been recognized for its efforts through many awards, including the 1995 National Information Infrastructure Award in Education; the 1997 Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring; the 1999 Golden Apple Award for excellence in education; the 2001 exemplary program award from the Association on Higher Education

and Disability (AHEAD); a 2001 Bright Ideas Award from the Professional and Organizational Development Network; the 2004 Sloan Consortium Award; the 2004 BizTech Accessibility Award; several Achievement Awards from the Washington Association for Postsecondary Education and Disabilities; the 2006 Trace Research and Development Center's Catalyst Award; and the 2007 Greenberg Award for Innovation from Career Opportunities for Students with Disabilities.

In 1999, the U.S. Department of Education Office of Postsecondary Education (OPE) funded *DO-IT Prof* (grant # P333A990042). This project created these professional development materials to train faculty and academic administrators to more fully include students with disabilities in their courses. In 2009, the *AccessCollege* project (grant #P333A050064) project updated these popular faculty development materials.

Six Models of Professional Development

Responding to the diverse content and scheduling needs of faculty and administrators, the project team created six models of professional development for faculty and administrators:

Model 1: A 20-30 minute overview to introduce participants to basic legal issues, accommodation strategies, and resources specific to their campus.

Model 2: A 1-2 hour presentation with special focus on providing accommodations to students with a variety of disabilities and introducing campus participants to legal issues and resources.



Model 3: Tailored workshops for in-depth training on specific topics.

Model 4: A televised instruction option using a series of videos for delivery on public television.

Model 5: A distance learning “anytime-anywhere” course that provides lessons and discussions delivered via email.

Model 6: Self-paced, web-based instruction with expanded content of other models (<http://www.washington.edu/doi/Faculty/>).

The project teams that created and updated these materials included faculty, disabled student services staff, and administrators at institutions of higher education nationwide. Project team members chose institutional partners in their states. Team members from four-year institutions chose community or technical colleges as partners; team members from community or technical colleges chose four-year schools. Participants represent schools with a wide range of demographics (e.g., racial/ethnic diversity, size, location).

Project team members participated in multiple collaborative meetings. As part of a needs assessment, they conducted focus groups with students who have disabilities, teaching assistants, faculty, and administrators on their campuses. Representatives from team and partner schools delivered professional development programs, disseminated materials, and explored strategies for providing technical assistance to faculty and administrators. Ongoing discussion and coordination of project activities took place on an Internet discussion list and during telephone conferences.

All project materials are offered in formats that are readily accessible to individuals with disabilities. Permission to copy and distribute project products for educational, noncommercial purposes is granted as long as the source is acknowledged.

The *AccessCollege* project also supported the development of *The Center for Universal Design in Education* website to complement websites developed in earlier projects that support faculty, administrators, and other stakeholders. In addition, project staff edited the book *Universal Design in Higher Education: From Principles to Practice* that brought together more than forty experts to share research and applications of universal design in instruction, services, physical spaces, and technology. It was published by Harvard Education Press and provides comprehensive foundational content for those who deliver professional development to postsecondary faculty and administrators.

The professional development activities that these materials support help faculty and administrators fully include students with disabilities on their campuses and contribute to systemic change within postsecondary institutions across the nation. Ultimately, such efforts can lead to increased educational and career opportunities for individuals with disabilities.

I hope that you find these materials useful in your efforts to ensure that all students on your campus have equal opportunities to learn, explore interests, and express ideas.

Sheryl Burgstahler, Ph.D.
Director, DO-IT



The enclosed videos, written materials, and handout templates were developed for those providing professional development to help faculty and administrators in postsecondary institutions become more aware of

- the rights, responsibilities, potential contributions, and needs of students with disabilities;
- the rights and responsibilities of postsecondary institutions;
- reasonable accommodations and instructional strategies for working with students who have disabilities; and
- campus resources that help provide equitable educational opportunities for all students.

These materials are for use in departmental and campus-wide presentations to stimulate discussion and action. Each presentation option can be tailored for meetings of administrators, departmental chairs, advisors, faculty, teaching assistants, and support staff. The presentations are intended for use in public and private; large and small; and two-year, four-year, and technical postsecondary institutions. Presentation lengths vary from 20 minutes to several days. The materials were tested nationwide and refined based on faculty and staff evaluations.

In addition to the presentations themselves, a synthesis of research, implementation and institutionalization strategies, presentation tips, frequently asked questions, and resources are included. The following paragraphs describe the content of this handbook.

Synthesis of Research

Pages 7-36

The content included in this handbook is based on research in a number of relevant areas. These include experiences of students with disabilities, reported postsecondary faculty training needs, adult learning, learning styles, types of learning, universal design of instruction, and systemic change. This section describes the underlying theory and research that supports the practices suggested in these materials.

Institutionalization Strategies

Pages 37-54

Setting up one training session for a department is not difficult; however, developing strategies to institutionalize faculty and administrator training requires more thought and planning. This section provides suggestions that can result in long-term improvements on your campus. Implementing institutionalization strategies will help ensure that students with disabilities have equal access to your academic programs and resources.

Presentation Tips

Pages 55-74

This section provides suggestions for making engaging and informative presentations to faculty, administrators, and staff. You will also find case studies to use in your presentations.

Presentations

Pages 75-192

Several presentation options are outlined in this section:



- 20-30 minute overview to introduce participants to basic legal issues, accommodation strategies, and resources specific to their campus;
- 1-2 hour presentation with a special focus on providing accommodations to students with a variety of disabilities and introducing participants to legal issues and campus resources; and
- 10 tailored workshops for in-depth training on topics of special interest to faculty and administrators.

For each presentation option, a sample script is included to minimize the preparation that might otherwise be required. The presenter may use the script verbatim or extract ideas to customize a presentation.

The videos included in this notebook can be used in specific presentations or broadcast on public television. Handout and overhead projection templates are provided in the *Presentation Tools* section for easy duplication and use.

A web-based instructional option is also available for faculty and administrators. To access web-based instruction, visit *The Faculty Room* at <http://www.washington.edu/doit/Faculty/>. A distance learning course that can be delivered via email to faculty and administrators on your campus can be found in *The Faculty Room* at <http://www.washington.edu/doit/Faculty/Presentations/Distance/Lessons/index.html>.

Frequently Asked Questions

Pages 193-204

Frequently asked questions (FAQs) and their answers provide a useful reference for presenters. They represent a small sample of the articles available in the searchable Knowledge Base at <http://www.washington.edu/doit/Faculty/>. If reviewed before delivering a presentation, the FAQs can help the presenter prepare responses to questions commonly asked by faculty and administrators.

Resources

Pages 205-242

A glossary of disability-related terms, a list of resources, and references are included.

Presentation Tools

Pages 243-290

The presenter will find ready-to-use presentation tools included in this section.

■ Overhead Projection Templates

Templates that can be developed into presentation slides are included for use in the presentations. There are many templates included to optimize custom presentations. In addition, slides are provided on *The Faculty Room* website at <http://www.washington.edu/doit/Faculty/>.

■ Handouts

Reproducible, camera-ready handouts for presentations are inserted in the plastic pouch in the back of the binder.

■ Final Evaluation Tools

One of two evaluations can be selected for use with participants at the end of the session. They are found on pages 188-190 of this notebook.



■ Videos

Videos referenced throughout this handbook are collected on eight DVDs (located in the back of this binder) and are also freely available online at <http://www.washington.edu/doi/Video/Search/>. Their titles follow.

COLLEGE 1

- *Working Together: Faculty and Students with Disabilities*. Successful students with disabilities tell about techniques and accommodations that contributed to their success, emphasizing the importance of the faculty-student relationship. (9 minutes)
- *Building the Team: Faculty, Staff, and Students Working Together*. Learn how to create an inclusive postsecondary learning environment. (16 minutes)
- *Equal Access: Universal Design of Instruction*. Learn to make instruction in a classroom or tutoring center accessible to all students. (13 minutes)
- *Equal Access: Student Services*. Learn how to apply universal design principles to make postsecondary student services accessible to all students. (15 minutes)

COLLEGE 2

- *Invisible Disabilities and Postsecondary Education*. Learn strategies to help students with learning disabilities, attention deficits, and other invisible disabilities achieve success in college. (19 minutes)
- *Self-Examination: How Accessible Is Your Campus?* Learn issues to address to make a postsecondary institution welcoming and accessible to students with disabilities. (10 minutes)

- *Equal Access: Campus Libraries*. How to apply universal design principles to make libraries accessible to all visitors. (10 minutes)

TECHNOLOGY 1

- *Working Together: People with Disabilities and Computer Technology*. Individuals with disabilities demonstrate adaptive technology for people with mobility impairments, blindness, low vision, hearing or speech impairments, and learning disabilities. (13 minutes)
- *Working Together: Computers and People with Mobility Impairments*. People with mobility impairments demonstrate computer access technology. (14 minutes)
- *Working Together: Computers and People with Sensory Impairments*. People with visual and hearing impairments demonstrate computer technology for school and work. (10 minutes)
- *Working Together: Computers and People with Learning Disabilities*. Students and workers with learning disabilities demonstrate computer-based tools and strategies. (12 minutes)
- *Computer Access: In Our Own Words*. Students with disabilities demonstrate adaptive technology and computer applications. (10 minutes)

TECHNOLOGY 2

- *Equal Access: Universal Design of Computer Labs*. Learn how computer labs can be designed to be accessible to students with disabilities. (11 minutes)



Building the Team

- *World Wide Access: Accessible Web Design.* People with disabilities describe roadblocks they encounter and examples of accessible web design. (11 minutes)
- *Real Connections: Making Distance Learning Accessible to Everyone.* Learn issues to consider when designing courses to fully include students with disabilities. (12 minutes)
- *Access to Technology in the Workplace: In Our Own Words.* Employees show how to make technology accessible. (13 minutes)
- *Camp: Beyond Summer.* Learn how to add Internet experiences to summer camp programs for children and youth with disabilities. (10 minutes)

DO-IT STEM 1

- *Working Together: Science Teachers and Students with Disabilities.* Successful science students with disabilities suggest ways to make science activities accessible. (13 minutes)
- *Equal Access: Science and Students with Sensory Impairments.* Students and employees with sensory impairments share strategies for success. (14 minutes)
- *The Winning Equation: Access + Attitude = Success in Math and Science.* Science and math teachers share strategies for making these subjects accessible to students with disabilities. (15 minutes)
- *STEM: Science, Technology, Engineering, Mathematics at the University of Washington.* Students and faculty highlight STEM programs offered to a diverse student body at the UW. (10 minutes)

SELF DETERMINATION 1

- *Taking Charge 1: Three Stories of Success and Self-Determination.* Successful young people with disabilities share strategies for living self-determined lives. (17 minutes)
- *Taking Charge 2: Two Stories of Success and Self-Determination.* Teens with disabilities share how they are learning to live self-determined lives. (15 minutes)
- *Taking Charge 3: Five Stories of Success and Self-Determination.* This video combines the five stories presented in Taking Charge 1 & 2 videos. (27 minutes)

PART OF ME, NOT ALL OF ME

- *Part of Me, Not All of Me.* Teens with disabilities share their interests, activities, and other aspects of their lives showing that their disabilities do not define who they are. (6 minutes)

DO-IT PROGRAMS 2

- *How DO-IT Does It.* Successful practices employed by DO-IT programs to increase the success of young people with disabilities in college and careers. (34 minutes)
- *Opening Doors: Mentoring on the Internet.* Mentors help students with disabilities achieve success in college studies and careers. (14 minutes)

Permission is granted to reproduce any of these materials for noncommercial, educational purposes as long as the source is acknowledged. Much of the content is duplicated in other publications, training materials, and webpages published by the DO-IT Center; most can be found within the comprehensive website at <http://www.washington.edu/doit/>.



The purpose of this section is to summarize research that relates to the professional development of faculty and administrators to ensure that students with disabilities have equal access to their courses. Selected research areas were developed through literature review and collaboration with various DO-IT project team members. The “Implications for Practice” section of each topic area shows how the specific body of research can be applied to create an effective professional development program.

The body of research shared in this section provides the foundation for the presentation content and delivery strategies included in other sections of this notebook. The suggestions in the sections entitled *Presentations* and *Presentation Tips* are also based on this body of knowledge. Professional development facilitators may find this foundation useful as they develop effective faculty and administrator training materials and programs.

Six subsections are organized around key questions that must be addressed in order to be fully informed when developing educational opportunities for postsecondary faculty and administrators. Subsection topics and questions are listed below.

Professional Development: Need, Content, and Methods

- Why do faculty and administrators need professional development regarding teaching students with disabilities in their courses and programs?
- What do we know about the knowledge, experiences, and attitudes of faculty and administrators regarding students with disabilities? What do faculty and

administrators want and need to know about fully including students with disabilities in their classes? How do faculty and administrators want to gain this knowledge?

- What do students with disabilities think faculty members and administrators need to know about providing full academic access in their classes?

Adult Learning

- What do we know about adult learning that can be applied to the design and delivery of professional development for faculty and administrators regarding equal access of students with disabilities to courses and programs?

Learning Styles

- What do we know about learning styles that can guide the delivery and design of professional development for faculty and administrators regarding equal access of students with disabilities to courses and programs?

Types of Learning

- What do we know about types of learning that can guide the design and delivery of professional development for faculty and administrators regarding equal access of students with disabilities to courses and programs?

Universal Design of Instruction

- What do we know about universal design of instruction that can guide the design and delivery of professional development for faculty and administrators regarding the equal access of students with disabilities in their courses and programs?



Systemic Change

- What do we know about systemic change that can guide the design and implementation of professional development for faculty and administrators regarding equal access for students with disabilities in their courses and programs?
- What do we know about sustaining faculty and administrator development activities for supporting students with disabilities?

In each topic area, research questions are followed by an overview of research as well as suggestions for preparing and delivering presentations to faculty and administrators. A concluding section, “Application of Research Findings,” summarizes how each research area can be applied to the delivery of professional development presentations for faculty and administrators. Note that research in several different areas supports some of the same recommendations, thereby reinforcing essential characteristics of successful professional development programs.



Research Questions

- Why do faculty and administrators need professional development regarding teaching students with disabilities?
- What do we know about the knowledge, experiences, and attitudes of faculty and administrators regarding students with disabilities? What do faculty and administrators want and need to know about fully including students with disabilities in their classes? How do faculty and administrators want to gain this knowledge?
- What do students with disabilities think faculty members and administrators need to know about providing full academic access in their classes?

Overview of Research

As a result of federal legislation, such as the Individuals with Disabilities Education Improvement Act of 2004 (IDEA) and Section 504 of the Rehabilitation Act of 1973, young people with disabilities are being encouraged and better prepared to pursue higher education (Henderson, 2001; Horn & Berktold, 1999; National Council on Disability, 2000). The number of students with disabilities enrolled in higher education continues to grow. In 2006, the U.S. Department of Education reported that approximately 11% of people in postsecondary programs report a disability (2006).

Despite their increasing percentage of college enrollment, students with disabilities are less successful in postsecondary education when compared to their non-disabled peers. A recent survey found that only 12.5% of working-age adults with disabilities had earned a bachelor's degree

or higher, compared to 30.8% of their non-disabled peers (Erickson & Lee, 2008). These figures are of concern, since a postsecondary education is positively correlated with increased vocational options, financial success, and a rewarding adult life. In fact, for people with disabilities, there is a stronger positive correlation between level of education and rate of employment than there is for the general population (Stodden, 1998; Stodden & Dowrick, 1999).

People with Disabilities and Employment

A significant gap in earnings is apparent between those with disabilities and those without. In a recent survey (Erickson & Lee, 2008) the median annual household income of people with disabilities in the U.S. was \$38,400 in 2007, compared to \$61,000 in households comprised of people without disabilities. Additionally, it was found that only 36.9% of people with disabilities were employed, while 79.7% of people without disabilities had jobs. The poor employment figures for people with disabilities coupled with the positive impact of postsecondary education make increasing their postsecondary success an important goal (National Council on Disability, 2000; Phelps & Hanley-Maxwell, 1997).

Legal Issues

Section 504 of the Rehabilitation Act of 1973 prohibits discrimination against individuals with disabilities in programs and services that receive federal funds. The Americans with Disabilities Act (ADA) of 1990 reinforces and extends the requirements of Section 504 to programs and services, regardless of whether or not they receive federal funds. These laws apply to postsecondary institutions. For qualified students who disclose their disabilities



and present appropriate documentation, postsecondary institutions must provide reasonable accommodations to ensure equal access to program offerings (Frank & Wade, 1993; Heyward, 1998; McCusker, 1995).

The Need For Professional Development

Many factors impact the academic success of students with disabilities. They include physical access, campus support services, and faculty willingness to make accommodations.

Although students often report satisfaction with their accommodations, some students with disabilities have difficulty acquiring accommodations, some course content and activities are inaccessibly designed, and some faculty members project negative attitudes toward them (Burgstahler & Doe, 2006; Durre, Richardson, Smith, Shulman, & Steele, 2008; Hill, 1996). Prejudicial treatment, whether intentional or not, creates obstacles for students with disabilities in higher education that can be more disabling than the physical or cognitive impairments themselves (Fichten, 1995). Faculty members with more knowledge about and experience with students who have disabilities have more positive attitudes about them than those with less experience and knowledge (Fichten, Amsel, Bourdon, & Creti, 1988; Fonosch & Schwab, 1981; Yunker, 1994).

When considering accommodations for students with disabilities, postsecondary faculty are often concerned about maintaining academic integrity (Nelson, Dodd & Smith, 1990). Many support the integration of students with sensory and physical disabilities, but are less supportive

of integrating students with learning disabilities and psychiatric disabilities (Burgstahler & Doe, 2006; Leyser, 1989; Nelson, Dodd, & Smith, 1990). There are also certain accommodations that faculty members are less willing to provide, such as alternative assignments, copies of lecture notes, tape-recorded assignments, and proofreaders (Nelson, et al., 1990). Additionally, the willingness to provide accommodations varies by academic discipline. For example, education faculty have been found to be more willing to accommodate students than business faculty, and business faculty have been found to be more willing to provide accommodations than science faculty (Leyser, Vogel, Wyland & Brulle, 1998; Nelson, et al., 1990).

Some instructors feel uncomfortable talking to students with disabilities. Similarly, students with disabilities are sometimes reluctant to ask for accommodations. They express concern that instructors may have negative attitudes about them, and that they may not respect their privacy regarding their disabilities (Burgstahler & Doe, 2006; National Center on the Study of Postsecondary Educational Supports, 2000).

The Delivery of Professional Development

Overall, despite ever-growing course loads, committee assignments, research responsibilities, and community work, professors are receptive to receiving training in teaching students with disabilities (Norman, Caseau, & Stefanich, 1998).



College administrators also acknowledge the need to provide training for faculty regarding the capabilities and unique needs of students with disabilities (Nelson, et al., 1990). Both faculty and students have expressed the need for faculty development so that instructors can better understand their legal obligation to provide academic accommodations, learn about typical accommodation strategies, improve communication skills, and become aware of available resources (Burgstahler & Doe, 2006; Leyser et al., 1998; Vogel, Leyser, Burgstahler, Sligar, & Zecker, 2006; Vogel, Leyser, Wyland, & Brulle, 1999). Faculty members and administrators report interest in multiple presentation delivery methods including short printed publications, online resources, and short presentations that include case studies or student panels (Burgstahler, 2007b; Burgstahler & Doe, 2006). Including disability-related content in training programs and orientations for teaching assistants (TAs) is also important, since many TAs have primary teaching responsibilities (Burgstahler & Jirikowic, 2002).

Training opportunities regarding accommodating students with learning and psychiatric disabilities are of particular interest to postsecondary faculty (Burgstahler & Doe, 2006; Cafferella & Zinn, 1999; Houck, Asselin, Troutman, & Arrington, 1992; Souma & Casey, 2008; Spencer & Romero, 2008; Vogel et al., 1999).

Implications for Practice

Faculty members, teaching assistants, and administrators need information about legal issues, accommodation strategies, and resources for working with students who have disabilities. Training should be provided in multiple ways to address

differences in schedules, interests, knowledge, experience, and information needs. Short printed publications, Internet-based resources, and both short and extended presentations should be considered. Follow-up support to address specific needs should also be provided.

It is best to tailor professional development sessions to the needs of instructors in specific academic disciplines, giving examples of accommodations that are likely to be provided in each of those fields. Seek to educate instructors in academic disciplines that tend to be less willing to accommodate students with disabilities. Faculty members in academic areas where advancing technology increases opportunities for participation of students with disabilities should also be targeted for training in order to correct faulty assumptions about what students with disabilities can accomplish. For example, faculty members in information technology (IT) fields may not be aware of assistive technology (AT) that allows individuals with a wide range of disabilities to access computers. In addition, instructors of Internet-based learning courses may not be aware of the technical issues and legal obligations to design courses that are accessible to students with disabilities (Burgstahler, 2007a; Patrick, 1996).

Keep in mind that faculty members may feel uncomfortable when working with students who have disabilities. Their attitudes may be based on faulty assumptions and stereotypes. Use faculty training as an opportunity to allow instructors to openly discuss fears and concerns, to dismiss incorrect assumptions and stereotypes, and to provide accurate information. Model an attitude of respect for the rights



and responsibilities of the institution, students with disabilities, and instructors. Avoid generalizations about people with disabilities and highlight similarities instead of differences between students with and without disabilities. Emphasize that academic accommodations do not need to be elaborate; creativity and common sense can lead to practical solutions for access problems. Strategies that apply universal design to instruction should also be shared as they hold promise for increasing the learning of all students, including those with invisible disabilities, those who choose not to disclose their disabilities, and those who have other diverse characteristics with respect to language, culture, age, gender, and learning styles (Burgstahler, 2008b; Higbee, 2008; Rose, Harbour, Johnston, Daley, & Abarbanell, 2008; Scott & McGuire, 2008).

When delivering training to faculty and administrators, assume your audience has varying levels of experience, knowledge, and a wide range of interests represented. Some faculty and administrators are eager to learn about disability-related issues; others are interested in only the minimum amount of information they need to perform their jobs. Leave time to discuss issues of special interest to audience members.

Based on a review of research, DO-IT developed six models of professional development for faculty and administrators that may be adapted for a wide range of schedules and interests. The presentation models include a short overview, a comprehensive workshop, tailor-made workshops on specific topics, self-paced web instruction, and a distance learning course (Burgstahler, 2003). In addition to materials provided in this handbook, information

can be found at a comprehensive website entitled *The Faculty Room* website at <http://www.washington.edu/doi/Faculty/>.

Conclusion

Professional development can help educators more fully include students with disabilities in their courses. Ultimately, increased knowledge and skills of faculty members and administrators regarding legal issues, accommodations, and resources can lead to more positive postsecondary and career outcomes for students with disabilities.

Research Question

What do we know about adult learning that can be applied to the design and delivery of professional development for faculty and administrators regarding equal access of students with disabilities to courses and programs?



Overview of Research

Knowles (1980) used the term “andragogy” instead of “pedagogy” to clarify differences between the curriculum development needs of adults and those of children. He identified the need for adults to be motivated to learn, to be active in the learning process, and to have their past experiences respected in the learning environment (Millis & Cottell, 1998). Much of the current knowledge in this field is based on Knowles’ ideas.

Transformative Learning

When adults participate in learning activities, they bring many years of experience with them. They view new material through the lens of this experience (Baird, Schneier, & Laird, 1983). As adults continue to acquire new knowledge and skills, they must integrate new learning with prior learning. When contradictions or dilemmas result, perceptions based on prior learning must be re-examined. Individuals can choose to reject the contradictory new information or revise their previous views. Transformative learning occurs when positive adjustments to prior learning is made (Pilling-Cormick, 1997; Cranton, 1996).

Self-Directed Learning

Adults often prefer to engage in self-directed learning, where the learner has some control over setting priorities and choosing content, materials, and methods. Self-directed learning can provide a foundation for transformative learning. During the process, individuals use critical thinking to challenge previous assumptions.

The Self-Directed Learning Process Model (Pilling-Cormick, 1997) consists of three components: control factors, interactions

between educator and student, and influences on those interactions. Four factors affect the amount of control participants can exercise in the learning process: social constraints, environmental characteristics, learner characteristics, and educator characteristics. Environmental characteristics include both physical and affective components of teaching and learning situations (Heimlich & Norland, 1994).

In Pilling-Cormick’s model of transformative learning, both the adult learner and the educator influence each other’s interactions. Learners may modify the educator’s facilitation style. Similarly, a presenter who supports self-directedness influences participant perspectives about their own learning (Pilling-Cormick, 1997). An important part of this process, for both the presenter and the participants, is reflection. What do participants want to learn? How will they go about learning it? Why is it important to learn this in the first place? Reflection becomes critical when it leads to the questioning of the validity of the learning itself. The ways in which learners reflect vary depending on the nature of the subject matter and the facilitation strategies used.

One approach to teaching adults in a self-directed format is to address problems together in a collaborative manner, “in which no one need apologize for being uncertain about the material, because uncertainty is understood to be an element of all human knowing” (Roth, Cracolice, Goldstein, & Snyder, 2001, p. 51). In this type of learning environment, the presenter and the participants are open to ideas that will support learning from both mistakes and successes (Schön, 1987).



Relevant Learning

Learning is greatest when it can be applied to situations of interest to the learner and when there is an immediate benefit. If adults see the relevance of the material presented to their own situations, their motivation to learn increases and the instructor will have a more attentive audience. Motivation to learn originates from the adult learner's expectations of the usefulness of the content (Svinicki, 1996). When adults are forced to learn against their own inclinations and desires, the resulting resentment may become a barrier to meaningful learning (Brookfield, 1993). To maximize learning, the instructor must convince the audience that the material presented is important and useful to them.

Active Learning

Adults tend to prefer active learning where instructional experiences are related to their real-life situations (Mezirow, 1981). Retention of information for adult learners can be maximized through activity (Thomas, 1991).

Presentation strategies that can assist in communicating necessary information about academic accommodations and faculty concerns include offering faculty practical strategies and meaningful discussion about disability issues and topics.

Implications for Practice

Some faculty members have had little or no contact with people who have disabilities. Others have taught students with disabilities in their classes. For some, accommodating students with disabilities is consistent with their sense of justice and pedagogical beliefs; for others, providing special accommodations to some students implies unfairness to others. Some faculty

members welcome new ideas; others reject change. Expect that your faculty audience will hold a range of such beliefs and attitudes.

When training is voluntary, you can assume that your audience is motivated. However, if your presentation is mandatory or a part of a program for a group gathered for another purpose, expect that some participants will be reluctant learners.

Consider the following suggestions as you prepare your presentation:

Transformative Learning

Present clear, situation-relevant learning objectives. Avoid abstractions, rhetoric, and theory with little immediate application. Adult learners may be impatient with hearing general information and find little use for isolated facts. Include concrete examples of accommodations, legal requirements, and campus resources.

To promote transformative learning, consider sharing myths or misconceptions related to disabilities and refute them with factual information. For example:

- Students with learning disabilities have a lower than average IQ. (Actually, people with learning disabilities generally have an average or higher than average IQ (LD Online, n.d.).)
- All students with hearing impairments use sign-language interpreters. (Actually, the number of people with hearing impairments who use sign language is not known (Mitchell, Young, Bachelda, & Karchmer, 2006). However, in a small study, it was found that only 26% of people use sign language (Bain, Scott, & Steinberg, 2004).)



- Students who are deaf are good lip or speech readers. (Current research indicates that individuals have varying levels of accuracy in their speechreading abilities whether or not they are deaf (Bernstein, Auer, & Tucker, 2001).)
- People who use wheelchairs cannot drive automobiles. (Actually, hand controls and other assistive technology allow operation of vehicles without using standard foot pedals.)
- Providing academic accommodations is always difficult, time consuming, and expensive. (Actually, most accommodations are simple and inexpensive.)
- Students who are blind read Braille. (According to the National Federation of the Blind, only 10% of individuals who are blind read Braille (National Federation of the Blind, 2009).)
- People who are blind cannot use computers. (Actually, speech and Braille output and output systems provide blind computer users with full access to all content on a screen.)

Address each item in the list, correcting misconceptions and discussing experiences, resources, and procedures on your campus.

Respect audience members' expertise in their fields while at the same time, recognize that they may lack background and experience on the topic you are presenting. When asking and responding to questions in presentations, be careful not to make participants feel wrong or ignorant if they are poorly informed (McLagan, 1978).

Openly acknowledge the difficulties that change can create and the extra time that might be required to accommodate a specific student with a disability. Be sure to balance the description of challenges that result from fully including students with disabilities in classes and programs with the positive outcomes that result from doing so. With a straightforward approach, resistant or defensive audience members are more likely to trust you and the information you present.

Relevant Learning

Make the content relevant to the work of the participants. Postsecondary educators have a wealth of knowledge and multiple responsibilities, all of which draw upon their time and energy. As with most adult learners, postsecondary educators are goal-oriented, generally appreciate outcomes more than process, have set habits and strong feelings, and have little time to waste.

When providing training for faculty and administrators, it is important to be sensitive to the different needs of participants. For example, faculty need information in order to provide academic accommodations in their specific classes. Administrators (e.g., departmental heads, deans) need information in order to make policy decisions. Some participants may have a personal interest in the subject matter or enjoy learning the information simply for the sake of knowledge; many will prefer to receive only information that is relevant to their position.

Tap into the positive motivations of the audience to help them want to learn. Consider why your audience is attending your presentation. If your presentation is part of a regularly scheduled faculty



meeting, a brief introduction delivered by the dean or chair of the department can help emphasize the importance of the material you will present. To determine audience interests, consider making brief phone calls or conducting a survey prior to a presentation to gain information or ask participants to share their interests at the beginning of the presentation. Use the life and work experiences of those in the session to develop examples and to answer questions.

Active Learning

Audience participation can help keep your participants engaged as well as provide opportunities for you to reinforce key points. Ask your audience if they have taught students with disabilities, and encourage participants to share their experiences and concerns. Incorporate information the participants wish to learn into the training section. Allow participants to discuss examples and case studies to explore how the information presented can be applied. Videos or panels of students with disabilities can provide real-life examples to promote discussion; the visual images can help participants assimilate the content.

Approach each presentation with an attitude that everyone can contribute to the learning process. Develop an environment of trust and respect by ensuring the training is a safe place to discuss personal ideas without criticism. Invite faculty members who have worked with students who have disabilities to share their experiences and field questions from the audience. Let participants discuss challenges they currently face, or have faced in the past, and help lead them to solutions.

Conclusion

Keep the key concepts of adult learning theory in mind as you prepare and present professional development programs for faculty members and administrators to make them more effective. Actively engage participants in the learning process, make the content relevant to their jobs, and work to transform inaccurate assumptions into accurate perceptions. Ultimately, increased skills of faculty and administrators can result in more positive academic and career outcomes for students with disabilities.



Research Question

What do we know about learning styles that can guide the delivery and design of professional development for faculty and administrators regarding equal access of students with disabilities to courses and programs?

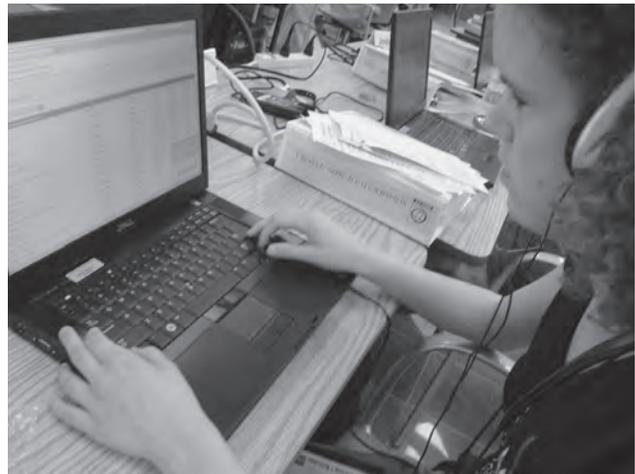
Overview of Research

How learners learn is as important to consider as the content being taught. Learner-centered education strives to make both content and methods appropriate for the learner (Conti, 1998). Although learning is an individual event, it often occurs in a group setting (Felder, 1996). In any group, the presenter can assume that participants have a variety of learning styles. Addressing learning style issues in the delivery of instruction can maximize its effectiveness.

“Learning style” refers to how an individual responds to the learning environment (Claxton & Ralston, 1978; Wooldridge, 1995). Dunn and Griggs (2000) describe learning style as the way an individual begins to concentrate on, process, internalize, and remember new information and skills. They report that learning style is an individual’s reaction to several factors that include the following:

- the environment, such as room temperature or lighting;
- emotions, such as motivation and persistence;
- sociological factors, such as individual or group learning; and
- physiological factors, such as sensory preferences and variable energy levels.

In addition to the learning styles of students, it is important for presenters to be aware of their own learning preferences. An instructor’s style may influence the activities chosen within the learning environment. Students will respond based on their own personal preferences. A mismatch between the learning styles of students and their instructor can interfere with learning and raise the discomfort level of students. Alternatively, when the learning styles of students are similar to those of an instructor, they may exhibit greater achievement and personal satisfaction (Felder, 1996; University of Illinois at Urbana-Champaign Office, Division of Instructional Development, 1998).



Sensory Preferences

Perhaps the most commonly used categories of learning styles are based on sensory preferences. Wooldridge (1995) describes learners with the following preferences.

Auditory Preferences

This category describes those who learn best by listening to verbal instruction such as a lecture, discussion, or recording. Coker (1996) describes this person as “the listener,” preferring to rely on sounds to learn.



Visual Preferences

These learners use vision for their primary perceptual preference and can remember most easily what they read or observe. They can close their eyes to recall what they have read or seen earlier. Ness (1995) includes a separate category of “written word” in which the person has a preference for learning by reading as opposed to actually seeing objects or participating in activities in order to learn.

Tactile Preferences

Learners with tactile perceptual preferences often need to underline as they read, take notes when they listen, or keep their hands busy in other ways. Members of this group may never read the notes they write. Rather, the activity of writing is sufficient for the learning to occur (Ness, 1995).

Kinesthetic Preferences

For these learners, whole body movement and real life experiences are often needed to absorb and retain the material to be learned. They learn best when they are totally involved in an activity.



Experiential Learning

Another popular theoretical framework for learning styles is that of Kolb’s “Experiential Learning” (Claxon & Ralston, 1978; Svinicki & Dixon, 1987). This theory explains how a person develops observations and reflections from a concrete experience. Abstract concepts are then formed which guide new behavior. Within this model, four specific learning styles emerge:

Converger

These learners work best when there is a simple and correct answer to a problem. Their dominant learning abilities are abstract conceptualization and active experimentation. These individuals prefer dealing with things rather than people and tend to excel in the physical sciences and engineering.

Diverger

These individuals learn best through concrete experience and reflective observation. A strength is their imaginative ability. They tend to be people-oriented, react with emotions, and excel in humanities and the liberal arts.

Assimilator

The dominant learning orientations of these people are abstract conceptualization and reflective observation. Abstract conceptualization activities include listening to lectures, writing papers, building models, completing projects, and developing analogies. Reflective observation activities include the use of logs, journals, discussion, brainstorming, thought questions, and rhetorical questions. Assimilators like to organize diverse items into an integrated whole. They are often interested in math and science fields.



Accommodator

Accommodators learn best through concrete experimentation. These activities include practicing in laboratories, collecting observations, reading primary text, participating in simulations and fieldwork, working problem sets, and studying examples and case studies. Accommodators like to have new experiences. They are intuitive and often use the trial-and-error strategy to solve problems. This type of learner often prefers technical or business fields.

Implications for Practice

Successful presenters employ a variety of teaching strategies in response to the diverse set of learning styles found within most groups. They also consider diversity in age, experience, intellect, and background. This is particularly important when teaching new material. Successful instructional techniques include the following (Felder, 1996).

- Teach theory by providing phenomena and problems that relate to the theory.
- Balance conceptual information with concrete information.

- Use a variety of sketches, plots, schematics, computer graphics, and physical demonstrations in addition to oral and written explanations in lectures and handouts.
- Provide plenty of time for reflection and discussion. Provide time for learners to think about the material being presented and organize their thoughts.
- Promote active participation and respond to individual questions. Also encourage faculty participants to use a variety of teaching strategies with their own students in order to address the different learning styles in their classes (Goad, 1997).

Sensory Preferences

Experiment with new techniques and strategies that may not be part of your own style. Some individuals learn better through listening, some through discussing, others through reading or watching, and still others through doing. Engage participants in a variety of learning activities that use multiple senses. Provide key information in multiple ways. Consider using videos, group discussions, mini-lectures, case studies, questions and answers, panels, and role-playing.

Experiential Learning

Experiential learning can be used in your faculty training by developing activities based on the common learning styles of different faculty groups. For example, business instructors may prefer activities designed for the accommodator; history, political science, English, and psychology faculty may be more receptive to activities for the diverger; economics, mathematics, sociology, and science instructors may



find activities for the assimilator to be more effective; and those in engineering may prefer activities associated with the converger.



Conclusion

Create a learner-centered environment in training sessions for faculty and administrators. Expand your teaching style repertoire in order to accommodate all learners and encourage faculty to do the same to support the learning needs of their students. Use multiple instructional methods that engage different senses so that more learners, including those with disabilities, can learn effectively.



Research Question

What do we know about types of learning that can guide the design and delivery of professional development for faculty and administrators regarding equal access of students with disabilities to courses and programs?



Overview of Research

Learning has been categorized in many ways. Three are discussed below.

Bloom's Taxonomy

Psychologist Benjamin Bloom developed a classification scheme for types of learning which includes three overlapping domains: cognitive, psychomotor, and affective. Skills in the cognitive domain, the one most relevant to faculty and administrator training (Lee, 1999), include:

- **knowledge** (remembering information);
- **comprehension** (explaining the meaning of information);
- **application** (using abstractions in concrete situations);
- **analysis** (breaking down a whole into component parts); and

- **synthesis** (putting parts together to form a new and integrated whole).

For example, knowing that the ADA was passed in 1990 is knowledge. Explaining what the law means is comprehension. Application is illustrated when someone knows how the law applies to higher education. Analysis is required to discuss the details of specific legal applications. Finally, synthesis is needed to develop policies and procedures for a postsecondary institution in response to the ADA.

Tennant's A.S.K.

Professor Mark Tennant (1995) categorized types of learning in a different way. The acronym A.S.K., developed by Tennant, represents the three types of learning that occur in training:

- A** represents "attitude," also known as affective learning. An example of this type of learning is a shift in attitude toward the academic abilities of students with disabilities.
- S** represents "skills," often called psychomotor or manual learning. Learning to operate adaptive technology is an example of the development of skills.
- K** represents "knowledge." Cognitive learning is the formal term used for mental skills such as recall of information. An example of knowledge is information on available resources related to disability issues.



Gardner's Seven Knowledge Types

Howard Gardner (1983, 1999) developed a theory of multiple intelligences based upon research in the biological sciences, logistical analysis, and psychology. He breaks down knowledge into seven types:

1. **Logical-mathematical intelligence:** the ability to detect patterns, think logically, reason and analyze, and compute mathematical equations (e.g., chemists, economists, engineers).
2. **Linguistic intelligence:** the mastery of oral and written language in self-expression and memory (e.g., journalists, lawyers, politicians).
3. **Spatial intelligence:** the ability to recognize and manipulate patterns (large or small) in spatial relationships (e.g., architects, pilots, sculptors).
4. **Musical intelligence:** the ability to recognize and compose musical quality (pitches, tones), and content (rhythms, patterns) for production and performance (e.g., composers, conductors, musicians).
5. **Kinesthetic intelligence:** the ability to use the body, or parts of the body to create products or solve problems (e.g. athletes, dancers, surgeons).
6. **Interpersonal intelligence:** the ability to recognize another's intentions, and feelings (e.g., managers, sales people, social workers).
7. **Intrapersonal intelligence:** the ability to understand oneself and use the information to self-manage (e.g., entrepreneurs, psychologists).

Gardner's theory purports that people use these types of intelligence according to the type of learning that is necessary, their personal strengths and abilities, and the environment in which the learning takes place.

Since different teaching strategies are best applied to certain types of learning, using a wide variety of activities when teaching new material will maximize learning for everyone (Felder, 1996).



Implications for Practice

Carefully consider the context of the participants in the audience of your presentation. What knowledge do they need to perform their job more effectively? What skills need to be developed? How can you help participants synthesize critical content in order to develop appropriate institutional policies? How can you help them develop strategies for accommodating specific students with disabilities in specific activities? How can you model and promote a positive attitude about disability-related accommodations?

Often, learning occurs during periods of confusion, frustration, and struggle. For this reason, risk-taking on the part of the



facilitator and the participants is necessary. Sharing personal experiences, posing questions, and presenting case studies can promote learning. In order to engage participants in critical thinking and facilitate problem-solving, consider the following suggestions (Brookfield, 1993):

- Value and respect participants through word and action.
- Listen attentively and provide support for efforts.
- Identify and challenge assumptions.
- Reflect back attitudes, rationalizations, and habitual behaviors.
- Imagine and explore alternatives.
- Practice reflective skepticism.
- Model critical thinking through clarity, consistency, openness, and accessibility.
- Teach theory by detailing phenomena and practical problems related to the theory.
- Balance conceptual with concrete information.
- Use a variety of sketches, plots, schematics, computer graphics, and physical demonstrations in addition to oral and written explanations in lectures and handouts.
- Provide time for participants to reflect upon the material being presented.
- Encourage active participation.

Vary your presentation methods and individualize your strategies. Address the three types of learning—attitude, skills, and knowledge. To address attitudes toward students with disabilities, consider having a panel of successful college students and graduates with disabilities share their experiences. To address skills, you could have participants role-play lectures using a sign-language interpreter while facing the audience.

Lastly, encourage use of different intelligences. Knowledge can be gained when information is given through multiple means including lectures, handouts, videos, analyzing case studies, sharing of personal experiences, and discussion. Logical-mathematical and linguistic intelligences are heavily used in traditional academic settings and responsible for high scores in academic achievement tests. It is reasonable to expect faculty and administrators to heavily rely upon these types of intelligence.





Conclusion

Participants will use multiple types of learning processes during your presentation. When you use different modes of presentation (e.g., lecture, case study analysis, role playing, and discussion) and encourage active participation, you will more effectively facilitate optimal learning.



Research Question

What do we know about universal design (UD) of instruction that can guide the design and delivery of professional development for faculty and administrators regarding the equal access of students with disabilities to their courses and programs?

Overview of Research

Universal design is defined by the Center for Universal Design (CUD) at North Carolina State University as “the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design” (Center for Universal Design, 1997). The field of UD can provide a framework for developing instruction to maximize the learning of all students, including students with a variety of abilities and disabilities, cultures, learning styles, and ages (Bowe, 2000). Faculty members can apply this body of knowledge to create courses in which lectures, discussions, visual aids, videos, printed materials, information technology, science labs, and fieldwork are accessible to all students (Burgstahler, 2008b). Those presenting professional development

Table 1.1 Applications of the Seven Principles of Universal Design of Instruction

<i>UD Principle</i>	<i>Example of How UD Might Be Applied to Instruction</i>
<i>Equitable use.</i> The design is useful and marketable to people with diverse abilities.	A professor’s website is designed so that is accessible to everyone, including students who are blind and use text-to speech software.
<i>Flexibility in use.</i> The design accommodates a wide range of individual preferences and abilities.	A museum, visited as a field trip for a course, allows each student to choose to read or listen to a description of the contents of display cases.
<i>Simple and intuitive.</i> Use of the design is easy to understand regardless of the user’s experience, knowledge, language skills, or current concentration level.	Control buttons on science equipment are labeled with text and symbols that are simple and intuitive to understand.
<i>Perceptible information.</i> The design communicates necessary information effectively to the user regardless of ambient conditions or the user’s sensory abilities.	A video presentation projected in a course includes captions.
<i>Tolerance for error.</i> The design minimizes hazards and the adverse consequences of accidental or unintended actions.	Educational software provides guidance and/or background information when the student makes an inappropriate response.
<i>Low physical effort.</i> The design can be used efficiently and comfortably and with a minimum of fatigue.	Doors to a lecture hall open automatically for people with a wide variety of physical characteristics.
<i>Size and space for approach and use.</i> Appropriate size and space is provided for approach, reach, manipulation, and use regardless of the user’s body size, posture, or mobility (The Center for Universal Design, 1997).	A flexible science lab work area has adequate workspace for students who are left- and right-handed and for those who need to work from a standing or seated position (Burgstahler, 2008b, p. 27).



Table 1.2 DO-IT Universal Design of Instruction Guidelines and Examples

<i>UDI Guideline</i>	<i>Examples of UDI Practice</i>
<i>Class climate.</i> Adopt practices that reflect high values with respect to both diversity and inclusiveness.	<i>Avoid stereotyping.</i> Offer instruction and support based on student performance and requests, not simply on assumptions that members of certain groups (e.g., students with certain types of disabilities or from a specific racial/ethnic group) will automatically do well or poorly or require certain types of assistance.
<i>Interaction.</i> Encourage regular and effective interactions between students and the instructor and ensure that communication methods are accessible to all participants.	<i>Promote effective communication.</i> Employ interactive teaching techniques. Face the class, speak clearly, use a microphone if your voice does not project adequately for all students, and make eye contact with students. Consider requiring a meeting with each student. Supplement in-person contact with online communication. Use straightforward language; avoid unnecessary jargon and complexity; and use student names in electronic, written, and in-person communications.
<i>Physical environments/products.</i> Ensure that facilities, activities, materials, and equipment are physically accessible and usable by all students, and that all potential student characteristics are addressed in safety considerations.	<i>Arrange instructional spaces to maximize inclusion and comfort.</i> Arrange seating and encourage participation, giving each student a clear line of sight to the instructor and visual aids and allowing room for wheelchairs, personal assistants, sign language interpreters, captionists, and assistive technology. Minimize distractions for students with a range of attention abilities (e.g., put small groups in quiet work areas). Work within constraints to make the environment as inclusive as possible. Encourage administrators to apply UD principles in facility design and renovation.
<i>Delivery methods.</i> Use multiple, accessible instructional methods that are accessible to all learners.	<i>Provide cognitive supports.</i> Summarize major points, give background/contextual information, deliver effective prompting, provide scaffolding tools (e.g., outlines, class notes, summaries, study guides, and copies of projected materials with room for notes), and other cognitive supports. Deliver these materials in printed form and in a text-based electronic format. Provide opportunities for gaining further background information, vocabulary, and different levels of practice with variable levels of support. Encourage and support students to develop their own scaffolding materials.



Table 1.2 (cont.) DO-IT Universal Design of Instruction Guidelines and Examples

<i>UDI Guideline</i>	<i>Examples of UDI Practice</i>
<i>Information resources/technology.</i> Ensure that course materials, notes, and other information resources are engaging, flexible, and accessible for all students.	<i>Select materials early.</i> Choose printed materials and prepare a syllabus early to allow students the option of beginning to read materials and work on assignments before the course begins. Allow adequate time to arrange for alternate formats, such as books in audio format or in Braille (which, for textbooks, can take longer than a month).
<i>Feedback.</i> Provide specific feedback on a regular basis.	<i>Provide regular feedback and corrective opportunities.</i> Allow students to turn in parts of large projects for feedback before the final project is due. Give students resubmission options to correct errors in assignments and exams. Arrange for peer feedback when appropriate.
<i>Assessment.</i> Regularly assess student progress using multiple, accessible methods and tools, and adjust instruction accordingly.	<i>Set clear expectations.</i> Keep academic standards consistent for all students, including those who require accommodations. Provide a syllabus with clear statements of course expectations, assignment descriptions, deadlines, and expectations, as well as assessment methods and dates. Include a straightforward grading rubric.
<i>Accommodation.</i> Plan for accommodations for students whose needs are not met by the instructional design.	<i>Know how to arrange for accommodations.</i> Know campus protocols for getting materials in alternate formats, rescheduling classroom locations, and arranging for other accommodations for students with disabilities. Make sure that assistive technology can be made available in a computer or science lab in a timely manner. Ensure that the course experience is equivalent for students with accommodations and those without (Burgstahler, 2008b, p. 34).



programs can apply UD principles to their teaching to maximize the learning of participants and to model universal design principles that participants can apply in their own instruction.

The UD principles developed by the CUD provide guidance in the design of products and environments (Connell, Jones, Mace, Mueller, Mullick, Ostroff, et. al., 1997). Each UD principle listed is followed by an example of its application to instruction (Table 1.1) (Burgstahler, 2008b, p. 27).

When UD principles are applied to teaching, an inclusive and equitable learning environment is created. UD design concepts can be used to aid in selecting and developing curricula, choosing and implementing teaching methods, and developing assessments. UD of instruction can increase content accessibility for most students and minimize the need for specific accommodations (Burgstahler, 2008b; Durre, Richardson, Smith, Shulman, & Steele, 2008; Higbee, 2008; Scott & McGuire, 2008; Thurlow, Johnstone, & Ketterlin-Geller, 2008).

Of particular application to technology-based learning environments, the term universal design for learning (UDL) has been used to describe a research-based instructional framework using technology to maximize the learning of all students (Rose & Meyer, 2002; Rose, Harbour, Johnston, Daley, & Abarbanell, 2008). The three principles of UDL are multiple means of representation, expression, and engagement.

Implications for Practice

Universal design principles can apply directly to lectures, classroom discussions, group work, handouts, web-based

instruction, labs, fieldwork, and other academic activities. Consider the examples in Table 1.2 that faculty may apply to curricula (Burgstahler, 2008b, p. 34).

When creating a presentation for faculty and administrators, UD principles can be employed to make it an inclusive learning environment. Make the content simple, easy to understand, and easy to apply. Participants in your presentation should leave with a clear idea of what they need to do and where they can go for help. Make your presentation flexible; be willing to adjust to the needs and interests of your participants. Customize your training options for specific audiences. Provide alternatives such as short and long presentations, interactive Internet-based instruction, printed materials, and web-based resources.

Use videos with captioning. Demonstrate how visual presentation content can be described so it is accessible to people who cannot see. Show alternative ways to operate a computer or access a website (e.g., speech input, speech output, alternative input devices).

Conclusion

Applying UD principles in your presentation not only meets the accessibility needs of those attending, but also models for postsecondary faculty how accessible teaching can be delivered. UD of instruction maximizes the learning of all students and minimizes the need to provide individual accommodations for students with disabilities.



Research Questions

- What do we know about systemic change that can guide the design and implementation of professional development for faculty and administrators regarding the equal access for students with disabilities in their courses and programs?
- What do we know about sustaining faculty and administrator development activities for supporting students with disabilities?

Overview of Research

It has been said that you cannot change one thing without changing the whole thing (Price Waterhouse Change Integration Team, 1995). If you redesign processes or change requirements on a college campus, you can expect that you will also need to change job descriptions, systems, and technologies and then train people to support them.

The participation of students with diverse abilities and disabilities in colleges and universities has inspired institutions to change some of their traditional structures and procedures. Postsecondary institutional experiences in promoting diversity related to gender, ethnicity, race, and socioeconomic status have taught us that change does not occur quickly or without conflict. Creating a more inclusive environment for students with disabilities often requires system-wide, sustainable change. Successful change efforts are more often gradual than radical.

Although there is typically resistance to change, change is central to college and university cultures (Andresen, 1991). New laws, demographics, technologies, and educational theories and goals are part of their realities (Englert & Tarrant, 1995).

Competing theories about systemic change abound. However, success in implementing change is often more related to a specific context than to a general theory (Wilson, 1992). “The argument has been largely against skill-based approaches, ready-made models of good organizational practice, and reliance upon analyzing change as primarily the outcome-oriented pursuit of great and charismatic individuals. The arguments have, rather, favored the potency of organizational structures, of economic determinism, and of institutionalization within which the manager must operate” (Wilson, 1992, p. 122).

Change can be viewed from three perspectives: the reason for change, the process of change, and the content of change (Levy & Merry, 1986). First we will consider the reasons for change and then the process of change.

External and Internal Forces

Postsecondary institutions experience pressure to change from both external and internal sources (Yee & Los Angeles ERIC Clearinghouse for Community Colleges, 1998). As change in the external environment accelerates, institutions must respond to these changes in order to thrive (Kozeracki, 1998). For example, one of the external factors promoting change is the worldwide transformation of the economy from a production-based system to a knowledge- and information-based system. The development of new technologies has caused faculty to re-examine the content and delivery of instruction (Travis, 1995). The incorporation of new computer electronic and information technologies over recent years provides an example of how rapidly new products and behaviors can be



assimilated into campus life. Not long ago, cell phones, fax machines, and email were considered futuristic. Today they are a part of everyday life.

Technology creates opportunities for students with disabilities to access education in innovative ways. For example, students who are blind and use speech output systems can participate in online education courses as long as these courses are designed so that they are accessible. Online courses may also provide access to students who cannot take courses because of schedule conflicts or geographic location.

Terry O'Banion (1997), president emeritus and senior fellow of the League for Innovation in the Community College, proposed that an improved "learning college" may build its foundation on technology because technology is "ism-free" (e.g., racism, sexism, ageism). Some faculty members welcome these changes; some resist. Nevertheless, technology plays a significant role in systemic change.



Legislative and funding issues can also force institutions to change. For example, Section 504 of the Rehabilitation Act, the ADA, and state legislation require that institutions provide reasonable accommodations for qualified students with disabilities in programs and services. Due in part to such legislation, increasing numbers of students with disabilities are gaining access to programs, placing further pressure on institutions to become more inclusive.

Differences in the economy, government relations, and the demographics of the student body (e.g., more immigrants, high school dropouts, returning and displaced workers, welfare participants, and workers in need of skill upgrading) require responses from postsecondary institutions (Levin, 1998). Today's student body is diverse with respect to age, gender, ethnic and racial background, disability, and part-time student status (Yee & Los Angeles ERIC Clearinghouse for Community Colleges, 1998). Changing populations call for increased multicultural awareness (Harris & Kayes, 1995; Rendón & Hope, 1996). Stereotyping, social isolation, and alienation are experienced by women, students with disabilities, and adult learners as well as by students of ethnic diversity (Smith, 1989). Over 11% of people in postsecondary programs have an identified disability (U.S. Department of Education, 2006). The cumulative result is a demand for institutions to create more inclusive learning environments that are socially and culturally responsive. The way "tech-prep" and school-to-work movements have stimulated faculty to collaborate with high school staff and to incorporate more career-related skill-building into the curricula provides an example of how systemic change can occur as a result of external forces (Latham, 1995).



Forces internal to the institution can also promote or inhibit change. Academic values and attitudes about diversity can motivate faculty members and administrators to advocate for educational equity. Seeing students with disabilities as a minority group with civil rights to education instead of as a needy population deserving of charity has dramatically changed the service provision for students with disabilities in recent years (Oliver & Barnes, 1998; Shapiro, 1993). Diverse perspectives within organizations promotes sensitivity to pluralism.

Process of Change

A growing body of research reflects the importance of student involvement in an institution's change process. Over an extended period of time, students can help identify and prioritize problems and suggest potential solutions.

Frank and Rocks' (1996) model for effective transition and change involves conceptualization of the change parts, active reflection, and commitment. It requires engagement of leadership personnel and management of the systems undergoing change.

Institutions that are successful in integrating diverse groups of students tend to

- focus on student success and provide tools for success,
- enhance coordination and articulation with other educational levels,
- dedicate resources to fostering acceptance,
- have access to good information on the institution and students, and
- have leaders in the faculty and administration who provide direction for these efforts.

Some postsecondary educators have responded to student diversity by modifying the organizational culture, infusing multicultural education into the curriculum, reflecting a diversity in values and norms in organizational policies and practices, and creating campus-wide action committees (Guy, Reiff, & Oliver, 1998; Harris & Kayes, 1995; Levy & Merry, 1986).

However, a fundamental and continuing conflict exists between diversity and quality in postsecondary education. Faculty may need to reform their understanding of academic quality and then modify standards, performance criteria, and assessment tools (Smith, 1989). Infusing multicultural education at an organizational level requires simultaneous changes in the organization's values and culture (Guy, et al., 1998). Strategies include the following:

- Build a powerful case for change. Assume that people are not prepared for change and convince them, using consensus building and education, that change is both appropriate and needed. Practical and immediate action steps are most helpful to share in training sessions.
- Let the customer drive change. In postsecondary institutions, customers include both the students with disabilities attending programs and the faculty and staff delivering and supporting them.



Keep in mind that faculty members may be more open to new ideas when they are actively involved in the process (Kuveke, 1996). College faculty and staff at one school, which had clear and open communication as the basis of its change process, effectively implemented change. “Inherent was a mutual respect for the other’s background and talents, plus a genuine perception of their equality” (Hord, 1986, p. 22).

Faculty and administrators can benefit from keeping four questions in mind when starting change efforts (Bruce & Wyman, 1998):

- Who are the people involved in the change?
- What are the organization’s abilities and resources?
- What is the climate for change?
- What are the mandates/ objectives of the organization?

In order for systemic change to take place, there must be adequate motivation from the institution as well as a supportive social and cultural climate. Although faculty may be motivated to learn new skills and knowledge that will enhance student learning, a competing motivation may be to maintain their existing standards and methods of teaching. They need practical examples of the benefits of change. Sometimes it is effective to apply the power of peer example by sharing the experiences of other faculty (Svinicki, 1996).

Supporting the process of change involves providing student and staff development opportunities and ensuring that policies support access to all postsecondary education programs and coursework for all qualified students. The content of professional development should include examples of academic accommodations for students with disabilities, legal issues, and campus resources. Emphasis should be placed on the importance of student involvement in the process and the relationship between the student and his or her instructors (Levy & Merry, 1986).

Change efforts should be multi-dimensional and system-wide. Transformation of the institution into a system that supports diversity means addressing a number of issues including faculty and staff diversity; institutional mission and values; diversity education; the quality of interaction between students, faculty, and the administration; and the perceived conflict between quality and diversity (Townsend & Twombly, 1998). Institutional changes should be reflected in policies, procedures, and job assignments to ensure that if one person leaves a position, the program of change will not collapse.

Promoters and Inhibitors of Change

Specific conditions on a postsecondary campus can serve to promote or inhibit change toward a more inclusive environment for students with disabilities. Factors include those related to

- legislation
- awareness
- attitudes
- diversity efforts



- change
- cost
- market forces
(Burgstahler, 2008a)

General project management principles can be applied in systematically employing practices to increase the academic success of students with disabilities (Jenner, 2008). Collaborative relationships among all stakeholder groups are keys to success (Finn, Getzel, Asselin, & Reilly, 2008). Besides the institution itself, industry, professional organizations, researchers, consumers, and government can each play a role in promoting UD on a college or university campus. The ultimate goal is to make educational offerings welcoming, accessible, and usable for all students.

Implications for Practice

To make improvements in teaching students with disabilities on a postsecondary campus, provide faculty and administrator professional development, ensure that students are aware of resources, and develop adequate systems for students with disabilities and staff to access resources. The content of professional development should include information about accommodations, rights and responsibilities, and campus resources.

When implementing systemic change, make efforts to consider the capabilities and limits of the institution and educators. Encourage gradual, sustained changes that involve all parties and resources in the change process. For instance, annual departmental mini-in-services, new faculty and TA orientations, and mailings regarding universal design of instruction and accommodations for

students with disabilities will support systemic change more so than a large, one-time event.

Give students and faculty members an active role in designing and implementing changes, since they have vested interests in the outcomes. Encourage reflective and solution-oriented communication. Solicit collaborative input from all stakeholders regarding materials, decisions, and publicity. Lasting improvements are more likely to occur when those who have a stake in the change are instrumental in making the changes.



Conclusion

In postsecondary institutions, long-lasting positive changes require systemic (institutional) change rather than isolated actions of individuals. Collaborative efforts of faculty, administrators, staff, and students should work toward the goal of educational equity.



Building the Team



A literature review was conducted to guide the selection of content and presentation modes for professional development for postsecondary faculty and administrators. The following paragraphs describe how research and theory can be applied as you implement a training program on your campus.

Professional Development: Need, Content, and Methods

People with disabilities are less successful in college and careers than their non-disabled peers. Faculty members play a key role in the success of all of their students yet have little knowledge regarding the inclusion of students with disabilities in their courses. They need to know more about legal issues, accommodation strategies, and resources. They have a special interest in learning to work with students who have learning and psychiatric disabilities. Their demanding schedules and diversity in interests and needs for information suggest that multiple modes of delivery should be offered, including short on-site presentations, programs tailored to specific audiences, short publications, and web-based resources.

Adult Learning

Faculty and administrators have a wealth of knowledge and experiences in their fields, but they may have little knowledge about the academic needs of students with disabilities. Additionally, they may have misconceptions about the students' abilities. Approaches that can maximize faculty and administrators' motivation to learn and the likelihood that learning will be retained, include inviting them to share their experiences, to participate in learning activities, to self-direct their learning, and to discuss relevant cases.

Learning Styles

Most individuals have preferred styles of learning that relate to how they receive, process, and integrate information. Some individuals learn better through listening, some through reading or watching, and still others by doing. A commonly used classification of learning styles is auditory, visual, tactile, and kinesthetic. Styles of learning may also be characterized by how individuals best learn from experiences—they're either convergers, divergers, assimilators, or accommodators. In order to support all learning styles, presenters must use a variety of teaching strategies, verbal discussion, visuals, demonstration, and active experiences. Incorporating case studies and practical real-life situations for problem-solving can address all learning styles and promote optimal learning.

Types of Learning

Domains of learning include cognitive, psychomotor, and affective. In the cognitive domain, skills include knowledge, comprehension, application, analysis, and synthesis of information. Learning may also be viewed within the categories of knowledge and skill. Types of intelligence can be classified as logical-mathematical, linguistic, spatial, musical, kinesthetic, interpersonal, and intrapersonal. Since different teaching techniques are best used for different types of learning, analyze the learning that you want to occur and select an appropriate strategy to engage all learners. Consider the participants' existing attitudes, knowledge, and skills, and how they can best acquire the knowledge and skill to do their job more effectively. Vary presentation methods and individualize strategies to meet a variety of learning needs.



Universal Design of Instruction

Consider the wide variety of characteristics of presentation participants. They may vary in race, ethnicity, gender, socio-economic status, academic specialty, native language, and abilities and disabilities. To maximize the learning of all participants, respect diversity; ensure physical access for all people; and use a variety of delivery methods, such as lecture, small and large group discussion, case study, hands-on activities, web-based interaction, labs, and fieldwork; provide full access to information by using captioned videos, printed materials in electronic format, and accessible online information; offer effective and prompt feedback; and allow multiple means for participants to demonstrate competency. Modeling UD approaches as you train faculty and administrators will encourage them to incorporate this approach in their own teaching. Universal design of instruction maximizes the learning of all students, and reduces the need for individual accommodations.

Systemic Change

Both internal and external forces may pressure postsecondary institutions to be more inclusive of students with disabilities. External forces of change include a global, technological, and information-based economy; legislation; and societal pressure toward a pluralistic society with equity for underrepresented groups. Internal forces include pressure from students with diverse characteristics (e.g., age, gender, ethnicity, culture, disability, part-time status) and faculty who seek a more inclusive environment. Systemic change occurs when change is transformational and long lasting. This type of change occurs not with one, or even a few individuals, but reflects the entire organization or system.

Transformational change is more likely to occur when a powerful case is made for change, there is high-level support, and all stakeholders are involved in the decision-making process. To create a campus environment that provides equal educational opportunities for all students, including those with disabilities, it is important that administrators develop policies and procedures in collaboration with faculty, student service providers, and students with disabilities.



This section shares strategies for implementing faculty and administrator training for the purpose of creating academic programs and services that are accessible to all students. Ideas for promoting systemic change, as well as how to measure change and impact, are included.

Introduction

Creating a climate that fosters equal access for students with disabilities may require systemic change on your campus. How to best institutionalize change depends on the characteristics of your school. Consider the size of the organization, programs offered, resources available, administrative structure, current availability of training and support for faculty and administrators, and mechanisms to monitor compliance. Review the policies in place that pertain to accessibility and how well they are articulated and enforced.

As you work toward making your campus more accessible, regularly remind yourself of the importance of your work. Human rights and quality of life issues are at stake. Your efforts can result in greater academic and career success for the students you serve, even if changes are small and slow in coming. Keep your ultimate goal in mind and persist in reaching it.

No single solution will apply to all campuses. However, you can learn from the experiences of others. Included in this section are general guidelines, promising practices, and successful experiences from two- and four-year postsecondary institutions nationwide. This advice is given by faculty and staff from institutions of higher education who were part of the *DO-IT Prof* team. The strategies

are organized into eight areas: needs assessment, teamwork, administrative support, professional development, training, promotion, networking, and evaluation. For details about a specific example, contact the appropriate team member listed in the “About the Contributors” section at the beginning of this notebook.

Needs Assessment

Conduct a needs assessment. Administer surveys and/or conduct focus groups with students, administrators, and faculty members to determine problems and identify solutions regarding equal access to campus programs. A needs assessment can help you share knowledge, prioritize issues, develop goals, and brainstorm strategies. Faculty members can share their experiences and needs for resources and training. Administrators can provide insight into current policies and possible barriers to implementing change. Students can share their personal experiences and observations regarding gaps in support on your campus.

Following are examples of needs assessments conducted by institutions across the country.

Example: Focus Groups

Through the *DO-IT Prof*, *DO-IT Admin*, and *AccessCollege* projects, focus groups of faculty members, teaching assistants, staff members, and students with disabilities were conducted on campuses around the country. Focus groups with faculty and staff examined their experiences working with students with disabilities, their knowledge and level of satisfaction with campus services, and their ideas about effective professional development methods and content. Students shared their experiences



on campus and made recommendations for the delivery of professional development to faculty (Burgstahler & Doe, 2002). Focus group results guided the creation of the content and format of the professional development materials described in this publication and available in *The Faculty Room* at <http://www.washington.edu/doi/Faculty/>.

Example: Focus Groups

Some campuses conducted focus groups with students without disabilities to gain insights into how the academic climate can be more inclusive of all students, including those with disabilities.

Example: Survey of Staff

The University of Kentucky conducted an online survey of university academic administrators, instructors, and auxiliary service personnel to assess activities, practices, and resources.

Example: Survey of Faculty

Some campuses designed their professional development program after determining faculty knowledge and interests through a campus-wide survey.

Example: Meetings

Some disability support staff met with groups of faculty, administrators, and/or students from a specific department to learn about needs, experiences, and problems unique to that department. In order to solicit the most honest responses, the three groups—faculty, administrators, and students with disabilities—met separately. Actions were taken in response to the needs identified.

Example: Response to Needs Identified by Students

At the University of Minnesota–Duluth (UMD) students found that the only accessible path to a music classroom and practice hall located on the basement level required the use of a freight elevator. The pathway to the classroom also required going through a performance theater, a dark hallway to the elevator, storage space, and another poorly lit area. With cooperation from the theater department, the storage space was cleared, and a path through the area was created. Working with facilities management, the lighting and door pulls were improved. Staff of the music department instituted a practice to walk the accessible path to class each day to ensure that lights were on and pathways unblocked. While these temporary measures were instituted, students sought and received approval from the chancellor to fund a passenger elevator that made the entire building more accessible.

Teamwork

Know your organization and stakeholders. Who are the leaders and policy makers on your campus? Who are other stakeholders? How can stakeholders become involved in activities and/or in advisory capacities? Who is (or should be) involved in the stages of planning disability-related awareness activities, training, support, policy and procedure development, implementation, compliance, and evaluation? How does policy get formed? Where does funding come from; who decides what it is used for? What are the barriers to change? Who promotes change? Who implements change?

Include all stakeholders in developing campus and departmental action plans for improving the instructional climate and



accessibility for students with disabilities. Consider the following as potential stakeholders on your campus when it comes to making facilities, programs, and services accessible to students with disabilities:

- students
- faculty
- administrators
- academic departments
- administrative units

It is easier to garner resources, face opposition, and maintain your enthusiasm and direction as part of a group. Look for allies everywhere. Some may be found in these places:

- ADA compliance offices
- community and governmental service providers
- computing services
- disability services office
- disability services offices on nearby campuses
- disabled student organizations
- equity and diversity committees
- faculty and staff development or training centers
- physical plant or facilities units
- teaching assistant organizations

Organize yourselves into a team. Put together a committee to design and implement professional development for faculty and administrators that will result in a more inclusive campus. Not only is there strength in numbers, but more partners and coalitions result in more ideas and more resources to implement plans. Work together as a team to consider and tailor the suggestions in this handbook to the unique needs of your campus.

Example: ADA Task Force

When the ADA was passed, UMD developed an ADA Task Force to ensure compliance. The Access Center (which provides disability-related services) worked with the chancellor to identify a core group of people to assess the needs of the campus. When the initial assessment of the ADA Task Force was complete, the value of supporting ongoing assessment and recommendations was recognized by both staff and students. Task force members now represent all units on campus from collegiate units and facilities management to students, IT, and housing. Representatives are appointed by heads of departments. Access center staff are ex-officio members. The task force continues to identify and resolve access issues on campus.

Administrative Support

Garner support from faculty, departments, and service units campus-wide; create linkages and collaborations. Ensure that campus recruiters, admissions staff, financial aid, personnel, staff associations, academic counselors, computer labs, and other campus units are knowledgeable about campus resources available to faculty and to students with disabilities. Let student support units and student organizations know of services. Suggest ways they



can contribute to your efforts. Ask to be included on regular meeting agendas. Inform these groups about legal issues, accommodation strategies, and campus resources. Meet with departmental and campus administrators to elicit suggestions regarding how to best reach tenured faculty, new faculty, TAs, and part-time instructors.

Gain the attention and support of the administration. Let key administrators know about campus needs and your efforts and accomplishments. Encourage the administration to distribute written notices across campus that describe the policies, guidelines, and practices that enhance access and the education of students with disabilities.

Example: Evaluating Policies and Procedures

Southwest Missouri State University (SMSU) disability services carefully evaluated their system-wide policies and procedures regarding disability and discovered many inconsistencies. They began the process of working with student affairs, academic affairs, administrative services, and the president to streamline the university policies on disability. From these discussions, a few significant things happened:

- They gained tremendous support from upper administration for the disability support program. Once many of these individuals saw the positive impact and student numbers, they were open to looking at training programs and additional supports for faculty and staff.

- They rewrote their statement of commitment to students with disabilities and to diversity as a whole. Once again, this forced administrators to revisit related issues.
- Campus catalogs, departmental statements, and other campus publications were modified to include the new statement of commitment to students with disabilities.



Example: Web Publishing Policy

The University of Wisconsin–Madison (UW–Madison) developed a policy governing web accessibility (<http://www.wisc.edu/wiscinfo/policy/wwwap.html>). The purpose of the UW–Madison policy is to ensure that individuals with disabilities have access to the increasing amount of web-based material originating on campus. As part of the strategy to implement the policy, informative letters were sent to all faculty and staff by the vice chancellor for Legal and Executive Affairs and the university’s Americans with Disabilities Act coordinator.



Example: Funding and Cooperation

At UMD, the director of Information Technology Systems and Services (ITSS) sets aside a portion of the budget to ensure that computers and computer labs are accessible to students with disabilities. One staff person from the Access Center works with a representative from ITSS to plan for and purchase necessary adaptive software and hardware based on student needs. The director has found that much of the accessible software and hardware is beneficial to other students on campus. Screen enlargement software, for example, has helped many students avoid eye strain when working on computers. Following the model set up by ITSS, other departments are working with the Access Center to project funding requirements to ensure accessibility.

Example: Securing Campus Support

Some campuses use the process of developing a campus policy and/or drafting materials to be distributed as a strategy for working with administrators without scaring them away by stressing meeting attendance.

Example: Departmental Support

The UW–Madison formed a partnership with Macromedia to develop accessible multimedia, specifically Flash. Several department representatives collaborated in this project, which they will ultimately showcase nationwide through the New Media Center Consortia. The university group, E-curb Cuts, has identified training needs for web developers to retrofit inaccessible webpages. The training was piloted with web developers who support instructional webpages. It is available for campus computer support staff using a train-the-trainer model. The trained support staff train others within their colleges, schools, and departments.

Example: Policy Development

The Educational Policy Committee (EPC) at UMD was established by the chancellor to set academic policy. As one of their accomplishments, they developed a policy that listed the essential components for all syllabi on campus. The Access Center worked with the EPC to include a statement in the policy regarding academic accommodations for students with disabilities.

Example: Sharing Accomplishments with Administrators

The *DO-IT Prof* project director drafted a letter that was tailored to specific campuses and mailed to key administrators selected by team members. The letter emphasized that their selection as a member of the *DO-IT Prof* team recognized their knowledge, experience, mission, accomplishments, and motivation to address the issue of helping faculty more fully include students with disabilities in their classes. The importance of the project was also emphasized. Several administrators who received letters contacted the *DO-IT Prof* team member on their campuses with supportive comments such as:

“Congratulations on being chosen as a member of the *DO-IT Prof* team sponsored by the folks at UW Seattle. Great to be included! As this moves further along, please see that you get on the cabinet agenda to update the cabinet on what the program is up to and our contributions to it. As you know, the chancellor signed the letter to the President (of the United States) indicating that UW–Madison was supportive of his initiatives to provide more accessibility—and that as a university we did work in that direction. This is another way that we can demonstrate that work. Thanks.”



Example: Campus Support

On some campuses, written notices are distributed yearly through the president's or provost's office. These notices describe the institution's commitment to diversity, including the full inclusion of students with disabilities in all programs and services. Opportunities for faculty training sessions to help them more effectively incorporate diversity topics into their courses are also announced.

Example: President's Support

The presidents of universities nationwide signed a letter to President Clinton, "Twenty-five Universities Pledge to Increase Research in Computing for the Disabled," which appeared in *The Chronicle of Higher Education* (<http://chronicle.com/>), on October 6, 2000.

Example: Shared Responsibility

At the UW–Madison the Faculty Senate affirmed that the accommodation of qualified students with disabilities in instructional programs is a shared faculty and student responsibility. To this end, each department has appointed an Access and Accommodation Resource Coordinator to help faculty, staff, and students address issues of access and accommodation in instructional settings (<http://www.wisc.edu/adac/aarc2.htm>). Collaborative disability-related awareness and training events are coordinated through these department representatives on a regular basis.



Professional Development for Faculty and Administrators

Find out how your campus faculty members and administrators organize (e.g., unions, departments, senates) and arrange to be placed on meeting agendas. Let them know about your goals and activities in creating programs that are accessible to all students as well as how their organization can help. Meet with groups regularly to discuss issues and activities.

Format faculty and administrator professional development offerings to match the customs, organizational structure, and climate of your campus. Some institutions are well-served by presentations at regular division or department meetings where the expectation is that all faculty members will attend. This approach brings faculty development regarding disability issues to a broad audience and requires a minimum amount of coordination on the part of the presenter.

Offer presentations and training tailored to specific audiences. Provide many options for faculty and TAs to learn how to fully include students with disabilities in classes.



Options include

- short orientations to legal issues, accommodation strategies, and campus resources at departmental faculty meetings.
- tailored presentations to address issues of special importance to a specific group.
- comprehensive workshops offered through centralized staff training programs.
- accessibility modules integrated into mainstream training sessions (e.g., accessibility guidelines incorporated into webpage development classes; universal design strategies integrated into instructional strategy presentations).
- resources tailored to faculty and administrators available on the web.
- instructional videos presented on cable or public television.
- distance learning training options provided on the Internet.
- a short publication mailed periodically to faculty and administrators that highlights legal issues, accommodation strategies, and campus resources.

Example: Integrate Accessibility into Web Training

Many campuses offer workshops to faculty and staff on the development of webpages. Some campuses include a section on accessibility in each of the courses. The video and handout, *World Wide Access: Accessible Web Design*, included in this notebook can be used for this purpose.

Example: Computer Staff Training

On some campuses, staff who are knowledgeable about accessibility work with the staff at computer labs and support centers to ensure that their facilities, software, websites, and hardware are accessible to students with disabilities. In addition, they make sure staff know what resources are available when special needs arise. Several videos and handouts included in this handbook can be used in this type of training. They include:

- *Computer Access: In Our Own Words*
- *Equal Access: Universal Design of Computer Labs*
- *Real Connections: Making Distance Learning Accessible to Everyone*
- *Working Together: Computers and People with Learning Disabilities*
- *Working Together: Computers and People with Mobility Impairments*
- *Working Together: Computers and People with Sensory Impairments*
- *Working Together: People with Disabilities and Computer Technology*
- *World Wide Access: Accessible Web Design*

Example: Faculty and Staff Training

The Administrative Council at SMSU passed a mandatory six-hour training session for all faculty and staff regarding sexual harassment, diversity (including disability), and effective communication. A full-time trainer was hired to coordinate this effort.



Example: Orientation for New Faculty and Staff

The administration of Seattle Central Community College (SCCC) in Washington State requires new employees to attend a full-day orientation that includes a brief presentation by the Disability Support Services Office on the ADA and accommodation issues. Similar practices are implemented on many other campuses around the nation.

Example: Administrator Training

Some campuses provide disability awareness training for department heads. Sessions include legal issues, accommodation strategies, and campus resources. These trainings offer materials and speakers to deliver faculty training. Presenters provide suggestions for developing plans and institutionalizing practices in their departments.

Example: Academic Advisor Training

SMSU has a Master Advisor program to train campus advisors. Disability services staff deliver a presentation and participate in this one-and-a-half day training session.

Example: Training for Multiple Audiences

A two-credit course entitled “Issues in Group Leadership” was offered at the University of Rochester (Rochester). Several sessions were devoted to disability awareness and strategies for improving access to cooperative learning groups for those with disabilities. Students in this course were undergraduate and graduate TAs. A secondary audience included faculty members who were team-teaching the course. These instructors came from biology, biochemistry, computer science, and physics departments. The textbook for this training course included a short chapter entitled “Students with Disabilities and the Workshop.”

Example: Distribute Current Information

Campuses nationwide have sent printed copies of the brochure entitled *Working Together: Faculty and Students with Disabilities* (<http://www.washington.edu/doi/Brochures/Academics/teachers.html>) to faculty and instructional staff. (Every two years at the University of Washington (UW) all faculty and administrators are sent this brochure.) This brochure, which summarizes legal issues, accommodation strategies, and campus resources can also be used at presentations for specific academic departments. The back panel includes space for tailoring the brochure to include campus resources. A template for this short handout is included in the back pouch of this notebook.

Example: Survey Faculty and Staff

A *DO-IT Prof* team member from a four-year college worked with her partner school, a community college, to put together a training session for community college faculty and staff. All faculty and staff were required to attend. A questionnaire was



sent out ahead of time to identify issues of concern, and these issues were addressed during the training.

Example: Publicize Accomplishments

Some organizations identify local papers, radio stations, and television channels and then send press releases that showcase their efforts to make their campuses more accessible to people with disabilities.

Example: Outreach to New Faculty

Some disability student service offices insert brochures in packets that are given to new faculty members and TAs and deliver presentations at orientations for new faculty and TAs.

Example: New Faculty Luncheon

The ADA Task Force at UMD invites new faculty to a luncheon at the beginning of the year to become acquainted with Task Force members and learn more about academic accommodations for students with disabilities on campus.

Example: One-on-One Training

Providing individualized assistance (on an as-needed basis) to faculty and staff regarding questions on providing accommodations to students with disabilities has been proven to be very effective on many campuses. Sometimes, this one-on-one assistance is provided by faculty mentors who have received in-depth train-the-trainer instruction.

Training for Students

Consider ways to get disability-related topics into course offerings on your campus. Determine how new programs and courses are started at your school (e.g., gerontology, women’s studies, ethnic studies) and work toward getting a course

or program on disability studies on your campus. Alternatively, locate existing courses on education, engineering, diversity, computing, or other topics where disability issues should be included but are not. Meet with instructors and offer suggestions, videos, printed publications, and speakers to help them integrate this topic into existing classes.

Example: Learning from One Another

Disabled student support staff at Rochester were asked to provide a general disability awareness session for senior biomedical engineering students who were completing projects for children and adults with disabilities (e.g., designing a new tie-down system for wheelchair transportation). The primary audience for this presentation was the group of seniors, but an important secondary audience was the biomedical engineering faculty. One engineering faculty member sent the following email to his students after a discussion about appropriate terminology for people with disabilities (e.g., people words first, disability words second): “I have updated the BME 392 webpages to include links to the sites recommended by [speakers], and several that I have found. If you find particular sites that you think we should all know about, please let me know and I’ll try to get them on the page (or start a new page of useful links). I will keep you notified of further changes to the course page.”

Example: Disability-Related Engineering Project

The DO-IT director gave advice to mechanical engineering students whose project was to design a fishing pole for someone with a mobility impairment. She shared several case studies of young people with disabilities who might want to go



fishing. The students made their inventions usable by the people featured in the case studies.

Example: Teaching Assistants

Some *DO-IT Prof* team members work with TA training programs to ensure that a component on accessibility for students with disabilities is included. Various *DO-IT Prof* videos, brochures, and curriculum components included in this notebook can be easily used within TA training programs.

Example: Faculty Website

The Faculty Room, a resource-rich website (<http://www.washington.edu/doi/Faculty/>), is linked from many campus disability services and departmental websites to provide faculty with an overview of rights, responsibilities, and accommodation strategies as well as access to specialized instructional techniques.

Example: Summer Faculty Institutes

Some campuses provide summer institutes on various topics for faculty and administrators. A potential focus is working with students who have disabilities.

Example: Distribution List

Electronic distribution lists provide an excellent vehicle for sharing information, discussions, common concerns, and providing immediate feedback on ideas, opinions, or problems. Individual discussion groups can be set up for students with disabilities, departmental administrators, and faculty members.

Example: Disability Topics in Courses

Some disability advocates have helped instructors teach disability-related topics in existing courses. They offered videos, sample curricula, and handouts.

Example: Disability Studies Courses

At SMSU, Disability Support Services, in conjunction with Academic Affairs, developed a senior capstone course called *Disability Issues for the 21st Century*, which deals with disability-related issues in society. All graduating seniors are required to take a capstone course. The course is offered each semester. At Rochester, a disabilities studies project has been funded to develop courses in this area of study.

Example: Student Panels

The disability-related services staff at some postsecondary institutions regularly offers to bring a panel of students into classrooms to address disability issues. The panels have been well received by students and faculty alike. Students with disabilities who use access center services are recruited for these panels.

Example: Usability Testing

The DO-IT Center has developed a partnership with Microsoft and the departments of Technical Communication and Computer Science to incorporate accessibility testing into curricula, student projects, and research related to usability studies.



Promotion

Raise the visibility of campus disability support services. Create a publication and webpages with procedures and services of the office that supports students with disabilities. Increase the number of disability-related presentations on campus. Work with your campus and community press to get the word out. Issue regular press releases about disability-related topics and events to campus newspapers. Make resources prominent on the campus website. Develop webpages for the office of support services for students with disabilities to include a link to *The Faculty Room* at <http://www.washington.edu/doi/Faculty/>. Encourage other campus departments to link to your site.

Example: Teaching Awards

Each year SCCC nominates a faculty or staff member who has provided exceptional and creative accommodations to a student with a disability. Awardees share a traveling plaque engraved with their names on it. The award is presented at a Presidents' Day event that all faculty and staff attend.

Example: Accessible Web Awards

Ohio State University gives awards to departments that produce the most accessible webpages. Recipients are honored with plaques at a special reception.

Example: Marketing

At SMSU, a marketing plan to promote disability awareness was developed with the help of the marketing department on campus. The plan included the following initiatives:

- Everything is centered around the theme "You Can," with a related logo.

- New faculty, staff, and student brochures and a new website were created.
- Signage was placed in each departmental office and included contact information for the support of students with disabilities.
- A display board with the "You Can" theme was created and displayed at the New Student Festival, orientation sessions, and other activities.
- Department staff wore t-shirts with the "You Can" logo on numerous occasions.
- Staff purchased and distributed magnets, screen sweeps, and stress balls, all of which had the "You Can" logo printed on them.
- Staff are working with the organizational psychology department on campus to develop a high-energy, five-to-seven minute infomercial about campus programs that support students with disabilities to show on the campus television station and in classes.

Example: Online Resources

UW–Madison's website (http://www.wisc.edu/learntech/tech_access/index.htm) was developed by the Division of Information Technology. These pages have become a major resource for the campus. In addition to campus policy resources, *DO-IT Prof* materials, frequently asked questions, examples of accessible webpages, and online tutorials and resources are posted. A link is provided to *The Faculty Room* at <http://www.washington.edu/doi/Faculty/>.



Example: Disability Awareness Day

The student group, Access for All, at UMD works with the Access Center to sponsor a yearly disability awareness program. Administrators, faculty, and students are invited. A bulletin board by the Learning and Resource Center also prominently displays disability-related information. The group is advised by a staff person from the Access Center.

Example: Model Webpage

The Access Center at UMD makes sure that its webpage is a model of accessible design. As other faculty and staff are learning to create accessible webpages, the Access Center's page is used as an example.

Create and promote disability-related events and include people with disabilities in other events on campus. Bring music, dance, art, poetry, and speakers to your campus that celebrate and increase awareness of the wide range of abilities and disabilities in our society. Many campuses have funding for cultural events that increase awareness of underrepresented groups; tap into these resources. Recruit speakers with disabilities to be part of regular campus programs. A presenter who happens to be blind sharing her research on climate trends as part of a campus lecture series may be more effective in changing attitudes about the capabilities of people with disabilities than a lecture on the topic.

Example: Disability-Related Events

Each semester, the UW–Madison holds an “Accessibility Series” as part of the Technology Accessibility Program. The series attracts faculty, administrators, and support staff. Follow-up resources are posted on a website. The Accessibility Series is a collaboration of several departments,

including the Department of Learning Technology and Distance Education (LTDE), McBurney Disability Resource Center New Media Centers (NMC), Center for Biology Education (CBE), College of Letters and Science Learning Support Services (LSS), DoIT Media and Communications Technology (MCT), and DoIT Platform and Operating Systems Technology (POST).

Example: Joint Campus Events

The UW–Madison and Madison Area Technical College jointly hosted a spring collaborative “ADA Global Horizons Series,” which included a keynote speaker and focus on learning disabilities.



Example: Sports Events

The Access Center staff at UMD work with the recreation sports staff on campus along with two nonprofit organizations, the Courage Center and North County Independent Living, to sponsor a disabled sports event. Teams and instructors for wheelchair basketball, wheelchair floor hockey, wheelchair rugby, and goal ball provide opportunities for people with and without disabilities to play. Plans are underway to create a sled hockey team and to sponsor a tennis tournament for



participants with disabilities. The UMD student group, Access for All, helps publicize these events.

Example: Interpreter Services

Some disability services offices work with campus drama departments to have at least one of each of their performances interpreted by sign language interpreters and to publicize these offerings in promotional materials.

Create an electronic discussion list to support dialog and develop awareness of legal issues, accommodation strategies, resources, or events. Each month start a new discussion (e.g., Is your webpage accessible to people who are blind?). Encourage staff from human resources, physical plant, admissions, disabled student services, and other campus services to join the list.

Example: Technology Issues Distribution List

The UW–Madison, Division of Information Technology developed an electronic discussion list to address a variety of technology issues. Accessibility issues quickly surfaced and generated lively discussions and information sharing.

Share expertise by presenting at conferences. Submit proposals to present at campus events and local, regional, and national conferences. Videos, handouts, and visuals included in this notebook can be used for your presentation.

Example: Conference Presentations

National conferences at which *DO-IT Prof* team members have presented include the Annual Conference on Distance Teaching and Learning (<http://www.uwex.edu/disted/conference/>), CSUN's conference on Assistive Technology, Association on Higher Education and Disability (AHEAD), National Association of Student Personnel Administrators (NASPA), American Association of Higher Education (AAHE), American Association of Community Colleges (AACC), The Teaching in Higher Education (THE) Forum, and the American Society of Higher Education (ASHE). Examples of presentation titles include:

- Accessible Web Design
- Making Distance Learning Courses Accessible to Everyone
- Professional Development for Faculty on Including Students with Disabilities
- Strategies for Making Programs Accessible
- Accommodating Students with Learning Disabilities
- Overview of Adaptive Technology for Students with Disabilities
- Accommodating Students with Psychiatric Disabilities
- Legal Issues Regarding Students with Disabilities
- Helping Students with Disabilities Transition from Two- to Four-Year Schools



Example: Outreach to High School Students

Access Center staff at UMD have been regular participants and planners of a yearly transition fair for high school juniors and seniors called “Rocketing into the Future.” They also sponsored their own workshop for college-bound high school juniors and seniors called “Try-It.” The workshop featured opportunities to try out adaptive hardware and software available on campus as well as hear information about Access Center services.

Consider outside sources of funding. Check if there are general campus or external state funds available for building your program.

Example: Funding

The UW–Madison obtained funds by collaborating with University of Wisconsin–Eau Claire to develop a collaborative database of disability-related resources on all University of Wisconsin campuses (<http://www.uwec.edu/review/ua/UWCamp/>). Resources from *DO-IT Prof* are shared statewide through this project.

Example: Minigrants

Some campuses have obtained funds to develop minigrant programs to provide assistance to faculty for developing accessible webpages, employing principles of universal instructional design, and developing accessible online courses.

Example: Community Funds

The “Try-It” workshop was made possible by funding from a local community foundation. After submitting their final report, the UMD Access Center was informed that the foundation was interested in funding additional projects that fit their guidelines.

Connect accessibility compliance with resources. Establish a policy that requires faculty to comply with access issues to qualify for funding of special centrally-funded projects.

Example: Accessibility Requirements

On one campus, policies were adopted that require faculty members who receive special funds to develop distance learning courses to meet accessibility standards. As a result, all funded distance learning courses are accessible to students with disabilities and faculty participants learned to develop accessible webpages.



Network with External Organizations

Develop a regional model with a set of consistent practices. Work collaboratively and individually with postsecondary institutions in your state to help each develop and employ appropriate training strategies, policies, and procedures. Utilize the web and electronic discussion lists to promote communication between faculty and staff from postsecondary institutions across the state. Create a summary sheet



of intake and documentation requirements for all state schools and standardize them if possible.

Example: Regional Support Group

The Access Center at UMD was instrumental in developing a network of postsecondary institutions from the northern part of Minnesota and Wisconsin called the Northern Bridge. The group meets two to three times per year with different colleges hosting the meeting. A planning committee helps set programs and agendas. The group has been a valuable resource for new service providers and a good network for those in continuing positions.

Example: State Distribution List

The UW hosts the Internet-based distribution list for postsecondary offices and related organizations that provide support to students with disabilities in Washington State (WAPED). List members share policies and procedures and discuss issues of common interest.

Evaluation

Measure the impact of your activities. Although it is difficult to develop measures that show how your efforts have resulted in greater course completion, higher grades, and more diplomas for students with disabilities, it is still worth the effort to collect statistical data and feedback from stakeholders. Participants in presentations can be surveyed, focus groups can be conducted, and yearly enrollment and graduation figures can be collected and compared.

Example: Document Services Provided

The UMD Access Center has been involved in a quality review project sponsored by the vice chancellor of Academic Support

and Student Life. As part of the project, the Access Center has been keeping figures on daily activities with a scoreboard that is shared with the other units under the vice chancellor. Through this process, the Access Center has been better able to document the numbers of students they serve and the services that they provide.

Example: Training Evaluation

DO-IT Prof team members developed long and short evaluation forms titled "Presentation Evaluation." Feedback is used in preparing future presentations. These forms can be found at the end of the "Presentations" section (pages 188-190). The two-page form is intended for use in full- or multi-day workshops. The one-page form is intended for use in partial-day workshops. Other campuses are welcome to use these forms to evaluate their presentations.

Example: Institutional Data Collection

DO-IT project team members collect data from their campuses annually. Yearly data is compared to show trends in enrollment and graduation. A sample Institution Data Collection Form can be found on pages 52-54. Other campuses are welcome to use this form to collect data on enrollment and graduation.



Institutional Data Collection Form

Name of Institution: _____

Contact information for person completing survey:

Name: _____ Title: _____

Address: _____

Phone: _____ Email: _____

Check each category that applies to this institution:

_____ Two-year _____ Public
_____ Four-year _____ Private
_____ Other (specify): _____

Check the types of degrees institution grants.

_____ Associate _____ Bachelor _____ Master
_____ Doctoral _____ First Professional

Enrollment:

Indicate the term and year for which data is reported: _____

Write the total number of students (head count) enrolled in credit-bearing classes at the institution for this term. _____

Write the number of students enrolled in credit-bearing classes who have identified themselves as belonging to each of the following groups.

_____ White, non-Hispanic (a person having origins in any of the original peoples of Europe, North Africa, or the Middle East)

_____ Black, non-Hispanic (a person having origins in any of the black racial groups in Africa)

_____ Hispanic (a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race)

_____ Asian or Pacific Islander (a person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands)

_____ American Indian or Alaskan Native (a person having origins in any of the original peoples of North America and maintaining cultural identification through tribal affiliation or community recognition)

_____ Other or declined to state

Note: Because some students will check more than one race or ethnicity, this section may total more than the institution head count.

_____ Male _____ Female _____ Having a disability

Write the number of students who have the following disabilities. Disability categories are those used by the U.S. Department of Education National Center for Education Statistics (NCES).

_____ Visual impairment
_____ Hearing impairment or deaf
_____ Speech impairment
_____ Orthopedic impairment
_____ Learning disability
_____ Other impairment or disability

Note: Because some students may report multiple disabilities, this section may total more than the total number of students reporting a disability.

Educational Attainment

Indicate the beginning and ending months for the year for which data is reported:

_____, _____, through _____, _____.

Write the total number of the following attained by students at this institution during this time period

_____ Vocational Certificates _____ Associate Degrees
_____ Bachelor Degrees _____ Master/Doctor/First Professional

Write the total number of the following attained by students with disabilities at this institution during this time period

_____ Vocational Certificates _____ Associate Degrees
_____ Bachelor Degrees _____ Master/Doctor/First Professional

Definitions

Four-year institution: An institution legally authorized to offer and offering at least a four-year program of college-level studies wholly or principally creditable toward a baccalaureate degree.

Two-year institution: An institution legally authorized to offer and offering at least a two-year program of college-level studies which terminates in an associate degree or is principally creditable toward a baccalaureate degree.

Public institution: An institution controlled and operated by publicly elected or appointed officials and deriving its primary support from public funds.

Private institution: An institution which is controlled by an individual or agency other than a state, a subdivision of a state, or the federal government, which is usually supported primarily by other than public funds, and the operation of whose program rests with other than publicly elected or appointed officials. Private schools and institutions include both nonprofit and proprietary institutions.

Associate degree: A degree granted for the successful completion of a sub-baccalaureate program of studies, usually requiring at least two years (or equivalent) of full-time college-level study. This includes degrees granted in a cooperative or work-study program.

Bachelor's degree: A degree granted for the successful completion of a baccalaureate program of studies, usually requiring at least four years (or equivalent) of full-time college-level study. This includes degrees granted in a cooperative or work-study program.

Master's degree: A degree awarded for successful completion of a program generally requiring one or two years of full-time college-level study beyond the bachelor's degree.

Doctoral degree: An earned degree carrying the title of Doctor. The Doctor of Philosophy degree (Ph.D.) is the highest academic degree and requires mastery within a field of knowledge and demonstrated ability to perform scholarly research. Other doctorates are awarded for fulfilling specialized requirements in professional fields, such as education (Ed.D.), musical arts (D.M.A.), business administration (D.B.A.), and engineering (D.Eng. or D.E.S.). First Professional degrees, such as M.D. and D.D.S., are not included under this heading.

First Professional degree: A degree that signifies both completion of the academic requirements for beginning practice in a given profession and a level of professional skill beyond that normally required for a bachelor's degree. This degree usually is based on a program requiring at least two academic years of work prior to entrance and a total of at least six academic years of work to complete the degree program, including both prior-required college work and the professional program itself. First Professional degrees are awarded in the fields of dentistry (D.D.S. or D.M.D.), medicine (M.D.), optometry (O.D.), osteopathic medicine (D.O.), pharmacy (D.Pharm.), podiatric medicine (D.P.M.), veterinary medicine (D.V.M.), chiropractic (D.C. or D.C.M.), law (J.D.), and theological professions (M.Div. or M.H.L.).

Enrollment: The total number of students registered in a given school unit at a given time, generally in the fall of a year.

Vocational Education: Organized educational programs, services, and activities which are directly related to the preparation of individuals for paid or unpaid employment, or for additional preparation for a career, requiring other than a baccalaureate or advanced degree. Vocational education includes trade, industrial, and technical education.

Source: National Center for Education Statistics (NCES) Digest of Education Statistics.



Subsequent sections of this notebook provide options for delivering presentations that will help faculty fully include students with disabilities in their courses. Pages 63-74 of this section contain case studies to use during presentations. Once you select a presentation topic, consider incorporating some of the following suggestions to make your presentation more effective.

Prepare

“The mind is a wonderful thing. It starts working the minute you’re born and never stops working until you get up to speak in public.” (Unknown)

The quality of your presentation is most directly related to the quality of your preparation. Rarely will you have difficulties in your presentation due to being overprepared.

- If you are responsible for the promotion of your presentation, create an accurate, but inviting, description. Emphasize the relevance of the content to the audience.
- Include a statement in promotional materials on how participants with disabilities can obtain disability-related accommodations for the presentation. This statement will provide an example that may be adapted by participants to use in their own publications.
- Believe in the importance of your message.
- Visualize yourself giving a great speech.
- Organize your material in a way that is most comfortable to you by using a script, outline, notes, or 3 x 5 cards. Number them.
- Proofread all printed materials.
- Practice, practice, practice—by yourself or with someone. During practice sessions you can work out the bugs and add polish to your presentation. (Note: a rehearsal usually will run about 20% shorter than a live presentation; adjust your content accordingly.)
- As participants enter, consider providing them with 3 x 5 cards and asking them to write at least one question they have about the topic of the presentation. Read them silently as people settle in. Address the questions throughout the presentation and/or at the closing.
- Have a backup plan for delivering the presentation if all of your audiovisual materials become unavailable. Do not rely on technology to work.
- Test all audiovisual equipment. Practice using your presentation slides and other visual displays. If you are using a video, make sure it is set to the correct beginning point, at the appropriate volume and with captions turned on.
- Check the lighting. If you need to adjust it during your presentation, practice the adjustments before you begin. Consider showing someone else how to make the adjustments for you.
- Have a glass of water available for yourself.
- Think about questions that might be asked and rehearse brief, clear answers to each.



- Memorize the first few minutes of your presentation.
- Review your main points.
- Dress for success.

Create a Comfortable Learning Environment

“More important than the curriculum is the question of the methods of teaching and the spirit in which the teaching is given.”
(Bertrand Russell)

- It is important to create a learning environment that is comfortable and welcoming.
- Arrive early and get a feel for the room, including its temperature, size, and overall set-up. Re-arrange furniture as needed.
- Warmly welcome participants, use eye contact and a welcoming posture, and thank participants for coming.
- For smaller groups, ask them to introduce themselves and indicate what they hope to learn. For larger groups, poll the audience, asking them to respond to questions related to your topic. For example, ask the audience, “How many of you have had a student with a learning disability in your class?” and then ask one individual to elaborate.
- Create a safe and nonthreatening environment where participants are not afraid to ask questions. Encourage them to share experiences and ask questions of you or other participants.
- Emphasize that everyone can contribute to the learning process.

- Clearly identify the objectives at the beginning of the session.
- Keep to the time schedule, but show that you value participant input by not rushing.
- Frame questions so that they are easy to understand.
- Do not criticize or allow audience members to criticize other participants.
- Maintain confidentiality and ask the audience to respect the privacy of other participants.



Manage Your Anxiety

“There are two types of speakers. Those who get nervous and those who are liars.”
(Mark Twain)

Nervousness before a talk or workshop is healthy. It shows that your presentation is important to you and that you care about doing well. The best performers are nervous prior to stepping on stage. Below are suggestions for assuring that anxiety does not have a negative impact on your presentation.



- Use nervousness to your advantage—channel it into dynamic energy about the topic.
- Remind yourself that you and the audience have the same goal, and, therefore, they want you to succeed as much as you do.
- Speak about what you know. Keeping your presentation within the realm of your knowledge and experience will build confidence and minimize nervousness.
- Focus on delivering your message, not on how you feel.
- Smile. Be relaxed, poised, and at ease on the outside, regardless of how you feel internally. Acting relaxed can help make you relaxed.
- Keep presenting! Your anxieties decrease the more presentations you give.

Create a Strong Beginning

“The greatest talent is meaningless without one other vital component: passion.”
(Selwyn Lager)

Keep your opening simple and exciting to engage your audience in your content.

- Consider using a short icebreaker activity.
- A tasteful, humorous commentary can be effective if related to the topic.
- Explain the purpose of your presentation in one sentence that is free of professional jargon and emphasizes what participants will gain.

- Start off with a natural pace—not too fast and not too slow—to establish a strong, positive image. Make a strong ending statement that reinforces the objectives of the presentation.

Incorporate Universal Design Principles

“I hear and I forget. I see and I remember. I do and I understand.” (Confucius, 451 BC)

Model accessible teaching methods that your participants can use. Incorporate universal design principles to address the needs of participants with a wide range of knowledge, abilities, disabilities, interests, and learning styles. Examples are listed below.

- Use large fonts in your visuals. Make copies of slides available for participants.
- Be prepared to provide your materials in an alternate format, which may include electronic text, audio recording, large print, or Braille.
- Show captioned videos. If not available, provide a transcription of the content upon request.
- Arrange for a sign language interpreter if requested by a participant.
- Use a clear, audible voice. Use a microphone as needed. Face the audience at all times.
- Make sure the room is well-lit.
- Use multimedia in your presentation, such as videos, visual aids, props, and handouts.



- Demonstrate how to speak the content presented on slides and other visuals. For example, verbally describe graphs and cartoons.



Create a Dynamic Presentation

“It is the supreme art of the teacher to awaken joy in creative expression and knowledge.” (Albert Einstein)

If your audience enjoys and remembers your presentation, it is because you presented it in a dynamic or compelling manner.

- Talk *to* your audience, not *at* them.
- Project enthusiasm for the topic without preaching. The majority of communication is nonverbal, so how you look and sound are vital.
- Present your material in a well-organized manner. However, be flexible to adjust to your audience. Let participants know if you wish to field questions during or after your presentation.
- Speak to the knowledge level of your audience. Define all terms they might not be familiar with.
- Choose your major points carefully and illustrate them with examples or stories.
- Incorporate real-life experiences into your presentations. Recruit students with disabilities or faculty to share their experiences. Ask audience members to share experiences and use these examples to illustrate key points or to answer questions.
- Role-play interactions between students and professors.
- Use natural gestures and voice inflection to add interest to your presentation.
- Address different learning styles by incorporating a variety of instructional methods that use a variety of senses (e.g., visual, auditory, kinesthetic).
- Repeat questions participants pose to ensure that the entire audience hears and understands them.
- Redirect the discussion if it strays from the topic at hand.
- Postpone questions related to resolving specific or individual problems to private discussions later. Do not get locked into an extended dialogue with one person; move on to questions from other participants and offer more time to talk after the presentation.
- If people ask questions that you cannot answer, say that you will locate the answer and get back to them (and then do!), suggest appropriate resources that will provide the answer, or ask for suggestions from members of the audience.



- Give demonstrations.
- Never apologize for your credentials or your material.
- Tailor your topic to audience interests.
- Never read your presentation word for word.
- Talk clearly and in well-modulated tones. Avoid speaking too rapidly, softly, or loudly. Make sure that the ends of your sentences don't drop off.
- Maintain eye contact. It conveys confidence, openness, honesty, and interest. It also lets you know how the audience is responding to your presentation. In large groups, mentally divide up the room into sections, and then make eye contact with different people in each section on a rotational basis.
- Use hand gestures naturally, gracefully, and to emphasize points. When not gesturing, let your hands drop to your sides naturally. Keep them out of pockets, off your hips, or behind your back. Avoid fiddling with clothes, hair, or presentation materials.
- Maintain good posture, but do not be rigid.
- Occasionally move from one spot to another, stop, then continue to speak. Don't pace.
- Remember that adult learners have a wealth of experience; are goal oriented and appreciate outcomes more than process; have set habits, strong tastes,

and little time to waste; have strong feelings about learning situations; are impatient in the pursuit of objectives, and appreciate getting to the point; find little use for isolated facts and prefer application of information; and have multiple responsibilities, all of which draw upon their time and energy.

Make Your Presentation Interactive

"It is better to know some of the questions than all of the answers." (James Thurber)

Avoid simply lecturing to your audience. Engage your audience in an active discussion.

- Listen attentively before responding to questions.
- Encourage interactions between audience members.
- Present an accommodation challenge and ask audience members how they would address the issue.
- Respectfully reflect back to people what you observe to be their attitudes, rationalizations, and habitual ways of thinking and acting.
- Allow plenty of time for questions. Address all questions within your presentation or direct participants to appropriate resources.
- Demonstrate or provide hands-on experiences with assistive technology.
- Give useful or entertaining prizes for responses from the audience or have a drawing for a larger prize at the end of the presentation.



- If your audience is small, ask members to identify themselves and their experiences and interests related to the topic.
- Involve the audience in a learning activity. People remember more of what you teach them if they are able to learn it via an activity.
- Ask audience members how they have used specific accommodations or worked with students with specific disabilities. Ask questions like, “Has anyone done this? How did it work for you?”
- Stimulate group interaction and problem-solving.
- Promote discussion to help participants integrate themes and key points.

Include a Group Activity

“Real prosperity can only come when everybody prospers.” (Anna Eleanor Roosevelt)

Include a short activity that makes an important point and encourages participation and discussion. Here’s one to try. Announce that you’re going to have a five-minute activity, then ask your participants to choose someone sitting nearby and share with each other two things:

1. One thing you are very good at.
2. One thing you are not very good at.

Have the instructions written on a presentation slide or write them on a flip chart. Read the instructions aloud. Give

participants three to four minutes (there will be a lot of laughter and lighthearted talk), and then say you’re not really interested in what they do well; ask people to share things that their partner does not do well. (This usually ends up funny—participants enjoy sharing that he can’t do math, he hates public speaking, she’s not good at fixing things around the house.)

After the fun, make the point that, “You have experienced, in a small way, what a person with an obvious disability experiences all the time—that people first notice something he or she is not particularly good at (e.g., walking, seeing, hearing) and don’t take the time to learn his or her strengths. A disability may impact 10% of a person’s life, yet is considered a defining characteristic by others. We need to pay attention to what everyone, including those with disabilities, can do, rather than accentuating what they can’t do.” To emphasize the point ask participants to reflect on how they felt when you said you weren’t really interested in what they do well.

This activity is short, fun, and effective. It addresses the issue of attitudes, yet does not have some of the negative elements of traditional simulations that leave people feeling like having a disability is an impossible problem with no solution. This activity is also good to use when talking about internal and external barriers to success for students with disabilities, which can include lack of self-advocacy skills (internal barrier), and negative attitudes or low expectations on the part of individuals with whom they interact (external barrier).



Incorporate case studies

“Learning is an active process. We learn by doing . . . Only knowledge that is used sticks in your mind.” (Dale Carnegie)

Have participants discuss case studies in small groups. At the end of this section are sample case studies that can be used in your presentation. They are all based on real experiences at postsecondary institutions. Each case study is formatted as a handout that can be duplicated for small group discussion. On the back of each activity sheet is the full description, including the solution actually employed. This version can be used for your information only or can be distributed to the group after the initial brainstorming has occurred. Participants can compare their ideas with the resolution in the actual case.

Address Key Points

“Enthusiasm is one of the most powerful engines of success. When you do a thing, do it with all your might. Put your whole soul into it. Stamp it with your own personality. Be active, be energetic, be enthusiastic, and faithful, and you will accomplish your objective. Nothing great was ever achieved without enthusiasm.” (Ralph Waldo Emerson)

Be sure that your presentation covers the most important content for your audience.

- Explain the legal requirements regarding accommodating students with disabilities in clear, simple terms. Make it clear that legislation, such as the ADA, provides broad statements about accessibility, but our judicial system ultimately decides what is legal or illegal in a specific situation.
- Explain the rights and responsibilities of students with disabilities, faculty, and the disabled student services office.
- Describe specific situations that have occurred on your campus, including what was successful and situations that could be improved, and how.
- Demonstrate low-tech and high-tech accommodations, including adaptive computer technology.
- Explain how accommodations that are useful to students with disabilities can also benefit all learners.
- Provide information on campus-specific resources and procedures.

Provide Resources for Participants to Keep

“The philosophers have only interpreted the world in various ways; the point, however, is to change it.” (Karl Marx)

Make sure that you provide your audience with information on which they can follow up after your presentation.



- Provide written materials of key content for future reference.
- Provide contact information and invite participants to contact you with questions after the presentation. Distribute business cards.
- For further exploration refer participants to *The Faculty Room* at <http://www.washington.edu/doi/Faculty/> and to the Center for Universal Design in Education at <http://www.washington.edu/doi/CUDE/>.

Conclude with a Strong Ending

“The greatest good you can do for another is not just to share your riches but to reveal to him his own.” (Benjamin Disraeli)

The most important and remembered words you speak are the last ones.

- Summarize key points.
- Consider concluding with examples that show the importance of providing educational opportunities for students with disabilities. One idea is to have an alumnus with a disability discuss how he or she navigated your campus, worked with the disability services office, received the accommodations he or she needed, graduated with a degree, and went on to succeed in employment.
- Empower your audience to use information you presented to improve access for and education of all students with disabilities.

Improve Each Presentation

“I have the simplest tastes. I am always satisfied with the best.” (Oscar Wilde)

Take steps to gain feedback about your presentation that will lead to improvements.

- Practice your presentation with colleagues or friends and ask for their feedback.
- Record your presentation for self-analysis.
- Evaluate your presentation through an anonymous written survey. Two examples of evaluation instruments are included on pages 188-190.
- Incorporate suggestions into subsequent presentations.

Conclusion

“When you can do the common things in life in an uncommon way, you will command the attention of the world.” (George Washington Carver)

In summary, to give effective presentations where participants gain valuable information in a dynamic way, make sure to

- prepare well in advance;
- incorporate universal design principles;
- facilitate interaction, sharing of experiences, and creative problem-solving within the session; and
- promote a welcoming and non-judgmental learning environment.



Case #1

Background

My name is Caryn. I am an eighteen-year-old freshman entering a small private university. I am studying the visual arts and eventually plan to attend graduate school for a Master's of fine arts.

Access Issue

Although I'm an art major, I have to take two English courses and four semesters of a second language that are required by the university. I have a language-learning disability which makes it difficult for me to understand and organize large amounts of verbal information. Writing was my most challenging academic area in high school. I was worried that I would not be able to keep up with the course workloads and failing a course my first semester was not an option.

Discussion

1. Discuss potential solutions to the access issue described. There can be more than one good solution.
2. Discuss the advantages and disadvantages of each proposed solution.
3. Clarify the appropriate roles of the student, instructor, and campus support services in reaching a decision and providing accommodations if needed.
4. After you have completed your discussion, read the access solution on the back of this handout that was employed in this real-life scenario. Compare your proposed solutions with this solution. Discuss the conclusions listed and add at least one more.



Case #1

Solution

Initially, I did not want to disclose my learning disability. However, I was very worried about these course requirements, especially since it was my first semester of college. I contacted my advisor in the art department and mentioned my concerns. After an appointment with the disabled student services counselor where I presented documentation of my disability, we decided on the following solutions. I was able to substitute the foreign language course requirement for two courses in the social sciences. I also learned about the freshman writing lab. I set up a series of weekly private appointments with a writing tutor to review my English coursework. Also, I borrowed, from the disabled student services department, a computer equipped with a voice-to-text option. With this adaptive technology, I can speak into the computer and my speech is translated into text. Without this accommodation, my thoughts and writing can become easily disorganized or jumbled, and I have a very difficult time completing assignments.

Conclusion

This case study illustrates that assistance from the campus disabled student services department can help a student with a disability

1. obtain program adjustments to meet university coursework requirements;
2. gain access to adaptive computer technology to accommodate her disability; and
3. make use of campus services.



Case #2

Background

My name is Scott. I am a nineteen-year-old engineering student with muscular dystrophy. I use a powered wheelchair for mobility. An important part of the first year of my engineering program involves work on computer-aided design programs in the engineering computer lab.

Access Issue

Although I can use one hand to control my wheelchair, I have limited strength and movement in my hands and fingers. I cannot use a standard mouse or keyboard to operate a computer. I also cannot physically access some lab computers due to the height of the table and the position of the computer equipment.

Discussion

1. Discuss potential solutions to the access issue described. There can be more than one good solution.
2. Discuss the advantages and disadvantages of each proposed solution.
3. Clarify the appropriate roles of the student, instructor, and campus support services in reaching a decision and providing accommodations if needed.
4. After you have completed your discussion, read the access solution on the back of this handout that was employed in this real-life scenario. Compare your proposed solutions with the solution used. Discuss the conclusions listed and add at least one more.



Case #2

Solution

I met with my course instructor and toured the computer lab prior to the first class. I found that I could not physically access the lab computers. An adaptive technology specialist within the university helped the lab acquire an adjustable computer table and set up the workspace at an appropriate height and location for me. The lab also acquired a trackball, which eliminated the need to use a mouse. With the trackball, I can perform mouse functions and use a virtual, on-screen keyboard. These computer accommodations were in place by the first day of class. They provided me with the full access I needed to complete required laboratory coursework as part of the engineering program.

Conclusion

This case study illustrates the importance of

1. accessible workspace design;
2. preplanning, site visits, and cooperation with computer lab staff, because adaptive computer equipment and furniture take time to order and set up; and
3. the availability of an adaptive technology specialist as a resource within the university setting.



Case #3

Background

My name is Linda. I am twenty-two years old and an undergraduate student. I have cerebral palsy. I am applying for acceptance to a social work program in the fall. I attend a large public university and the campus is spread out over several miles. Due to my impaired leg movements and balance, I walk with a cane.

Access Issue

Before I can apply for admission to the program, I need to take four prerequisite classes this quarter. Only twenty minutes of passing time are available between two of my classes and the buildings are a quarter of a mile apart. No other scheduling options are available. I inquired about the campus bus system and learned that it has no direct route between these buildings. If I do not take both of these courses, I will need to delay my application for another year.

Discussion

1. Discuss potential solutions to the access issue described. There can be more than one good solution.
2. Discuss the advantages and disadvantages of each proposed solution.
3. Clarify the appropriate roles of the student, instructor, and campus support services in reaching a decision and providing accommodations if needed.
4. After you have completed your discussion, read the access solution on the back of this handout that was employed in this real-life scenario. Compare your proposed solutions with the solution used. Discuss the conclusions listed and add at least one more.



Case #3

Solution

I met with the university's disabled student services counselor to discuss my situation. I did not need any accommodations prior to this quarter. Together we developed a plan. The counselor contacted the campus transportation services and arranged transportation between my classes. I contacted the course instructor and he was informed of my transportation needs and the possibility of late arrivals on an occasional basis. The instructor and I also made arrangements with another student who had taken previous courses with me to share notes or announcements that I missed when I could not arrive on time.

Conclusion

This situation illustrates

1. that some individuals with mobility impairments may be independent on campus in most situations but may need assistance in certain circumstances;
2. the importance of collaboration and communication between the student, disability student services, and the course instructor in order for accommodations to be successful; and
3. the student's responsibility to disclose her needs and request accommodations.



Case #4

Background

A student, who uses a wheelchair and is enrolled in a special education/mentally-physically handicapped program, needed to take a required course. The class, "Health and Physical Education for Elementary Schools," was to be held in an old building which was inaccessible to wheelchairs.

Access Issue

While the usual procedure was to move the location of the class to an accessible building, the professor initially requested that a temporary ramp be constructed for access. This idea was rejected by facilities management due to the prohibitive expense and time of building a ramp that would meet Americans with Disabilities Act specifications. The building was slated for renovation in two years.

The class was relocated to a fieldhouse arena where three other gym classes were scheduled for the same time slot. This was unacceptable to the professor, who felt the teaching environment would be adversely affected because of excessive noise. Furthermore, since there was inadequate storage at the fieldhouse, equipment (including balance beams, assorted size balls, and other large items needed for the course) would need to be moved to the fieldhouse prior to each class session.

As a result, the professor requested the student be carried up the twenty-two cement stairs to the original classroom. This proposed solution was rejected due to student safety and institutional liability issues.

Discussion

1. Discuss potential solutions to the access issue described. There can be more than one good solution.
2. Discuss the advantages and disadvantages of each proposed solution.
3. Clarify the appropriate roles of the student, instructor, and campus support services in reaching a decision and providing accommodations if needed.
4. After you have completed your discussion, read the access solution on the back of this handout that was employed in this real-life scenario. Compare your proposed solutions with the solution used. Discuss the conclusions listed and add at least one more.



Case #4

Solution

The student, professor, and office for disabled student services jointly developed a satisfactory solution. An experienced telecommunications student was hired by the office for disabled student services to film the class sessions. The student using the wheelchair met with the professor after class to obtain the video and written outline of the class session. The student reviewed the video and notes and had the opportunity to ask questions of the professor via email and telephone prior to each regular class.

The class was moved to the fieldhouse arena for one day when it was the student's assigned turn to teach a class. The student chose equipment in her lesson plan that only required the professor's jeep to transport to the field house.

Conclusion

This case study illustrates that

1. it is helpful to work as a triad with the professor, student, and office of disabled student services to resolve access issues; the process of problem solving together creates a solution acceptable to all parties involved; and
2. some accommodation strategies are recognized as imperfect and temporary but provide access for a specific student in a specific course until more acceptable permanent solutions, such as renovating a facility, can be employed.



Case #5

Background

My name is Imke and I am blind. As a first-year graduate student in atmospheric sciences, I was required to enroll in a quarter-long credit/no credit synoptic meteorology lab. Most of the lab time was spent plotting meteorological data and drawing contours on weather maps. The goal was to learn about the development and structure of mid-latitude weather systems.

Access Issue

I needed to find a way to participate in the class and learn the necessary material without having to draw and contour weather maps.

Discussion

1. Discuss potential solutions to the access issue described. There can be more than one good solution.
2. Discuss the advantages and disadvantages of each proposed solution.
3. Clarify the appropriate roles of the student, instructor, and campus support services in reaching a decision and providing accommodations if needed.
4. After you have completed your discussion, read the access solution on the back of this handout was employed in this scenario. Compare your proposed solutions with the solution used. Discuss the conclusions listed and add at least one more.



Case #5

Solution

I was unsure of the best way to participate in the class, so I approached the instructor of the course, who happened to be my Ph.D. advisor, and asked if he had any suggestions. It appeared that he had already thought about this issue. He immediately proposed that instead of attending the weekly classes, I visit his office once a week at a time convenient to both of us, so that he could explain the relevant concepts to me. I also received the instructor's class notes in an accessible format from the university's disabled student services office. This arrangement worked well. I was able to gain an understanding of mid-latitude weather systems without participating in the map drawing activities that were central to the course.

Conclusion

This situation illustrates that

1. it is not always necessary for a student who is blind to directly access the visual material of a course;
2. in cases where it is impractical for the student to participate in a visually-oriented activity, it is often possible for the student to learn the accompanying concepts in another way; and
3. it is important for the student to take responsibility to approach the course instructor to plan workable accommodations.



Case #6

Background

Dr. Sheryl Burgstahler was asked to teach a three-credit, web-based distance learning course at the University of Washington. The topic of the course was issues and strategies regarding computing access for people with disabilities, content she had taught many times in a traditional class setting.

Access Issue

She anticipated that individuals with a wide range of disabilities would enroll in the course. Her goal was to employ universal design principles to make the course accessible to everyone, regardless of abilities and disabilities, language skills, and learning styles.

Discussion

1. Discuss potential solutions to the access issue described. There can be more than one good solution.
2. Discuss the advantages and disadvantages of each proposed solution.
3. Clarify the appropriate roles of the student, instructor, and campus support services in reaching a decision and providing accommodations if needed.
4. After you have completed your discussion, read the access solution on the back of this handout that was employed in this scenario. Compare your proposed solutions with the solution used. Discuss the conclusions listed and add at least one more.



Case #6

Solution

Dr. Burgstahler ensured the course books were available in alternate versions. Students who are blind or who have learning disabilities that impact reading ability could order an audio version of the text, while other students use the printed copy.

To show examples of adaptive technology that provide access to computers for people with disabilities, she selected a series of videos produced by the DO-IT Center. These films are open captioned, making them accessible to students who are deaf and to students for whom English is a second language. They are also available with audio description, a feature that describes aurally the visual content in the tape. This version is used by students who are blind.

Lessons for the course and course discussions took place over email: a fully accessible medium. Assignments and the final exam were also submitted via email. Course webpages were designed using universal design principles, ensuring access to all students.

As a prerequisite for the course, students were required to have access to email and the Internet. As a result, the university did not need to provide computer equipment, including adaptive technology, for those with disabilities. The course could, however, be taken using campus computers and adaptive technology as required by students with disabilities. The key was to offer to students with disabilities the same services offered to others.

Students from all over the world and with a variety of disabilities have enrolled in the course. As there are no in-person meetings and the course is designed to be fully accessible, there is no way to know how many students with disabilities have completed the course. Some students with disabilities have disclosed their disabilities voluntarily, but no one has needed a special accommodation. Disabilities disclosed include learning disabilities, cerebral palsy, and blindness.

Conclusion

This case demonstrates how:

1. universal design concepts can be incorporated into the design process to create an accessible distance learning course; and
2. employing access features in the design of a course can minimize the need for a student to disclose a disability and to request an accommodation.



This section provides a collection of stand-alone presentations on specific topics of interest to campuses nationwide. The presentations are designed for use with postsecondary faculty and administrators. They can be easily adapted to specific audience interests and program lengths. They can also be combined to create a series of presentations for a single group.

These topics were selected after conducting focus groups and a literature review which is summarized in the *Synthesis of Research* section of this publication. The *DO-IT Prof* and *AccessCollege* project team members helped develop the content. After the last

presentation module in this section, you will find a long and a short presentation evaluation form (pages 189-191) to give to your audience participants at the end of each presentation.

The suggestions in the sections entitled *Presentation Tips* and *Institutionalization Strategies* can be used in the process of developing an individual presentation and implementing professional development of faculty and administrators throughout the institution, respectively. Further details about the materials in this notebook are located in the section “How to Use These Materials” (pages 3-6).

PRESENTATIONS

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Building the Team

Overview of Students with Disabilities and Postsecondary Education



Purpose

After this presentation, faculty and administrators will be able to

- summarize rights, responsibilities, potential contributions, and needs of students with disabilities;
 - describe campus departmental rights and responsibilities for ensuring equal educational opportunities;
 - list strategies for working with students who have disabilities, emphasizing the faculty-student relationship; and
 - describe campus resources available to assist in the provision of appropriate academic accommodations for students with disabilities.
- Add the contact information for campus resources to the “Resources” slide and to printed publications as appropriate.
 - Photocopy handout template *Working Together: Faculty and Students with Disabilities*. Create alternative formats as necessary.
 - Photocopy the presentation evaluation instrument to distribute at the end of the session (see pages 189-191 for examples) or create your own.
 - Add a link on your department’s website to *The Faculty Room* at <http://www.washington.edu/doit/Faculty/>.

Length

Approximately 20-30 minutes.

Presenter

Department chair, faculty, staff, TA, student, or other department member. Little experience working with students with disabilities is required to deliver this short presentation.

Preparation

- Select the presenter(s).
- Develop presentation outline and activities using the “Sample Script” provided in this section and the ideas listed in the *Presentation Tips* section of this handbook.
- Create presentation slides from templates provided in the *Presentation Tools* section.

Equipment and Tools

- DVD player and monitor
- video projector, computer, and presentation slides; Internet connection (optional)
- video (open captioned and audio described version of *Working Together: Faculty and Students with Disabilities*)
- handout (*Working Together: Faculty and Students with Disabilities*)
- presentation evaluation instrument (pages 189-191)



Presentation Outline

1. Distribute handouts.
2. Introductions.
3. Begin presentation.
4. Introduce and play video as noted in the script.
5. Hold a discussion on possible accommodations on your campus.
6. Discuss department or campus issues.
7. Note campus resources.
8. Distribute and collect completed evaluation instruments.

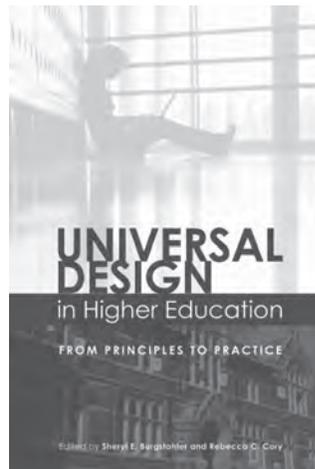
Resources

For further preparation resources for this presentation, consult

- *The Faculty Room* at <http://www.washington.edu/doit/Faculty/>

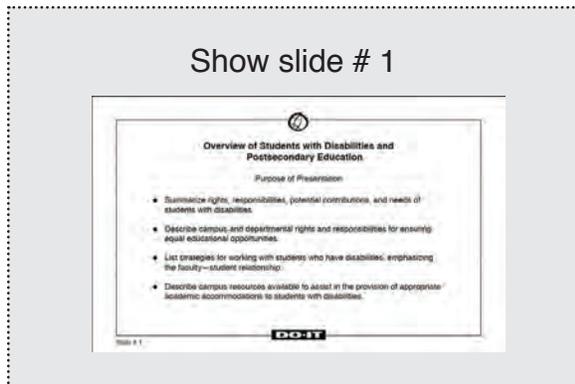


- *Universal Design in Higher Education: From Principles to Practice* published by Harvard Education Press, 2008.





Sample Script



Today I will provide a short presentation about how you can work effectively with students who have disabilities and how to access campus resources for assistance.

Advancements in technology and increased job specialization have resulted in career opportunities in fields that were once considered unsuitable for individuals with disabilities. Many of these careers require knowledge and skills obtained through postsecondary education. Although the number of individuals with disabilities seeking postsecondary education has increased significantly in recent years, they are still underrepresented in many academic and career areas. Federal legislation mandates that, when needed, academic accommodations be made to ensure that otherwise qualified students with disabilities have educational opportunities equal to those of their non-disabled peers.

Studies show that faculty members, staff, and students who have had interactions with students with disabilities generally have more positive attitudes about working with these students. Further, those who are familiar with accommodation strategies are better prepared to make arrangements, which will ensure that students with

disabilities have an equal opportunity to participate in their programs.

Video

Today we are going to view a video that will introduce you to several faculty members and successful students with disabilities who have worked well together. In this video, faculty members share their concern about, and strategies for, working with students who have disabilities. In addition, successful students with disabilities tell us first-hand about techniques and accommodations that have contributed to their success. The video emphasizes the importance of the faculty-student relationship.

The handout, *Working Together: Faculty and Students with Disabilities*, provides an overview of faculty, staff, and student legal rights and responsibilities, examples of accommodation strategies, and a list of resources available on campus to assist us in our efforts to ensure equal educational opportunities for all students in our programs and courses.

Show video, *Working Together: Faculty and Students with Disabilities* (9 minutes).

The people featured in this video have described some of the problems and solutions that surfaced in their academic experiences. We all encounter these and other issues in our programs and departments. Accommodation strategies may be simple, yet, they may also require a bit of creativity and flexibility.



Resources

Show slide # 2 with your campus resources.



Here are some resources that might be useful to you as you work to maximize participation and success of all students in your classes. [Elaborate.]

Show slide # 3.



For comprehensive information on working with students with disabilities in postsecondary education, including accommodations, a wide range of case studies, frequently asked questions, and general resources, visit *The Faculty Room* at <http://www.washington.edu/doi/Faculty/>. This resource was developed by DO-IT at the University of Washington as part of a nationwide project to provide resources to faculty and administrators so that they can make their courses and programs accessible to all students. You can link to this resource from _____. [Arrange to provide a link from your campus' disabled student services website before the presentation.] Consider linking to this website from your department's faculty website.

Thank you for your time today and for your interest in finding ways to ensure that all of the students in our programs have equal opportunities to learn, explore interests, and express ideas.



Purpose

After this presentation, faculty and administrators will be able to

- summarize rights, responsibilities, potential contributions, and needs of students with disabilities;
- describe departmental and individual legal rights and responsibilities for ensuring equal educational opportunities for all students in their programs;
- list strategies for working with students who have disabilities, emphasizing the relationship between instructor, student, and support staff;
- describe campus resources available to assist in the provision of appropriate academic accommodations to students with disabilities; and
- list actions that individuals and departments can take to ensure that students with disabilities have educational opportunities that are equal to those of their non-disabled peers.

Length

Approximately two hours; content can be covered over several meetings.

Presenter

Department chair, faculty, staff, teaching assistant, student, or other department member who has experience working with students with disabilities. This comprehensive presentation may be co-presented with, or presented by, a staff member of a campus unit responsible for providing academic accommodations for students with disabilities.

Preparation

- Select the presenter(s).
- Develop presentation outline and activities using the “Sample Script” provided in this section and the ideas listed in the *Presentation Tips* section of this handbook.
- Create presentation slides from templates provided in the *Presentation Tools* section.
- Add the contact information for campus resources to the “Resources” slide and to printed publications as appropriate.
- Add contact information for resources available on your campus to the back page of the handout template *Working Together: Faculty and Students with Disabilities*.
- Photocopy the handout template *Working Together: Faculty and Students with Disabilities* and create alternative formats as necessary.
- If presenting the optional content “An Accommodation Model,” photocopy handout the templates *An Accommodation Model* and *Student Abilities Profile*.
- Photocopy the presentation evaluation instrument to hand out at the end of the session (see pages 189-191 for examples) or create your own.
- Add a link on your department’s website to *The Faculty Room* at <http://www.washington.edu/doi/Faculty/>.



Equipment and Tools

- DVD player and monitor
- video projector, computer, and presentation slides; Internet connection (optional)
- video (open captioned and audio described version of *Building the Team: Faculty, Staff, and Students Working Together*)
- handout (*Working Together: Faculty and Students with Disabilities, An Accommodation Model* (optional), and *Student Abilities Profile* (optional))
- presentation evaluation instrument (pages 189-191)

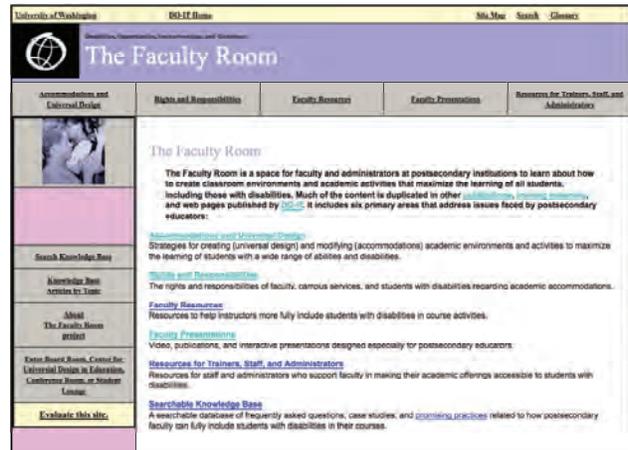
Presentation Outline

1. Distribute handouts.
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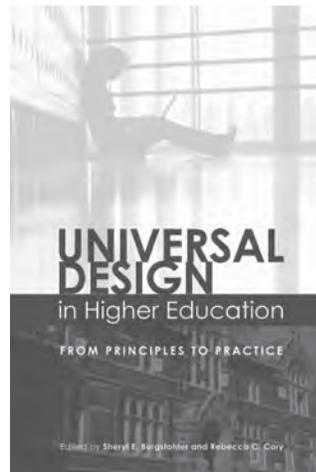
Resources

For further preparation resources for this presentation, consult

- *The Faculty Room* at <http://www.washington.edu/doit/Faculty/Strategies/>



- *Universal Design in Higher Education: From Principles to Practice* published by Harvard Education Press, 2008.





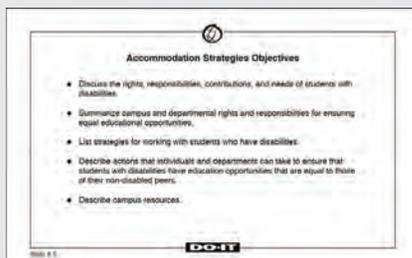
Sample Script

Show slide # 4.



Today we will discuss accommodation strategies that can be used to make your courses accessible to all of your students.

Show slide # 5.

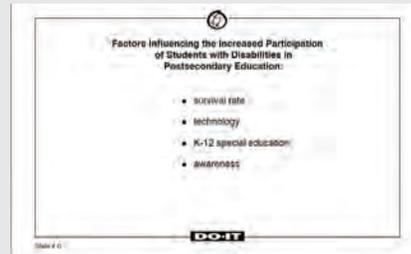


The objectives of this presentation are to

- discuss the rights, responsibilities, contributions, and needs of students with disabilities.
- summarize campus and departmental rights and responsibilities for ensuring equal educational opportunities.
- list strategies for working with students who have disabilities.
- describe actions that individuals and departments can take to ensure that students with disabilities have educational opportunities that are equal to those of their non-disabled peers.

- describe campus resources.

Show slide # 6.



Postsecondary Enrollment of Students with Disabilities

Recent advancements in technology and increased job specialization have resulted in career opportunities in fields that were once considered unsuitable for individuals with disabilities. Many of these careers require knowledge and skills obtained through postsecondary education.

The number of individuals with disabilities seeking postsecondary education has increased significantly in recent years. Reasons cited for this increase include

- advances in medical technology and techniques resulting in greater numbers of people who survive traumatic accidents and problematic births;
- improvements in technology that make it possible for more people with disabilities to live independently and have productive lives;
- the creation of federal and state mandates for pre-college academic support programs helping more students with disabilities complete high school and consider postsecondary education options; and



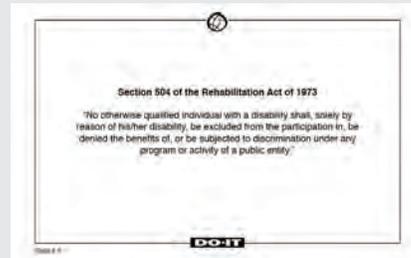
- publicity of federal disability-related legislation increasing awareness of rights to accommodation and equal opportunities in education and employment.

The probability that you will have a student with a disability in your class is quite high. According to the National Center for Educational Statistics of the U.S. Department of Education, 11.3% of all postsecondary students report having a disability.

Studies show that faculty members and staff who have experience with people with disabilities generally have more positive attitudes about working with students who have disabilities. Further, those who are familiar with accommodation strategies are better prepared to make arrangements which will ensure that students with disabilities have equal opportunities to participate in their programs.

Today we will go over our legal rights and responsibilities, examples of accommodation strategies, and resources available on our campus to help you work with students with disabilities. We'll also discuss the specific challenges in our department in working with students who have disabilities and explore strategies for improving access. Your handout *Working Together: Faculty and Students with Disabilities* provides an overview of faculty, staff, and student legal rights and responsibilities; examples of accommodation strategies; and a list of resources available on campus to assist us in our efforts to ensure equal educational opportunities for all students in our programs and courses.

Show slide # 8.



Disability Legislation

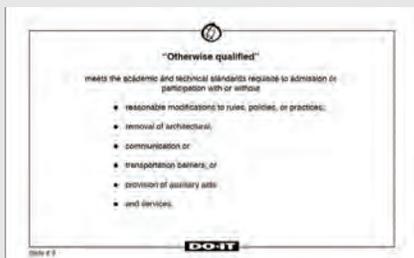
Let's begin with our legal obligations. According to Section 504 of the Rehabilitation Act of 1973, "no otherwise qualified individual with a disability shall, solely by reason of his or her disability, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity of a public entity." Federal legislation mandates that academic adjustments are made to ensure that otherwise qualified students with disabilities have access to educational opportunities.

Section 504 applies to all postsecondary institutions that receive federal funds, which includes almost every college campus. The Americans with Disabilities Act of 1990 (ADA) requires that public programs and services be accessible to individuals with disabilities, regardless of whether or not the entity receives federal funds. The ADA covers all postsecondary institutions.

Note that the law says, "otherwise qualified individual with a disability." What does "otherwise qualified" mean?

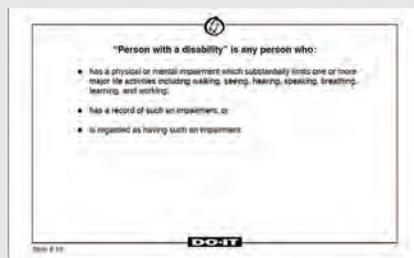


Show slide # 9.



“Otherwise qualified,” with respect to postsecondary educational services, means “a person who meets the academic and technical standards requisite to admission or participation in the educational program or activity, with or without reasonable modification to rules, policies or practices; the removal of architectural, communication or transportation barriers; or the provision of auxiliary aids and services.” In other words, a person who has a disability is “otherwise qualified” if he can perform the essential tasks of a program or assignment when appropriate and reasonable accommodations are made.

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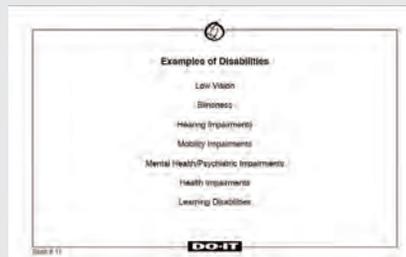


We should not assume that a person who has a disability cannot successfully participate in our programs or courses simply because he or she has a disability. Instead, if there is a concern that the student who has disclosed a disability may not be able to complete specific requirements,

we should discuss with the student (as well as campus staff who have experience in providing academic accommodations) how he or she may be able to accomplish essential tasks required in the program or course, with or without reasonable accommodations.

So, what exactly does “person with a disability” mean? “Person with a disability” means “any person who has a physical or mental impairment which substantially limits one or more major life activities including walking, seeing, hearing, speaking, breathing, learning, and working; has a record of such an impairment; or is regarded as having such an impairment.”

Show slide # 11.



Disabilities covered by legislation include, but are not limited to, spinal cord injuries, loss of limbs, multiple sclerosis, muscular dystrophy, cerebral palsy, hearing impairments, speech impairments, specific learning disabilities, head injuries, psychiatric disorders, diabetes, cancer, and AIDS. Some of these conditions are readily apparent; some are not. Additionally, some students who have conditions with the same label may have very different abilities when it comes to performing specific tasks. For example, one student who has cerebral palsy may have difficulty walking. For another student, cerebral palsy may result



in no functional use of his or her hands. For another, it may limit the use of his or her voice.

Ultimately, a student who has a disability requires accommodations only when faced with a task that requires a skill that his or her disability precludes. If a student informs an instructor that he or she has a disability and would like to arrange for academic accommodations, the instructor may ask which course or program requirements are expected to be problematic and which strategies and campus resources can eliminate or minimize the access problems. On most campuses, a disability service office is involved in this process. Sometimes an effective solution can be found by thinking creatively about how the learning environment can be modified. The student is the best source of information about his or her disability. Many accommodations are simple, creative alternatives for traditional ways of doing things.

In summary, federal legislation requires that we accept otherwise qualified students with disabilities into our academic programs. Additionally, we should work with students who have disclosed their disabilities to identify and implement reasonable academic accommodations in order to ensure that they have educational opportunities equal to those of their non-disabled peers while preserving the academic standards in courses. Few of us have the experience to identify the effects of all disabilities on the learning process. Work with the student and campus disabled student services office when determining and implementing appropriate academic accommodations.

Faculty and Students with Disabilities

Next we'll watch the video, *Building the Team: Faculty, Staff, and Students Working Together*. You'll learn about disabilities that impact students' participation in your class, examples of accommodations, and resources. Teamwork between the faculty member, the student, and the office that supports students with disabilities on our campus is key. The information covered is included in the handout entitled *Working Together: Faculty and Students with Disabilities*.

Show video,
*Building the Team: Faculty, Staff, and
Students Working Together*
(16 minutes).

[If you feel that examples of accommodations presented in the video provide enough content in this area for the audience or if time is limited, skip to the section of the presentation "An Accommodation Model," "Discussion Questions," or "Case Study."]

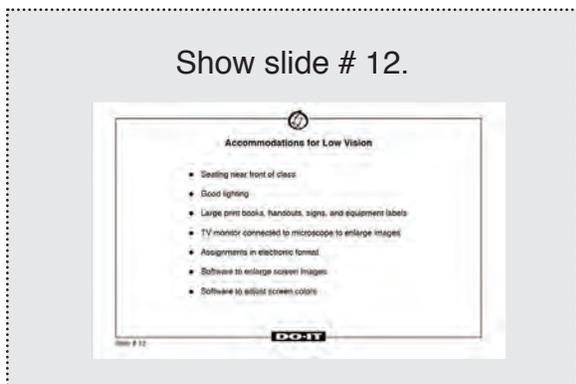
Specific Disabilities and Accommodations

Now we will review how disabilities may affect some students' abilities to participate in specific academic activities. Then we'll discuss examples of academic accommodations. I emphasize that these are only examples, since disabilities and learning styles are unique to the individual. You, the student, and campus support staff may generate many other effective strategies that are appropriate for that student.



[Following are examples of accommodations. The lists are by no means comprehensive. You may wish to substitute or add strategies that are pertinent to your audience.]

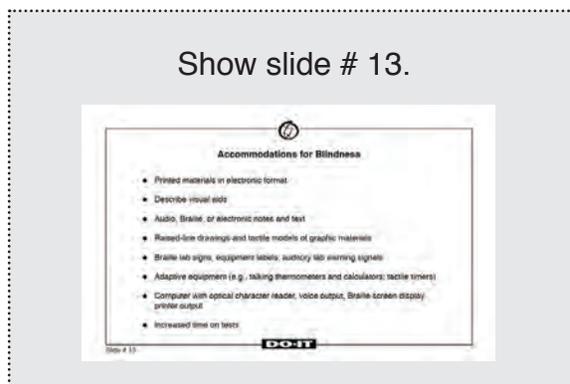
Low Vision



For some students who have low vision, standard written materials are too small to read or objects may appear blurry. Others may only see objects within a specific field of vision. Still others may see an image with sections missing or blacked out. Learning via a visual medium may take longer and may be more fatiguing for people who have low vision than for people who have standard vision.

Examples of accommodations for students with low vision include seating near the front of the class; good lighting; and large print books, handouts, signs, and equipment labels. Since it may take weeks or months to procure class materials in large print or audio format, it is essential that instructors select and prepare their materials well before the materials are needed. Other examples of accommodations include reserved seating where the lighting is best, TV monitors connected to microscopes to enlarge images, class assignments made available in electronic formats, and computers equipped with screen enlargers.

Blindness



What are some examples of ways in which blindness may affect a student's ability to learn? Students who have no sight cannot refer to written materials. Students who have had no vision since birth may have difficulty understanding verbal descriptions of visual materials and abstract concepts. Consider the example, "This diagram of ancestral lineage looks like a tree." If one has never seen a tree, it may not be readily apparent that the structure of note has several lines of ancestry which can be traced back to one central family. Students who lost their vision later in life may find it easier to understand such verbal descriptions. Additionally, demonstrations based on color differences may be more difficult for students with blindness to participate in and understand than demonstrations that emphasize changes in shape, temperature, or texture.

Ready access to printed materials on computer disk, in an email, or on a webpage can allow a blind person who has the appropriate technology to use computers to read the text aloud or produce it in Braille. Some materials may need to be transferred to an audio format. Since it may take weeks or even months to procure course materials in Braille or in an audio format, it is essential that instructors select and prepare



their materials well before the materials are needed. During lecture and demonstration, clear, concise narration of the basic points being represented in visual aids is helpful. Other examples of accommodations for blind students include tactile models and raised-line drawings of graphic materials; adaptive lab equipment such as talking thermometers, calculators, light probes, and tactile timers; and computers with optical character readers, voice output, Braille screen displays, and Braille printers.

Specific Learning Disabilities

Students with specific learning disabilities have average to above average intelligence but may have difficulties demonstrating knowledge and understanding. For a student who has a learning disability, auditory, visual, or tactile information can become jumbled at any point when it is transmitted, received, processed, or retransmitted. It may take longer for some students who have learning disabilities to process written information, making lengthy reading or writing assignments or tests difficult to complete in a standard amount of time. Some students who have learning disabilities may find it difficult to process and digest oral instructions and lectures. Some students who have learning disabilities may be able to organize and communicate their thoughts in a one-on-one conversation, but may find it difficult to articulate those same ideas in a noisy classroom.

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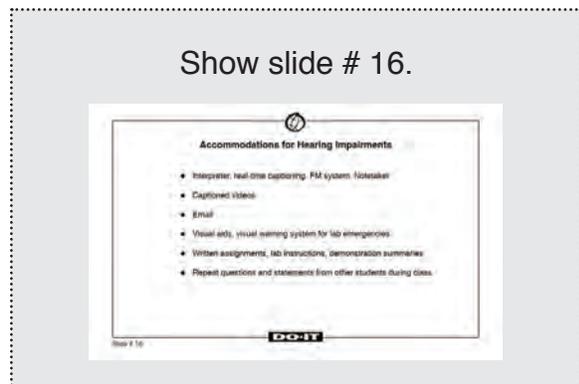
Show slide # 15.



Examples of accommodations in the classroom for students who have learning disabilities include, but are not limited to, notetakers, recorded class sessions, captioned videos, and textbooks in an audio format. Students with learning disabilities have better comprehension of information when visual, aural, and tactile instructional activities are incorporated into instruction and course and lecture outlines are made readily available. Exams for these students typically require extended time in a quiet testing location. Computers with speech output and spelling and grammar checkers are helpful in class and for home study. Assignments given in advance ensure adequate review and preparation time.



Hearing Impairments



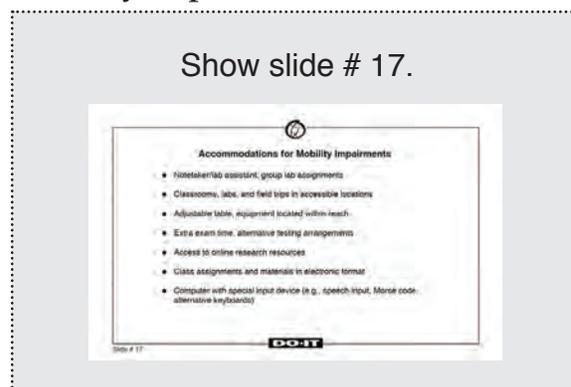
Some students who have hearing impairments may hear only specific frequencies, sounds within a narrow volume range, or nothing at all. Students who are deaf from birth generally have more difficulty speaking and understanding the English language structure than those who lose their hearing later in life.

Students who are deaf or hard of hearing may have difficulty following lectures in large halls, particularly if the speaker talks quietly, rapidly, or is unclear. Also, people who are deaf or hard of hearing may find it difficult to simultaneously watch demonstrations and follow verbal descriptions, particularly if they are watching a sign language interpreter, a real-time captioned screen, or a speaker's lips. In-class discussion that is fast paced and unmoderated may be difficult to follow, since there is often a lag time between a speaker's comments and interpretation.

Examples of accommodations for students who are deaf or hard of hearing include using interpreters, sound amplification (FM) systems, notetakers, and real-time captioners. Real time captioners transcribe lecture material digitally to a computer screen. It is also helpful for instructors to distribute written lecture

outlines, assignments, lab instructions, and demonstration summaries. Providing visual warning systems to alert for lab emergencies is a must. During presentations it is important to turn your face toward your audience when speaking and repeat discussion questions and statements made by other students. Video should be captioned. Students with hearing impairments benefit when email is used for faculty-student meetings and class discussions.

Mobility Impairments



Mobility impairments range from lower body impairments, which may require the use of canes, walkers, or wheelchairs, to upper body impairments, which may result in limited or no use of the hands or upper extremities. It may take longer for students with mobility impairments to get from one class to another. For some students it may be difficult to get to fieldwork sites. It may also be difficult for some students to manipulate objects, turn pages, write with a pen or pencil, type at a keyboard, or retrieve research materials.

Examples of accommodations for students with mobility impairments include notetakers, scribes, and lab assistants; group lab assignments; accessible locations for classrooms, labs, and field trips; adjustable



tables; equipment located within reach; extended exam time or alternative testing arrangements; course materials available in electronic formats; computers with special devices such as voice or Morse code input and alternative keyboards; and access to research resources on the Internet.

Health Impairments

Show slide # 18.



Some health conditions and medications affect memory and energy levels. Additionally, some students who have health impairments may have difficulty attending classes full-time or on a daily basis.

Examples of accommodations for students who have health impairments include flexible attendance requirements; extra exam time or alternative testing arrangements; notetakers or recorded class sessions; assignments available in electronic format; Internet accessible services or resources; and email for faculty-student meetings, class discussions, and distribution of course materials and lecture notes.

Speech Impairments

Show slide # 19.

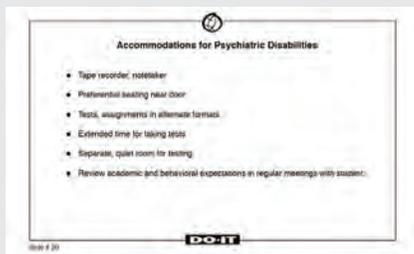


Speech impairments have a variety of origins, which may or may not be related to other disabilities. Qualities of speech impairments range from mild to severe word pronunciation and articulation differences as well as variations in rate, tone, and volume. It often takes longer for a student with a speech impairment to speak and express him or herself. Helpful accommodations and communication strategies when working with a student who has a speech impairment include relaxing and allowing ample time for communication, listening carefully to what the person is saying, asking the student to repeat a word or statement that you don't understand, asking questions that require short answers or a nod of the head when appropriate, using written notes to facilitate communication, and hosting discussions and assignments over email can allow full expression of knowledge and ideas.



Psychiatric Disabilities

Show slide # 20.

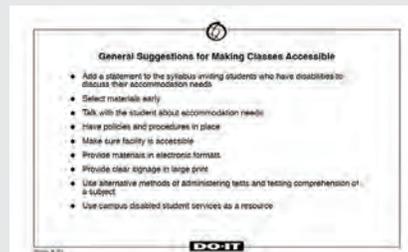


Increasing numbers of students with psychiatric disabilities are pursuing postsecondary education. The National Center for Educational Statistics (2003) report that 22% of students with disabilities in postsecondary education reported a mental illness or depression. These students are intelligent and capable of pursuing and succeeding in higher education once barriers to equal access are removed. Mood disturbance, cognitive changes, or altered perceptions may result in functional difficulties related to anxiety, disorganization, or concentration difficulty.

Providing a consistent, yet flexible, approach and maintaining a positive attitude with high expectations encourages success. Specific accommodations of students with psychiatric disabilities include recording the class or using a notetaker during class; preferential seating near the door to allow for breaks as needed; tests and assignments in alternate formats; and extended time for test taking in a quiet, separate room. Structure and clear, practical feedback regarding academic and behavioral expectations is helpful for self monitoring by students with psychiatric disabilities.

General Strategies to Increase Classroom Accessibility

Show slide # 21.



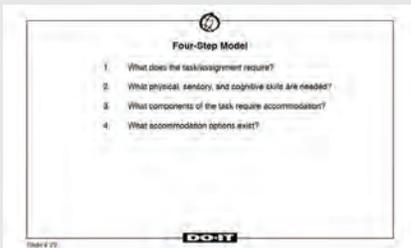
To conclude our discussion of accommodation examples, here are some general suggestions for making your classes accessible:

- Add a statement to the syllabus inviting students with disabilities to discuss their needs and accommodation strategies with you.
- Select materials early so that they can be procured in appropriate formats in a timely manner.
- Ask students about accommodations that have worked for them in the past.
- Have policies and procedures in place.
- Make sure the facility is wheelchair-accessible.
- Use materials that are available in an electronic format.
- Provide clear signage in large print.
- Use alternative methods to administer tests and evaluate student comprehension of a subject.
- Use the campus disability services office.



[The following optional section may be appropriate for some audiences. If not, skip to “Discussion Questions.” This optional section requires two handouts: *An Accommodation Model* and the *Student Abilities Profile*.]

Show slide # 22.



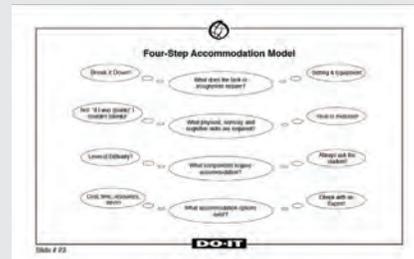
An Accommodation Model (Optional)

[Distribute the publications *An Accommodation Model* and *Student Abilities Profile*.]

Accommodations are unique to the individual, but it is helpful to have a process to work through when determining appropriate accommodations for a student who has disclosed his or her disability. DO-IT, a center at the University of Washington, has developed *An Accommodation Model* and a *Student Abilities Profile* form that can be used to identify effective accommodations once a student has disclosed his or her disability. Information about the process and a copy of the form is available in the handouts.

The accommodation model is organized around the following four questions:

Show slide # 23.



Step #1: What does the task or assignment require?

Break down the components of the experiment, assignment, or exercise. Educators often focus on the overall outcome of an activity. To accommodate a student with a disability, it's helpful to think about the specific settings, tools, skills, and tasks that are required at each step. Analyzing and evaluating the task thoroughly will help you determine how best to fully and effectively include a student with a specific disability.

Step #2: What physical, sensory, and cognitive skills are needed?

Match the tasks required to the physical, sensory, and cognitive skills needed to successfully complete the activity. It is easy to say, “If I had a physical, sensory, or cognitive disability, I would not be able to complete this assignment,” without really determining what skills are needed for specific aspects of the project. We need to separate the real requirements of a specific task from the perceived requirements of the project in total. It is impossible to place yourself in the shoes of the student with a disability. He or she may have learned several ways to solve a specific problem or task and work around the limitations imposed by the disability.



Step #3: What components of the task require accommodation?

Once the task has been analyzed and the needed skills are identified, determine what accommodations may be required or how the learning experience might be altered to make it more accessible to a specific student with a disability. Consult with the student to determine what he or she perceives will be required as an accommodation.

Step #4: What accommodation options exist?

Now that the tasks needing accommodation have been determined, identify what resources exist for providing the accommodation(s). The student may have some good ideas. This is a time when other professionals may have expertise in specific areas and should be called on to provide input. In some cases, having students work in groups where each person is assigned a task that he or she has the ability to complete provides a reasonable alternative.

Show slide # 24.



The *Student Abilities Profile* is designed to guide you in determining a student’s skills and abilities as well as assist you in breaking down individual components of an assignment. The form asks you to briefly describe the student, the classroom or laboratory environment, equipment or supplies needed, available professional and external resources, possible effective

accommodations, and the physical, sensory, and cognitive skills needed for the task.

Let’s go through one example together and then, in small groups, you can create your own. [Go through the process of filling out the form for a specific student using the “Background” and “Access Issues” sections of the case studies on pages 63-74.]

Now gather in small groups. Fill out the blank profile. Choose a classroom or lab activity and complete the *Student Abilities Profile* for a student who has a specific set of disability-related challenges.

Show slide # 25.



[You can provide blank forms or distribute partially filled out forms if you want the activity to be more directed. Participants can work in small groups and then share their results with the large group.]



Discussion Questions

[Discuss some or all of the following questions.]

- Do we currently have students with disabilities in our department? What types of disabilities are represented?
- Have any of you worked with students who have disabilities before? Describe your experiences. What strategies did you find to be successful or unsuccessful?
- What can we as a department and as individual instructors do to make our academic programs more accessible to students who have
 - visual impairments?
 - hearing impairments?
 - mobility impairments?
 - learning disabilities?
 - health impairments?

[Examples of accommodations include providing publications in accessible formats such as Braille, large print, and electronic formats; hosting advisor and staff awareness training; providing continuous evaluation of essential program course requirements; and offering classroom instructional improvements.]

- What actions can be taken to make our academic programs more accessible?

[Examples:

- Invite someone from outside of our department to answer specific questions and give us advice regarding appropriate accommodations.
- Designate someone to find out if there are disability access activities currently in progress on campus that we can contribute to and learn from.
- Consider mailing the publication *Working Together: Faculty and Students with Disabilities* to all faculty members and teaching assistants each year.]
- How can we make our facilities (e.g., classrooms, offices, and computer and instructional labs) more accessible to individuals who have
 - visual impairments?
 - hearing impairments?
 - mobility impairments?
 - learning disabilities?
 - health impairments?

[Examples of accessibility adjustments:

- Visual impairments: Braille labels, signage, arrangement and procurement of accessible lab equipment; adaptive technology in computer labs.



- **Mobility impairments:** Wheelchair access entrances clearly marked and notices posted at each non-accessible entrance regarding the location of accessible entrances; wheelchair-accessible entrances, if different from the main entrance; adaptive technology in computer labs.
- **Visual, health, and mobility impairments:** Hallways and classrooms kept clear of obstacles that could present a problem for an individual getting to class or safely negotiating the environment within class.]
- What actions should be taken to make our facilities more accessible and who should coordinate them?

[Examples:

- Survey facilities regarding accessibility.
- Identify and begin the procedure to procure signage, lab equipment, and adaptive computer technologies.]

Case Study

[Consider having participants discuss a case study. Case Study #4 on page 69 in the *Presentation Tips* section of this notebook would be appropriate.]

Conclusion

Today we've discussed the rights and responsibilities of faculty, disabled student services staff, and students with disabilities. We've also considered typical accommodations for students with specific disabilities. Instructors, staff, and students should work together to develop the best

accommodation strategies. The ultimate result can be improved postsecondary education and career outcomes for people with disabilities.

Resources

Show slide # 2 with your campus resources.



Here are some resources that might be useful to you as you work to maximize the participation of all students in your classes. [Elaborate.]

Show slide # 3.



For comprehensive information on accommodations, a wide range of case studies, frequently asked questions, and general resources, visit *The Faculty Room* at <http://www.washington.edu/doit/faculty/>. This resource was developed at the University of Washington as part of a nationwide project to provide resources to faculty and administrators so that they can make their courses and programs accessible to all students. You can link to this resource from _____. [Arrange to provide a link from your



campus' disabled student services website before the presentation.] Consider linking to this website from your department's faculty website.

Thank you for your time today and for your interest in finding ways to ensure that all of the students in our programs have equal opportunities to learn, explore interests, and express ideas.



Purpose

After completion of this lesson, participants will be able to

- list at least three universal design principles,
- list three ways that universal design principles can be used to make a more inclusive classroom, and
- describe the difference between employing universal design principles to maximize access and providing accommodations for students with disabilities.

Length

Approximately 40-60 minutes.

Presenter

Department chair, faculty, staff, TA, student, or other department member who has experience working with students with disabilities. This presentation may be presented by, or co-presented with, a staff member of a campus unit responsible for providing academic accommodations for students with disabilities.

Preparation

- Select the presenter(s).
- Develop presentation outline and activities using the “Sample Script” provided in this section and the ideas listed in the *Presentation Tips* section of this notebook.
- Create presentation slides from provided templates.

- Add the contact information for campus resources to the “Resources” slide and to printed publications as appropriate.
- Photocopy the handout templates *Universal Design of Instruction (UDI): Definition, Principles, Guidelines, and Examples* and *Equal Access: Universal Design of Instruction*. Create alternative formats as necessary.
- Photocopy the presentation evaluation instrument to distribute at the end of the session (see pages 189-191 for examples) or create your own.
- Add links on your department’s website to *The Faculty Room* at <http://www.washington.edu/doit/Faculty/> and to *The Center for Universal Design in Education* at <http://www.washington.edu/doit/CUDE/>.

Equipment and Tools

- DVD player and monitor
- video projector, computer, and presentation slides; Internet connection (optional)
- video (open-captioned and audio described version of *Equal Access: Universal Design of Instruction*)
- handouts (*Universal Design of Instruction (UDI): Definition, Principles, Guidelines, and Examples* and *Equal Access: Universal Design of Instruction*.)
- presentation evaluation instrument (pages 189-191)



Building the Team

Presentation Outline

1. Distribute handouts.
2. Introductions.
3. Begin presentation.
4. Discuss universal design principles and examples.
5. Introduce and play video as noted in the script.
6. Discuss universal design of instruction examples and contrast with the provision of accommodations.
7. Discuss department or campus issues.
8. Note campus resources.
9. Distribute and collect completed evaluation instruments.

Resources

For further preparation resources for this presentation, consult

- *The Faculty Room* at <http://www.washington.edu/doit/Faculty/Strategies/Universal/>

- *The Center for Universal Design in Education* at <http://www.washington.edu/doit/CUDE/>

The screenshot shows the homepage of the Center for Universal Design in Education (CUDE). The page features a navigation menu with categories like 'Introduction to Universal Design', 'Postsecondary Education', 'Elementary/Secondary Education', 'Projects, Exhibits, Conferences', and 'Resources and Training'. The main content area includes a search bar, a 'Search Knowledge Base' section, and several featured articles or resources such as 'Introduction to Universal Design', 'Postsecondary Education', 'Elementary/Secondary Education', 'Projects, Exhibits, Conferences', and 'Resources and Training'. The page also includes a footer with copyright information.

- *Universal Design in Higher Education: From Principles to Practice* published by Harvard Education Press, 2008.



The screenshot shows the homepage of 'The Faculty Room' website. The page has a purple header with the title 'The Faculty Room' and a navigation menu with categories like 'Accommodations and Cultural Issues', 'Rights and Responsibilities', 'Faculty Resources', 'Faculty Presentations', and 'Resources for Trainers, Staff, and Administrators'. The main content area includes a search bar, a 'Search Knowledge Base' section, and several featured articles or resources such as 'The Faculty Room', 'Accommodations and Universal Design', 'Rights and Responsibilities', 'Faculty Resources', 'Faculty Presentations', 'Resources for Trainers, Staff, and Administrators', and 'Searchable Knowledge Base'. The page also includes a footer with copyright information.



Sample Script

Show slide # 26.



Today we will be discussing principles of universal design of instruction and how to use these principles in your instruction for the benefit of all students, including those with disabilities.

Show slide # 27.



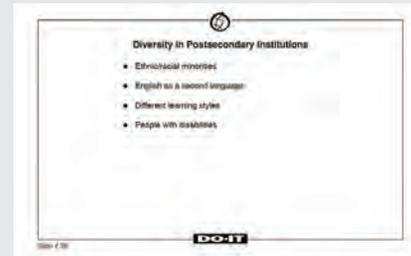
The objectives of today's presentation are to

- discuss the principles of universal design.
- apply principles of universal design of instruction to meet a wide range of student learning needs.
- explain the difference between employing universal design principles to maximize access and providing academic accommodations for students with disabilities.

Diversity in Postsecondary Institutions

Today, postsecondary institutions attract a diverse student body.

Show slide # 28.



Students come from a wide variety of ethnic and racial backgrounds. There are many types of learning styles and strengths represented, including students who are primarily visual or auditory learners. In addition, increasing numbers of students with disabilities are pursuing postsecondary education.

Their disabilities may include spinal cord injuries, loss of limbs, multiple sclerosis, muscular dystrophy, cerebral palsy, hearing impairments, visual impairments, speech impairments, learning disabilities, head injuries, psychiatric disorders, diabetes, cancer, and AIDS.

The probability that you will have a student with a disability in one of your classes is high. According to the National Center for Educational Statistics, Postsecondary Education (2006), 11.3% of all undergraduates reported having a disability.

You and the students in your classroom share the common goal of education. So how can you design your instruction to maximize the learning of all students? The field of universal design can provide a starting point for developing a model



for inclusive instruction. Universal design can be applied to instructional design and help you create courses in which lectures, discussions, visual aids, videos, printed materials, and fieldwork are accessible to all students.

Universal Design

Show slide # 29.



Designing any product or service involves the consideration of factors that may include aesthetics, engineering options, environmental issues, safety concerns, and cost. One issue that designers often overlook is that of “universal design.”

Universal design is defined by the Center for Universal Design at North Carolina State University as “the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design.”

At the center, a group of architects, product designers, engineers, and environmental design researchers collaborated to establish a set of principles of universal design. The principles provide guidance in the design of environments, communications, and products.

Show slide # 30.



Let’s discuss the meaning and an example of each principle as provided in your handout *Universal Design of Instruction (UDI): Definition, Principles, Guidelines, and Examples*.

1. *Equitable use*. The design is useful and marketable to people with diverse abilities. Example: A professor’s website is designed so that it is accessible to everyone, including students who are blind and using text-to-speech software.
2. *Flexibility in use*. The design accommodates a wide range of individual preferences and abilities. Example: A museum, visited as a field trip for a course, allows each student to choose to read or listen to a description of the contents of display cases.
3. *Simple and intuitive use*. Use of the design is easy to understand, regardless of the user’s experience, knowledge, language skills, or current concentration level. Example: Control buttons on science equipment are labeled with text and symbols that are simple and intuitive to understand.
4. *Perceptible information*. The design communicates necessary information effectively to the user, regardless of ambient conditions or the user’s sensory



abilities. Example: A video presentation projected in a course includes captions.

5. *Tolerance for error.* The design minimizes hazards and the adverse consequences of accidental or unintended actions. Example: Educational software provides guidance and background information when the student makes an inappropriate response.
6. *Low physical effort.* The design can be used efficiently, comfortably, and with a minimum of fatigue. Example: Doors to a lecture hall open automatically for people with a wide variety of physical characteristics.
7. *Size and space for approach and use.* Appropriate size and space is provided for approach, reach, manipulation, and use regardless of the user's body size, posture, or mobility. Example: A flexible science lab work area has adequate workspace for students who are left- or right-handed and for those who need to work from a standing or seated position.

When designers apply universal design principles, their products and facilities meet the needs of potential users with a wide variety of characteristics. Disability is just one of many characteristics that an individual might possess. For example, one person could be five feet four inches tall, female, thirteen years old, a poor reader, and deaf. All of these characteristics, including her deafness, should be considered when developing a product she might use.

Making a product accessible to people with disabilities often benefits others. For example, sidewalk curb cuts, designed to make sidewalks and streets accessible to

those using wheelchairs, are today more often used by people on skateboards, parents with baby strollers, and delivery staff with rolling carts. Another example is television displays in airports and restaurants that are captioned. The captioning benefits people without disabilities as well as those who are deaf.

[Discuss examples of things you would consider if you were designing a microwave oven, toaster, building, or other product that would be universally accessible.]

Universal Design of Instruction

Universal design principles can be applied to many products and services. In the case of classroom instruction or a distance learning class, a goal should be to create a learning environment that allows all students, including people with disabilities, to access the content of the course and fully participate in class activities.

In the short video that we will now watch, we will see an example of the application of universal design principles to distance learning instruction. The video itself is universally designed, including open captions and audio descriptions for viewers with hearing and visual impairments, respectively. Your handouts summarize the content of the video.

Show video, *Equal Access: Universal Design of Instruction* (13 minutes).



As demonstrated in the video and summarized in the handouts, universal design principles can be applied as you develop online and on-site courses. They can apply to lectures, classroom discussions, group work, handouts, web-based instruction, fieldwork, and other academic activities.

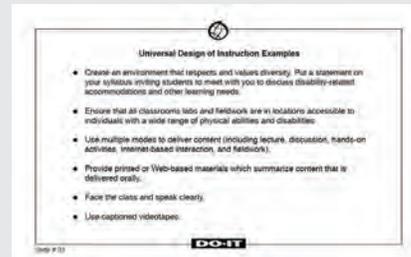
When universal design principles are applied to the design of webpages, people using a wide range of adaptive technology can access them. For example, people who are blind often use speech output systems to access computers. These systems read aloud text that is presented on the screen but do not read graphical images. Therefore, to provide access to websites for students who are blind, we must be sure to include text descriptions for content presented in graphical form, such as pictures, images, and graphs.

Let's create a list of examples of how principles of universal design apply to instruction. What are some of the diverse characteristics your students might have?

[Encourage discussion. Consider English as a second language, different cultures, blindness, no use of hands, etc.]

What are some examples of instructional methods that employ principles of universal design and make your course content accessible to people with a wide range of abilities and disabilities, language skills, and learning styles?

Show slide # 31.



Show slide # 32.



[Encourage participation and include all or some of the following examples. This activity could be conducted in small groups followed by a large group discussion.]

[Examples of universal design instructional methods:

- Create a classroom environment that respects and values diversity. Put a statement on your syllabus inviting students to meet with you to discuss disability-related accommodations and other special learning needs.
- Ensure that classrooms, labs, and fieldwork are in locations accessible to individuals with a wide range of physical abilities and disabilities.
- Use multiple modes to deliver content. Alternate delivery methods include lecture, discussion, hands-on activities,



Internet-based interaction, and fieldwork.

- Provide print or web-based materials that summarize content delivered orally.
- Face the class and speak clearly.
- Provide captioned videos.
- Provide print materials in an electronic format.
- Provide text descriptions of images presented on webpages.
- Provide printed materials early. This allows students to prepare for the topic to be presented and access materials in alternative formats.
- Create print and web-based materials in simple, consistent formats. This practice is particularly helpful to students with learning disabilities and students for whom English is a second language.
- Provide effective prompting during an activity and feedback after the assignment is completed.
- Encourage different ways for students to interact with each other and with you. These methods may include in-class questions and discussion, group work, and web-based communications.
- Provide multiple ways for students to demonstrate knowledge. For example, besides traditional tests and papers, consider group work, demonstrations, portfolios, and presentations as options for demonstrating knowledge.

- Make sure equipment and activities minimize sustained physical effort.]



Now, let's summarize how you might employ universal design principles to make specific activities accessible to all students. Consider the following areas of application:

[Encourage discussion and sharing of examples.]

- class climate
- physical environments/products
- delivery methods
- information resources/technology
- interaction
- feedback
- assessment
- accommodation



Universal Design vs. Accommodations

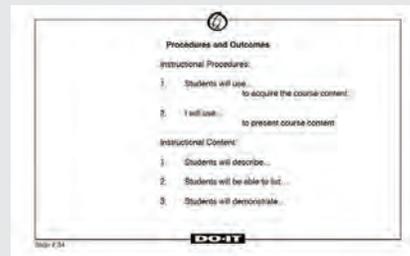
Does employing universal design principles in instruction eliminate the need for specific accommodations for students with disabilities? In a word, no. There will always be the need for some specific accommodations, such as sign language interpreters for students who are deaf. However, using universal design principles in course planning will ensure greater access to the content for most students and minimize the need for specific accommodations. For example, designing web resources in accessible formats as they are developed means that no redevelopment is necessary if a blind student enrolls in the class. Planning ahead can be less time-consuming in the long run.

Preserving Educational Standards

Course content and evaluation standards are the purview of the instructor. An instructor can preserve academic instructional integrity when employing universal design principles or when providing instructional accommodations for students with disabilities. Disability accommodations should not alter instructional content or evaluation standards. The student with a disability should face the same intellectual challenges as other students.

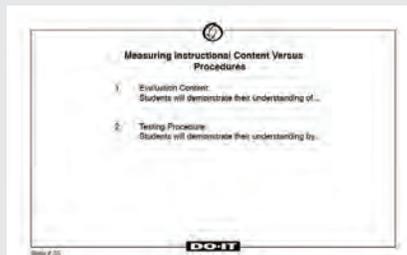
To ensure that the same content is presented to every student in the class, it is helpful to distinguish the academic content from the instructional methods used to deliver the information.

Show slide # 34.



When instructional objectives and academic content are separated from the method of instructional content, it is easier for the instructor to think about how he or she can provide the information in a variety of modalities. The goal is to modify the methods and procedures for a student with a disability while preserving the educational content and evaluation standards of the course.

Show slide # 35.



Let's look at examples for separating essential instructional content in an academic class from the methods used to deliver and evaluate content.

[Ask participants to give examples from their own classrooms.]

For example, testing objectives and content should be considered separately from testing method. Tests should be designed to measure the level of mastery in a subject area. For a student with a disability, you



may need to use an alternate method that tests for the same level of mastery as is used for other students. In other words, you change the testing procedure to evaluate mastery of the same content as that expected of other students. To fail the student who knows the content but has difficulty with a type of testing methodology because of his disability, is as unfair as passing a student who does not know the material.

Benefits to All Students

Universal design of instruction can benefit all students. For example, captioning course videos, which provides access to deaf students, is also a benefit to students for whom English is a second language, to some students with learning disabilities, and to those watching the video in a noisy environment. Delivering presentation content using multiple modes can benefit students with a variety of learning styles.

Case Study

[Consider having participants discuss a case study. Case #6 on page 73 in the *Presentation Tips* section of this notebook would be appropriate.]

Conclusion

Employing universal design principles in everything we do provides information and access for all individuals regardless of learning style, language, or ability.

Resources

Show slide # 2 with your campus resources.



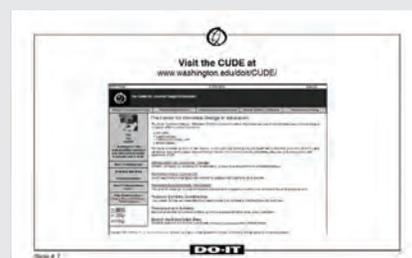
Here are some resources that might be useful to you as you work to maximize effective communication with all students in your classes. [Elaborate.]

Show slide # 3.



For comprehensive information on accommodations, a wide range of case studies, frequently asked questions, and general resources, visit *The Faculty Room* at <http://www.washington.edu/doit/Faculty/> and *The Center for Universal Design in Education* at <http://www.washington.edu/doit/CUDE/>.

Show slide # 7.





These resources were developed at the University of Washington as part of a nationwide project to provide resources to faculty and administrators so that they can make their courses and programs accessible to all students. You can link to these resources from _____. [Arrange to provide a link from your campus' disabled student services website before the presentation.] Consider linking to these websites from your department's faculty website.

Thank you for your time today and for your interest in finding ways to ensure that all of the students in our programs have equal opportunities to learn, explore interests, and express ideas.

Effective Communication with Students Who Have Communication Disorders



Purpose

At the end of this presentation, participants will be able to

- summarize the rights and responsibilities, potential contributions, and needs of students with disabilities;
- discuss departmental and individual legal rights and responsibilities for ensuring equal educational opportunities for all students in their programs;
- list a range of disabling conditions that can affect communication in courses;
- list strategies for communicating with students who have disabilities using technology, trained support staff, and instructor creativity; and
- describe campus resources available to assist in the provision of appropriate academic accommodations to students with disabilities.

Length

Approximately 60–90 minutes.

Presenter

A faculty member or TA who has successfully taught students with disabilities that affect oral and auditory communication or someone from the campus unit providing services for students with disabilities. It may be possible to arrange for a student to co-present. At an appropriate time during the presentation, the student could describe the impact of his disability on communication and effective communication strategies.

Preparation

- Select the presenter(s).
- Develop presentation outline and activities using the “Sample Script” provided in this section and the ideas listed in the *Presentation Tips* section of this notebook.
- Create presentation slides from provided templates.
- Add the contact information for campus resources to the “Resources” slide and to printed publications as appropriate.
- Photocopy the handout template *Effective Communication: Faculty and Students with Disabilities*. Create alternative formats as necessary.
- Photocopy the presentation evaluation instrument to distribute at the end of the session (see page 189-191 for examples) or create your own.
- Add a link on your department’s website to *The Faculty Room* at <http://www.washington.edu/doi/Faculty/>.

Equipment and Tools

- video projector, computer, and presentation slides; Internet connection (optional)
- handout (*Effective Communication: Faculty and Students with Disabilities*)
- presentation evaluation instrument (pages 189-191)



Presentation Outline

1. Distribute handout.
2. Introductions.
3. Begin presentation.
4. Discuss communication disabilities and accommodation strategies.
5. Discuss case studies.
6. Note campus resources.
7. Distribute and collect completed evaluation instruments.

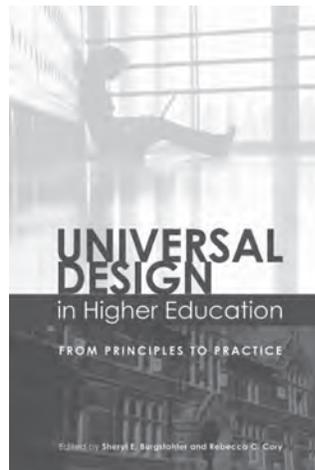
Resources

For further preparation resources for this presentation, consult

- *The Faculty Room* at <http://www.washington.edu/doit/Faculty/Hearing/>



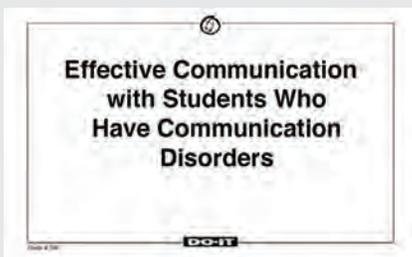
- *Universal Design in Higher Education: From Principles to Practice* published by Harvard Education Press, 2008.





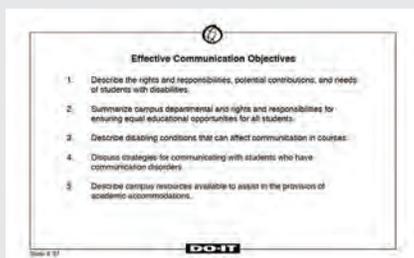
Sample Script

Show slide # 36.



Today we'll be discussing effective strategies for communicating with students who have disabilities.

Show slide # 37.



The objectives of this presentation are to

- describe the rights and responsibilities, potential contributions, and needs of students with disabilities.
- summarize campus departmental and rights and responsibilities for ensuring equal educational opportunities for all students.
- describe disabling conditions that can affect communication in courses.
- discuss strategies for communicating with students who have communication disorders.

- describe campus resources available to assist in the provision of academic accommodations.

Communication and Learning in Postsecondary Settings

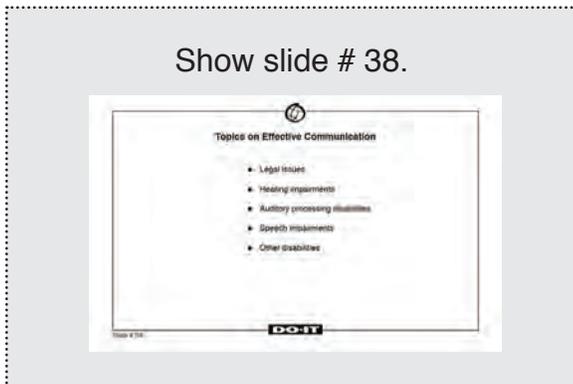
The number of individuals with disabilities seeking postsecondary education has increased and the federal government has made it clear that institutions must provide reasonable accommodations to ensure that otherwise qualified students with disabilities have access to educational opportunities offered to other students. With advancements in technology, state and federal mandates, and improved awareness about disability issues, students with a wide range of disabilities have better access to postsecondary educational programs. They are part of the student body in every institution of higher learning.

Postsecondary courses often use a traditional lecture format. Even distance education programs that have emerged in the last decade rely heavily on lectures (e.g., audio or video presentations) and discussion. Lectures and classroom interaction can present significant barriers to some students. Students who, for one reason or another, have difficulty listening, speaking, or understanding are at a disadvantage in academic courses. Without accommodations, it might be impossible for a student who cannot hear, speak, or understand spoken language to pursue an education. Developing an awareness of how communication can pose barriers to learning, as well as strategies that can help remove these barriers, may help to maximize learning opportunities in your classroom.



Disabilities that affect communication include hearing impairments, auditory processing disabilities (typically resulting from brain injuries or specific learning disabilities), and speech impairments. These disabilities represent a significant part of the postsecondary student population. According to the National Center for Educational Statistics of the U.S. Department of Education (2006), 11.3% of all students attending a postsecondary institution reported a disability.

The information we'll cover today is included in your handout *Effective Communication: Faculty and Students with Disabilities*.



We'll review issues of legal rights and responsibilities. I'll provide information on hearing and speech disorders and other disabilities that can affect communication in courses. Examples of accommodation strategies and resources available on our campus and on the Internet will also be presented. The overall goal is to enhance your ability to communicate effectively with students who have disabilities that affect expressive or receptive communication.

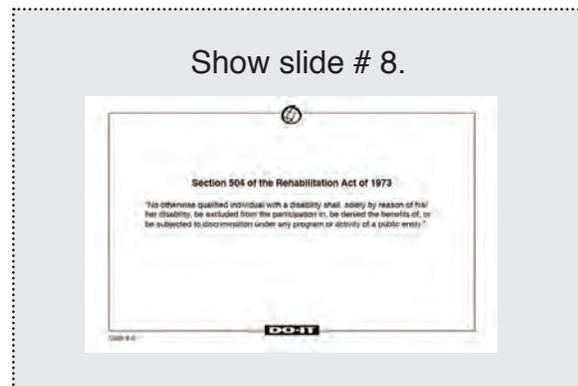
What are some of your experiences working with students who have disabilities? Have you worked with a student with a disability that affected his communication with you

or fellow students? What strategies were successful? What didn't work?

[This interaction should encourage active participation and help you understand what participants know and don't know before you continue with the presentation. Try to use the ideas from participants in later discussions. Be sure to revisit their experiences by the end of the presentation.]

Legal Issues

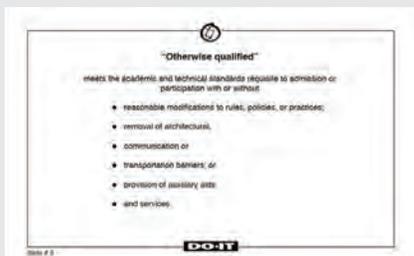
Let's talk about our legal obligations.



According to Section 504 of the Rehabilitation Act of 1973, "no otherwise qualified individual 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 under any program or activity of a public entity." Most postsecondary institutions that receive federal funds are covered under Section 504. The Americans with Disabilities Act of 1990 reinforces and extends Section 504 requirements to all postsecondary institutions and other organizations that provide services to the public.



Show slide # 9.



“Otherwise qualified,” with respect to postsecondary educational services, means “a person who meets academic standards requisite to admission or participation in the education program or activity, with or without reasonable modifications to rules, policies or practices; the removal of architectural, communication or transportation barriers; or the provision of auxiliary aids and services.”

Show slide # 10.



“Person with a disability” means “any person who has a physical or mental impairment which substantially limits one or more major life activities including walking, seeing, hearing, speaking, breathing, learning, and working; has a record of such an impairment, or is regarded as having such an impairment.”

In summary, federal legislation requires that we accept otherwise qualified students with disabilities into academic programs.

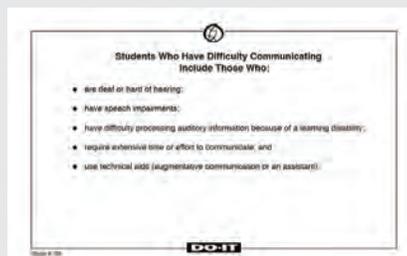
We must work with students who disclose disabilities to identify and implement reasonable accommodations that will ensure equal access to the educational opportunities we offer to other qualified students. Experienced staff in our disabled student services office can assist instructors in understanding the effects of disabilities on the learning process. The instructor, campus disabled student services staff, and the student with disabilities can work together to identify and implement appropriate accommodation strategies.

Communication Disabilities

I will discuss examples of how students with some disabilities communicate and learn. Then we will discuss academic accommodations that might be suitable in these situations. I emphasize that these are only examples. The combination of learning styles, abilities, and disabilities are unique to the individual.

Communication can be classified as “expressive” or “receptive.” Expressive communication is the ability to produce speech. Receptive communication is the ability to understand speech.

Show slide # 39.



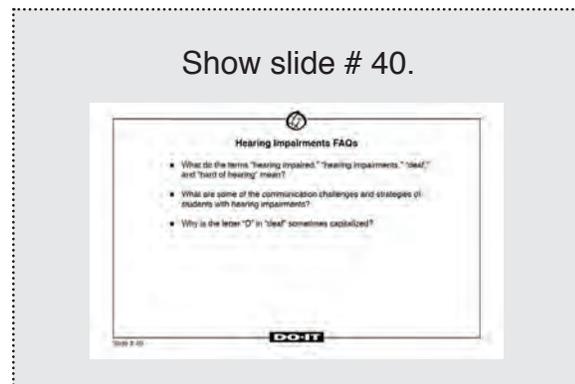


Students who have difficulty communicating in class include those who are deaf or hard of hearing, have speech impairments, have difficulty processing auditory information because of a learning disability, or have physical impairments that affect their speech or language. Often these students require extensive time or effort to communicate and use teaching aids, augmentative communication devices, and assistants. Although some of these conditions are obvious, many are not. A student with a mild hearing loss or a language processing disability does not appear different from other students.

Students with the same type of impairment or diagnosis may perform similar tasks with different degrees of success; they may require different accommodations in order to participate in classroom activities. For example, one deaf student might be much better at group discussion and participation than another deaf student who excels at written exams.

Because of the diverse impact similar disabilities have on each student, there are no standard accommodation strategies that work with everyone. Flexibility and creativity are key to providing accommodations. The goal is that each student has access to the course content and for you, the instructor, to be able to assess what the student has learned. The student may have developed successful coping strategies during high school or other previous learning environments. Discuss with the student what has worked or not worked in the past before deciding on the best accommodation strategies for your class or program.

Hearing Impairments



First, we'll discuss challenges and accommodations for students who are deaf or hard of hearing. We'll answer the following questions.

- What do the terms “hearing impaired,” “hard of hearing,” and “deaf” mean?
- Why is the letter “D” in “deaf” sometimes capitalized?
- What are some of the communication challenges and strategies of students with hearing impairments?

[Teaching activity suggestion: For the first sentence below, speak normally. Gradually, speak quieter. During the last sentence, just move your mouth without using sounds. After the audience is silent or wondering for a moment, restate using normal volume. Discuss reactions with the audience.]

“Hearing impairment” is a generic term that includes the entire range of hearing loss, from mild to profound. Hearing loss is generally measured by an audiogram, which determines the loudness (decibel level) and frequency (hertz) at which a person can and cannot hear. A student with a measured level of hearing loss could be



categorized as hearing impaired, but this term does little to describe the specific level of hearing loss.

People who are hard of residual hearing rely a great deal on their residual ability to hear. Most hard-of-hearing students can follow one-on-one conversations but have a more difficult time communicating in groups or understanding lectures. Hard-of-hearing students might only be able to hear parts of audio information. They usually wear hearing aids and use technology aids to amplify and clarify sounds. They may be able to connect their hearing aids to output devices. For example, a computer usually has a place to attach earphones, as do some video and audio players. Some students who are hard of hearing may prefer seeing printed text or using a sign language interpreter. Some use American Sign Language (ASL) as their primary communication method.

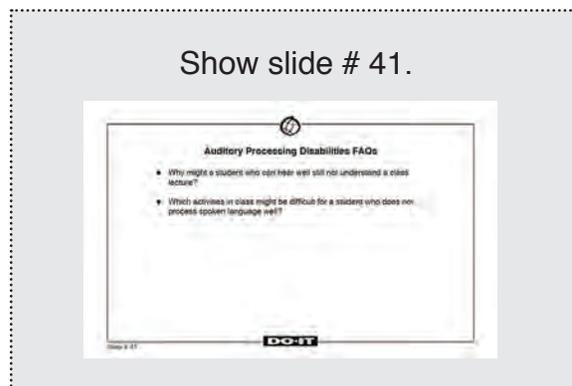
Deaf students have a very limited or no ability to understand sounds, even with amplification. Film narration, lectures, and group communication may be especially difficult to follow. They generally depend on visual information to understand content. Visual information includes sign language, printed text, handwritten notes, captioning, a computer screen, and speech (lip) reading. Although some deaf students can speak, many do not use speech to express their ideas, especially if their primary communication method is sign language. Instead, they write, type, or use sign language to communicate with others.

Most students with hearing impairments experience fatigue as they watch intently or listen hard. Consequently, students who have hearing impairments may have

difficulty with lectures or activities lasting more than two hours.

When the term “Deaf” is capitalized in literature, it ascribes a cultural identity to the group, much like an ethnicity. Although those who choose to affiliate significantly with other ASL users as members of “Deaf culture” identify with the ASL language community, this affiliation does not necessarily mean that the person is profoundly deaf.

Auditory Processing Disabilities



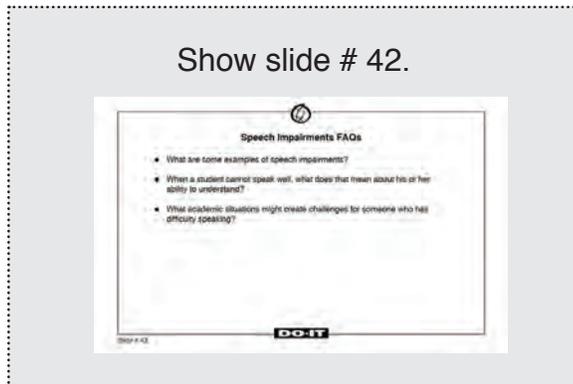
Other types of disabilities, besides hearing impairments, affect communication with others. Next, we’ll discuss auditory processing disabilities.

A student who has a brain injury or a specific learning disability may speak and hear sounds quite well. However, if this student has an auditory processing disability, he or she might not readily or efficiently understand the meaning of the words spoken by an instructor. Accents, fast pace, and new terminology can further complicate processing of the information. This student may be able to read written text or understand visual information that is inaccessible to him aurally.



A student with difficulty processing auditory information may not be able to follow extensive verbal instructions or lectures but may perform well on manual and written tasks. He or she may not be able to fully participate in a group discussion or question and answer session without appropriate accommodations.

Speech Impairments



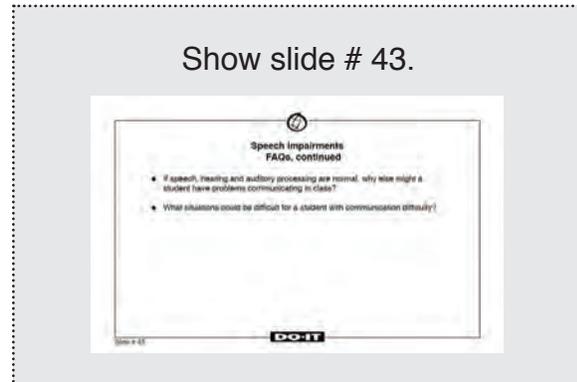
Now let's discuss speech impairments and how they affect communication.

Although some students might hear and understand everything that is happening in your classroom, their contribution may be limited because they cannot participate through speech. For example, students who have cerebral palsy or certain types of brain injuries may experience difficulties making their ideas clear through speech. Sometimes only close friends and family members can understand their speech. There is a great deal of stigma associated with speech impairments, perhaps in part because of a misconception that intelligence is somehow correlated with clarity of speech.

People who have speech impairments may choose not to use their own voices if they expect they will not be understood. Some use computer-based communication systems that allow them to communicate

with a synthesized voice. With these devices, students can complete oral exams, deliver presentations, and participate in group discussions.

Other Communication Disabilities



Although most of the origins of communication-related disabilities are speech, language, or hearing impairments, there are other reasons a student might have difficulty communicating.

A student with a phobia, an anxiety disorder, or autism may take extended time to begin speaking in public. The same student might also experience a great deal of difficulty answering a question posed to him in a small group situation. Some students who have chronic medical conditions, such as asthma, may simply need extra time to express themselves verbally. Side effects of medications can also impact spontaneity in speaking. Even students without diagnosed disabilities may be shy or unwilling to participate verbally in class, even though they comprehend the information presented.

Accommodation Strategies

Communication in class can present minor or major barriers to students with a range of disabilities. Making classes more accessible to these students can also help other



students learn. We'll discuss some general strategies that can facilitate classroom communication.

- Add a statement to your syllabus inviting students who have disabilities to discuss their needs and accommodation strategies with you. Read the statement out loud to the class.
- Ask a student who has identified him or herself as having a specific disability to share with you what strategies have worked and what accommodations will be useful to him or her in your class.
- Use disability support services available on campus as a resource. The student should provide documentation of disabilities to this office. You may receive a letter from this office discussing reasonable accommodations for the student.
- Provide printed handouts with key content before or at the beginning of class.
- If your classroom activities involve verbal participation, provide alternatives or support for students who have difficulty speaking. For example, the student could prepare the printed materials needed for a group presentation or project.
- Select course materials and media early so that if captioning or alternate formats are required, they can be procured in a timely manner.
- Use multiple or alternative methods for evaluating student achievement. Provide different ways to test learning and submit assignments (e.g., written or oral formats, projects, in-class participation).

Show slide # 44.



Show slide # 45.



Here are some specific strategies that can minimize the effects of a communication-related disability of a student in your class.

- If you plan to lecture or use primarily auditory delivery, ensure that you use adequate visual support, such as slides with a video projector.

Sign Language and Oral Interpreters

Some students who have hearing impairments require the presence of an interpreter at the front of the classroom. A professional interpreter is trained to translate spoken English (or another language) into sign language. If the student cannot speak, the interpreter will also reverse interpret, or voice, what the student signs. Sign language interpreters often



work in pairs so that they can take turns to prevent physical and mental fatigue. The disability support services office typically schedules sign language interpreters for students.

If the student does not know sign language but needs to be able to lip-read consistently, an oral interpreter is sometimes used. Oral interpreters are trained professionals who understand which words are visible on the lips and make spoken language more accessible to a lip-reading deaf student. Sometimes oral interpreters fingerspell or gesture to help the student follow conversations.

Interpreters are not allowed to add or change anything they interpret. However, they must sometimes ask the instructor for clarification or repetition of a word or phrase in order to provide the student with accurate and complete class content.

When a student who does not speak has a question, adequate time needs to be given so that he can sign the question to the interpreter. Time also needs to be taken following your answer to allow the student to seek further clarification.

Normal pacing of presented content is usually appropriate when an interpreter is used. However, speak slower when reading passages out loud and when using technical terms. Discuss options with the disabled student services office for training and orientation of interpreters. It is also recommended that you take time before the presentation to discuss presentation content and other relevant issues with the interpreters. Sign language interpreters are there not only for the student to understand what classmates and instructors are saying,

but also for the instructor and fellow students to understand the student who is deaf.

Captioned Media

When showing films or videos, it is important to use a captioned version that provides access to the audio content using text. Captioning, in contrast to a transcript, has the advantage of presenting both video and text together so that individuals who are deaf or hard of hearing can follow the video. In addition, students who are learning English as a second language benefit from seeing the English subtitles while hearing the audio. If you are not able to get a captioned version of the media, it might be necessary to provide a transcript or printed summary of the spoken information, or to use a sign language interpreter to translate the presentation. Students who are deaf, hard of hearing, or have difficulty processing spoken language might need extra time to process this information as they cannot watch the video or film and read the text or watch an interpreter at the same time. For them, putting the video online or on reserve in the library provides the option for them to watch it multiple times.

Real-Time Captioning

Court reporting techniques have been adapted to classroom use so that people who rely on text to communicate have instant access to spoken words. Real-time captioning requires a trained professional to enter what is spoken into computer-based equipment; the system presents text on a monitor for the student to read. Sometimes these systems also provide a notetaking service by giving the student an electronic or printed version of the presentation or group discussion. These systems are particularly



useful for students who are deaf, yet for whom written English is a strength.

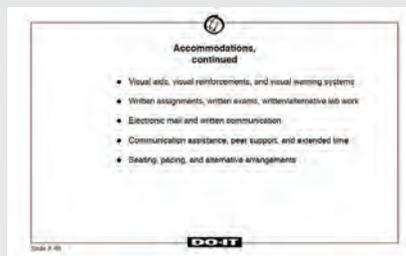
Amplification, Headphones, and Assistive Listening Devices

In large lecture halls a microphone and normal amplification might assist many students. People who have difficulty processing sounds because of hearing loss or learning disabilities may benefit from using headphones, which directly transmit sound to the ears and block out environmental noise. People who are hard of hearing may benefit from assistive listening devices such as FM systems, infrared transmissions, and loops. These devices are designed to bring sound directly to the ear or hearing aid from a transmitted location. Students using headphone or hearing aid that is receiving from the microphone do not hear background noise or comments from other students. Therefore, for these students, it is important to repeat questions or comments directly into the microphone. Repeating questions, comments, and key points is beneficial for students with and without hearing impairments.

Notetakers and Copies of Notes

For some students, listening requires extraordinary energy. Intense concentration is needed to follow the sign language interpreter, to lip-read the instructor, or to process what is being heard through an FM system. These students are often unable to write notes as well as maintain attention to the spoken information. Therefore, it is important for these students to have access to printed notes. Student notetakers are often recruited and trained to provide the student who has a disability with detailed notes. Sometimes instructors give the student printed or electronic copies of lecture notes.

Show slide # 46.



Visual Aids, Visual Reinforcements, and Visual Warning Systems

Although it benefits most students, the use of visual information is a specific accommodation strategy for students with auditory processing difficulties. Visual examples, icons, diagrams, colored charts, and illustrations often reinforce information delivered verbally. These materials could include online resources as well as printed handouts.

For students who cannot hear, it is also important that any auditory warning signals for fire, smoke, or other purposes be made available in a visual form (for example, using a strobe light). This is especially important for students working in isolated labs or study rooms.

Written Assignments, Written Exams, and Written or Alternative Lab Work

Students with speech disabilities can complete most required homework as assigned. When an accommodation is arranged, it is often needed for the process of delivering the assignment. For example, a student who was expected to make an oral presentation might be allowed to use an interpreter or hand in a written assignment. An exam that is normally given orally could be redesigned in written form. Work that is normally done using multimedia might be done in writing. Make sure that assignments



and tests assess the students' abilities and knowledge, not their hearing and speech.

Email and Written Communication

Classroom comments and student questions can be made via email or handwritten notes if verbal communication in class is difficult. These options are especially useful if anxiety, voice production, or communication speed is a problem.

Communication Assistance, Peer Support, and Extended Time

A third party might be able to provide support to a person with a communication disability. This person might be someone trained to interpret a speech pattern, read the communication board of a non-speaker, or simply help a person make words more clear. Sometimes a student with a disability may benefit from a peer or fellow student providing this support. However, this strategy should only be used with prior agreement from both students. Never put students on the spot or breach confidentiality by identifying a student with a disability in need of support.

Extended time is often needed for communicating orally or in writing if devices are used. Extended time accommodations for assignments or exams are typically arranged through the disabled student services office on campus.

Seating, Pacing, and Alternative Arrangements

Most students with hearing impairments will want to sit near the front of the room to lip-read an instructor, read real-time captioning, or watch an interpreter. In situations with circles or other nontraditional seating arrangements, the student may have to sit across from the

instructor with the interpreter or real-time captioner sitting in the middle. Students may also prefer to sit away from doors or windows that bring in outside noise. A student using an assistant will need an extra seat for this person. A student using technical aids may need to sit near power outlets or close to a specific piece of equipment.

If possible, arrange for a slower-paced question and answer period or discussion within class time. Simply slowing the pace slightly can facilitate the participation of some people with communication disabilities. You could also provide alternatives such as smaller groups, seminars, or one-on-one opportunities so that the benefits of interaction are not lost for the student who cannot participate in large class discussions.

As you may have noticed, some accommodations require technology, others require trained professionals, but many simply require creativity and flexibility on the part of the instructor and the student.

Discussion Questions

[Discuss questions of interest to the audience. Questions to start the conversation follow:]

1. Based on what we have discussed today, is there anything you would do differently with the students with communication-related disabilities you have worked with previously?
2. What do you think could be done by the department or an individual instructor to make courses and programs more accessible to students with communication-related disabilities?



- Who should coordinate or implement these actions?

Case Study

[Consider having participants discuss a case study. Case #1 on page 63 in the *Presentation Tips* section of this notebook would be appropriate.]

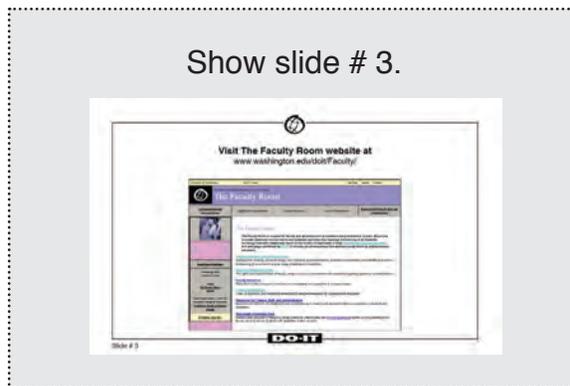
Conclusion

Communicating information is an essential part of learning in an academic setting. Creativity and flexibility can ensure an equal experience for students who have communication disorders. The best accommodations occur when the student with a disability, his or her instructor, and support staff work together.

Resources



Here are some resources that might be useful to you as you work to maximize effective communication with all students in your classes. [Elaborate.]



For comprehensive information on accommodations, a wide range of case studies, frequently asked questions, and general resources, visit *The Faculty Room* at <http://www.washington.edu/doit/Faculty/>. This resource was developed at the University of Washington as part of a nationwide project to provide resources to faculty and administrators so that they can make their courses and programs accessible to all students. You can link to this resource from _____. [Arrange to provide a link from your campus' disabled student services website before the presentation.] Consider linking to this website from your department's faculty website.

Thank you for your time today and for your interest in finding ways to ensure that all of the students in our programs have equal opportunities to learn, explore interests, and express ideas.



Building the Team



Purpose

After this presentation, faculty and administrators will be able to

- list typical ways that information is presented at postsecondary institutions (e.g., lectures, printed materials, webpages, email, videos);
- describe the challenges each mode of information delivery creates for people with different types of disabilities; and
- list solutions to the barriers to obtaining information students with disabilities typically face in academic settings.

Length

Approximately 90 minutes.

Presenter

Department chair, faculty, staff, TA, student, or other department member who has experience working with technology and with students with disabilities. The program may be co-presented with a staff member of a campus unit responsible for providing academic or computing accommodations for students with disabilities.

Preparation

- Select the presenter(s).
- Develop presentation outline and activities using the “Sample Script” provided in this section and the ideas listed in the *Presentation Tips* section of this notebook.
- Create presentation slides from provided templates.

- Add the contact information for campus resources to the “Resources” slide and to printed publications as appropriate.
- Photocopy the handout templates *Working Together: People with Disabilities and Computer Technology* and *World Wide Access: Accessible Web Design*. Create alternative formats as necessary.
- Photocopy the presentation evaluation instrument to distribute at the end of the session (see pages 189-191 for examples) or create your own.
- Add a link to your department’s website to *The Faculty Room* at <http://www.washington.edu/doit/Faculty/> and to *The Center for Universal Design in Education* at <http://www.washington.edu/doit/CUDE/>.

Equipment and Tools

- DVD player and monitor
- video projector, computer, and presentation slides; Internet connection (optional)
- videos (open captioned and audio described versions of *Computer Access: In Our Own Words* and *World Wide Access: Accessible Web Design*)
- handouts (*Working Together: People with Disabilities and Computer Technology* and *World Wide Access: Accessible Web Design*)
- presentation evaluation instrument (pages 189-191)



Building the Team

Presentation Outline

1. Distribute handouts.
2. Introductions.
3. Begin presentation.
4. Introduce and play videos as noted in the script.
5. Discuss possible accommodation strategies and department or campus issues.
6. Note campus resources.
7. Distribute and collect completed evaluation instruments.

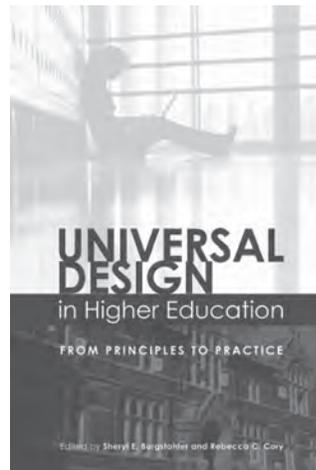
Resources

For further preparation resources for this presentation, consult

- *The Faculty Room* at <http://www.washington.edu/doit/Faculty/Strategies/Academic/>

- *The Center for Universal Design in Education* at <http://www.washington.edu/doit/CUDE/>

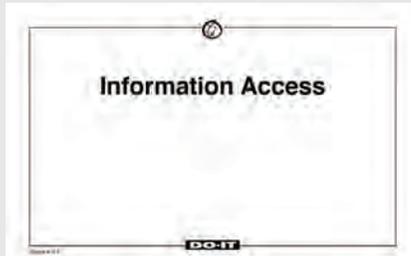
- *Universal Design in Higher Education: From Principles to Practice* published by Harvard Education Press, 2008.





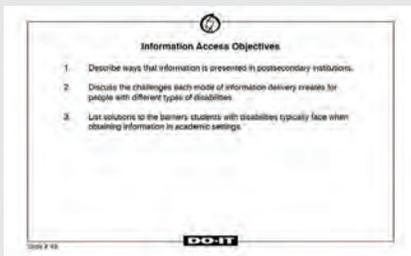
Sample Script

Show slide # 47.



Today we'll be discussing the challenges that people with disabilities face in accessing the information we provide in postsecondary education institutions and the means of ensuring their full access to the content.

Show slide # 48.



The objectives of this presentation are to

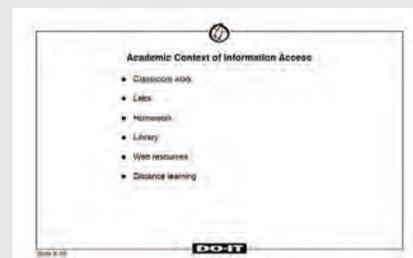
- describe ways that information is presented in postsecondary institutions.
- discuss the challenges each mode of information delivery creates for people with different types of disabilities.
- list solutions to the barriers students with disabilities typically face when obtaining information in academic settings.

Presentation Modes

Colleges and universities are in the business of sharing information, and we do it in many forms, including spoken, printed, and web-based media.

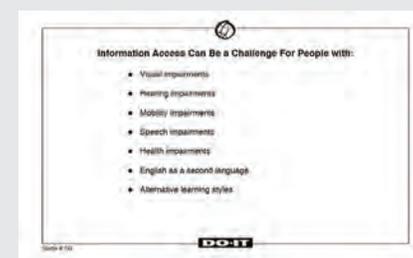
In our academic programs, we share information through classroom work, labs, homework assignments, library resources, webpages, and distance learning programs.

Show slide # 49.



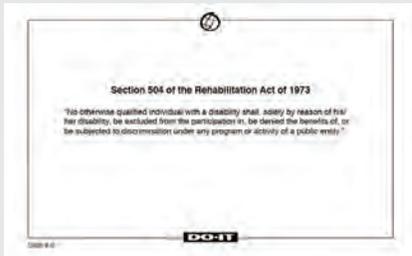
On our campus, the administration provides information to students through processes such as registration and records. We provide information to the public through our many publications and webpages. How else do we provide information to our students and employees and to the public? [Solicit input from participants.]

Show slide # 50.





Show slide # 8.



Specific methods that we use to impart information are not accessible to some people, particularly those with visual impairments, hearing impairments, mobility impairments, speech impairments, and health impairments. Those whose first language is not English or who have alternative learning styles also face difficulties in accessing some types of information.

Besides being the right thing to do, in the case of people with disabilities, it is our legal obligation to provide access to all of the programs and services we offer. Section 504 of the Rehabilitation Act of 1973 requires that “no otherwise qualified individual with a disability shall, solely by reason of his/her disability, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity of a public entity.”

Access Challenges

Let’s look at some of the specific ways we impart information on our campus and the challenges these modes impose.

Show slide # 51.



Spoken Word

Much of the information in our classes is presented via the spoken word. Which of our students might have difficulty accessing information in this way, and how can we ensure access?

[Solicit input from participants to make this portion interactive. Be sure to cover issues related to the following:

- Low vision (e.g., description of visual aids that may accompany spoken word, technology to help with notetaking).
- Blindness (e.g., description of visual aids that accompany spoken word, technology to help with notetaking).
- Deaf or hearing impairment (e.g., sign language interpretation, notetaking, real-time captioning, lip-reading, printed information).
- Speech impairment (e.g., computer-based communication devices, opportunities to ask questions and participate in discussions via printed format, discussions conducted electronically, more time to communicate orally).



- Mobility impairment (e.g., accessible classroom/meeting locations for in- and out-of-class activities, reserved seating, notetaker, information provided electronically or in printed format).
- Health impairment (e.g., extra exam time, information provided electronically, discussions conducted electronically, notetaker).
- Learning disability, English is a second language, and visual learner (e.g., printed information, clear and well-organized information, visual cues, captions, electronic text).]
- Speech impairment (typically do not have challenges accessing the printed word).
- Mobility impairment (e.g., materials in an electronic format if unable to manipulate printed materials).
- Health impairment (e.g., materials in electronic form if unable to manipulate printed materials).
- Learning disability, English as a second language, and visual learner (e.g., create printed information that is clear, well-organized, and includes visuals such as overheads, graphics, and diagrams).]

Printed Word or Images

We also impart information to our students via printed word or image. What access challenges do we create when we deliver information in this way?

[Solicit input from participants. Be sure to cover the following issues in the discussion:

- Low vision (e.g., use a copy machine to enlarge printed materials, reformat electronic documents into large print, send the material in an electronic text format, audio books, audio description of visual content).
- Blindness (e.g., provide information in an electronic text format to be used with a computer system for speech output or Braille output, to create the materials in Braille or audio format, audio books, audio description of visual content).
- Deaf or hearing impairment (typically do not have challenges accessing the printed word).

Video and Televised Content

People with what types of characteristics might have difficulty accessing video or televised content? [You may want to put up the list of disability types again and go through the list to solicit input that may include hearing impairments, learning disabilities, and English as a second language, for which captioning and transcription can be useful; and blindness, for which audio description of visual content might be appropriate.]

Audio Content

For audio content, a written transcript or real-time captioning can be helpful for students with hearing impairments, learning disabilities, or for whom English is a second language.

Computer-Based Content

For the rest of our time today we will focus on computer-based technology, which is a common mode for delivering information. We will discuss the access issues and solutions for specific individuals.



Building the Team

There are two levels where access barriers can occur. The first challenge is gaining access to the computer itself. The second is gaining access to the information delivered via computer.

Show slide # 52.



Let's discuss the first challenge, computer access. To cover this topic, we will view a video in which individuals discuss the various ways they access computers, some using adaptive (or assistive) technology. Note that this video is captioned, which makes it more accessible to individuals who have hearing impairments, those for whom English is a second language, and those who have learning disabilities. This version of the video is also audio-described, so you will notice an additional voice that periodically describes the visual content for a viewer who is blind.

Show video,
Computer Access: In Our Own Words
(10 minutes).

[Solicit questions and comments from the audience.]

The adaptive (or assistive) technology demonstrated in the video provides access to the computer hardware. However, the software, including websites, must be designed in such a way that they can be accessed by individuals who use adaptive technology. Providing information on webpages in accessible format is the right thing to do. The ADA also requires that we make information accessible to individuals with disabilities. A Department of Justice ruling in 1996, clarified that the ADA also applies to information delivered over the Internet. Developing webpages in an accessible format can also help us avoid costly and time-consuming redesign at a later time if an individual with a disability needs access to the content.

Now we will view a short video that shows how websites can be designed so that they are accessible to everyone, including people with disabilities and people for whom English is a second language.

Show video, *World Wide Access: Accessible Web Design* (11 minutes).

[Solicit questions and comments from the audience.]

Case Study

[Consider having participants discuss a case study. Case #5 on page 71 in the *Presentation Tips* section of this notebook would be appropriate.]



Show slide # 29.



Conclusion

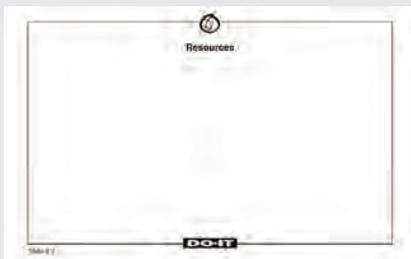
Today we have focused on how we can impart information in a way that makes it accessible to everyone. A good way to conceptualize this topic is to think about it as an application of the principles of universal design.

Universal design is “the design of products and environments to be usable by all people, without the need for adaptation or specialized design.”

If, in every way we present information, we think about the variety of characteristics of individuals with whom we want to share this information, we can ensure that everyone can access the content.

Resources

Show slide # 2 with your campus resources.



Here are some resources that might be useful to you as you work to maximize access to information for all students in your classes. [Elaborate.]

Show slide # 3.



For comprehensive information on accommodations, a wide range of case studies, frequently asked questions, and general resources, visit *The Faculty Room* at <http://www.washington.edu/doit/Faculty/> and *The Center for Universal Design in Education* at <http://www.washington.edu/doit/CUDE/>.

Show slide # 7.



These resource were developed at the University of Washington as part of a nationwide project to provide resources to faculty and administrators so that they can make their courses and programs accessible to all students. You can link to these resources from _____. [Arrange to provide a link from your campus’ disabled student services website before the presentation.] Consider linking to these websites from your department’s faculty website.



Thank you for your time today and for your interest in finding ways to ensure that all of the students in our programs have equal opportunities to learn, explore interests, and express ideas.



Purpose

After this presentation, faculty and administrators will be able to

- summarize the legal rights of students with disabilities as they relate to computer access,
- discuss the issues, needs, and concerns of people with disabilities in accessing electronic resources,
- describe common types of adaptive technology for students with disabilities, and
- plan for the procurement of adaptive technology for campus computer workstations.

Modifications

This presentation can be modified or expanded to include more specific information about computer technology for students with sensory, learning, or mobility disabilities by using the videos and handouts entitled *Working Together: Computers and People with Sensory Impairments*, *Working Together: Computers and People with Learning Disabilities*, and *Working Together: Computers and People with Mobility Impairments*.

Length

45 minutes or longer with modifications.

Presenter

Department chair, faculty, staff, TA, student, or other department member who has experience working with technology and students with disabilities. The program may be co-presented with a staff member of a campus unit responsible for providing

computer accommodations for students with disabilities.

Preparation

- Select the presenter(s).
- Develop presentation outline and activities using the “Sample Script” provided in this section and the ideas listed in the *Presentation Tips* section of this notebook.
- Create presentation slides from provided templates.
- Add the contact information for campus resources to the “Resources” slide and to printed publications as appropriate.
- Photocopy the handout template, *Working Together: People with Disabilities and Computer Technology*. Create alternative formats as necessary.
- If presenting the optional content “Mentoring: Case Study,” photocopy the handout template *Opening Doors: Mentoring on the Internet*.
- If presenting the optional content “Universal Design” or “Planning for Computer Access,” photocopy the handout template *Equal Access: Universal Design of Instruction*.
- If expanding the content to include more information about specific disabilities, photocopy the handout templates listed under the “Modifications” section above.
- Photocopy the presentation evaluation instrument to distribute at the end of the session (see pages 189-191 for examples) or create your own.



Building the Team

- Add a link on your department's website to *The Faculty Room* at <http://www.washington.edu/doi/Faculty/>.

Equipment and Tools

- DVD player and monitor
- video projector, computer, and presentation slides; Internet connection (optional)
- videos (open captioned and audio described version of *Working Together: People with Disabilities and Computer Technology*, *Opening Doors: Mentoring on the Internet* (optional), and those listed under "Modifications" as desired)
- handouts (*Working Together: People with Disabilities and Computer Technology*, *Opening Doors: Mentoring on the Internet* (optional), *Equal Access: Universal Design of Instruction* (optional), and those listed under "Modifications" as desired)
- presentation evaluation instrument (pages 189-191)

Presentation Outline

1. Distribute handout(s).
2. Introductions.
3. Begin presentation.
4. Discuss computer access and case studies.
5. Introduce and play video(s) as noted in script.
6. Discuss possible accommodation strategies on your campus.

7. Discuss department or campus issues.
8. Note campus resources.
9. Distribute and collect completed evaluation instruments.

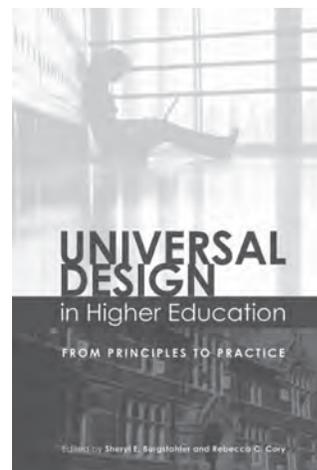
Resources

For further preparation resources for this presentation, consult

- *The Faculty Room* at <http://www.washington.edu/doi/Faculty/Strategies/Academic/Adaptive/>



- *Universal Design in Higher Education: From Principles to Practice* published by Harvard Education Press, 2008.





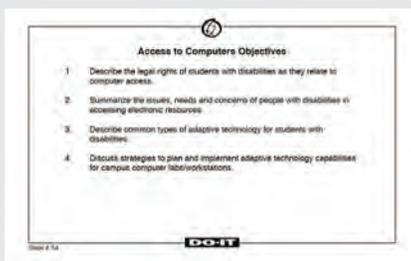
Sample Script

Show slide # 53.



Today we will be discussing computer access and adaptive (or assistive) technology for students with varying types of disabilities.

Show slide # 54.



The objectives of today's presentation are to

- describe the legal rights of students with disabilities as they relate to computer access.
- summarize the issues, needs and concerns of people with disabilities in accessing electronic resources.
- describe common types of adaptive technology for students with disabilities.
- discuss strategies to plan and implement adaptive technology capabilities for campus computer labs/workstations.

Computer Technology in Postsecondary Education

Computers are essential tools in academic studies and employment. It's difficult to imagine a state-of-the-art university without thinking of computer databases, email, interactive websites, and online-based distance learning. Recent advances in assistive technology, greater reliance on computers in all fields, and increased availability of electronic information have resulted in life-changing opportunities for many people with disabilities. In combination, these technologies provide people with disabilities better access to education, careers, and other life experiences that were not available to them in the past. Faculty and administrators can play important roles in ensuring access to these empowering tools for students with disabilities.

What are some of the computing resources currently used in your classes or by your department?

[Solicit audience input, such as online journals, websites, and databases. List items noted by participants.]

The information covered in this presentation will provide you with tools and insights that will help ensure that these resources are accessible to students with disabilities. Today, I will share some success stories that provide examples of the impact that adaptive computer technology has had for people with disabilities. Then we will consider the most important legislative directives that apply to computer access and look at some statistics about people with disabilities. With that background, a video presentation will provide an overview of how people with disabilities use computers.



Today's presentation will help you understand the impact of computer-based technologies for people with disabilities and give you ideas about improving access in your course or department. Much of the information presented today is provided in your handout *Working Together: People with Disabilities and Computer Technology*.

Access to Computers: Case Studies

Show slide # 55.



I'm going to start by sharing with you a few stories of people with disabilities who are able to access electronic resources, thanks to the availability of adaptive technology and accessible resources. You'll meet them in the video we'll view shortly.

- Nhi has low vision. She uses a computer that has a large screen, as well as a speech output system that reads text or images that appear on the screen. When she uses her computer she can research a term paper easily and quickly.
- Justin is blind. He uses a portable Braille display and printout system. He is able to type his notes for his college classes using the Braille display and then print them out for his teachers.

- Katie is deaf. She often uses a sign language interpreter. Online, however, Katie communicates with the reference librarian quickly and easily through email.
- Crystal has a learning disability that makes it difficult for her to read. She uses a speech output system that reads the computer screen to her. This helps her read and understand books for her classes more quickly.
- Jeffrey has a mobility impairment. He uses a keyboard on which the keys are enlarged and widely spaced to avoid hitting more than one key at a time.
- Oscar has a mobility impairment. He uses a voice-activated system that replaces his keyboard. It allows his computer to write what he says as he speaks into a microphone, allowing him to write his papers on his own. Having this adaptive technology makes him feel more independent; he doesn't have to rely on someone else as much.

Show slide # 56.



These stories provide examples of students with disabilities who can successfully access computers and electronic resources. You will see more examples in the following video presentation. This presentation and the accompanying handout are both entitled



Working Together: People with Disabilities and Computer Technology. The handout gives an overview of computer access problems and solutions. The video highlights the educational opportunities that access to computers, adaptive technology, software, and the Internet provide to people with specific disabilities.

Show video,
Working Together: People with Disabilities and Computer Technology
(13 minutes).

As the individuals in the video demonstrate, computers help reduce many barriers faced by people with disabilities. The students in the presentation demonstrate various technologies that make it possible for them to access computing resources. These are only a few examples, since abilities, disabilities, and learning styles are unique to individuals and vary depending on different situations.

Show slide # 57.



Adaptive technology can be hardware or software, easy or difficult to use, inexpensive or expensive, generic or unique to an individual, and stand alone or network. [Provide examples of each.]

[Note: You can modify or expand this presentation to focus on specific disability types by using the videos and handouts *Working Together: Computers and People with Sensory Impairments*, *Working Together: Computers and People with Learning Disabilities*, and *Working Together: Computers and People with Mobility Impairments*.]

Mentoring: Case Study (optional)

Next we will consider an example of an application of computer and online technologies that benefit people with disabilities—mentoring. We will view a video presentation and review the accompanying handout, *Opening Doors: Mentoring on the Internet*. The handout gives an overview of the benefits of mentoring on the Internet and of how technology overcomes barriers found in traditional in-person mentoring. The video highlights how students develop supportive relationships with adult mentors online.

Show video,
Opening Doors: Mentoring on the Internet
(14 minutes).

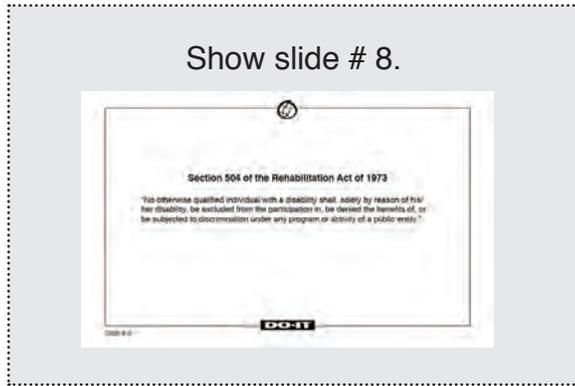
Legal Issues

We'll continue this presentation by talking about legal issues, universal design, and planning for computer access.

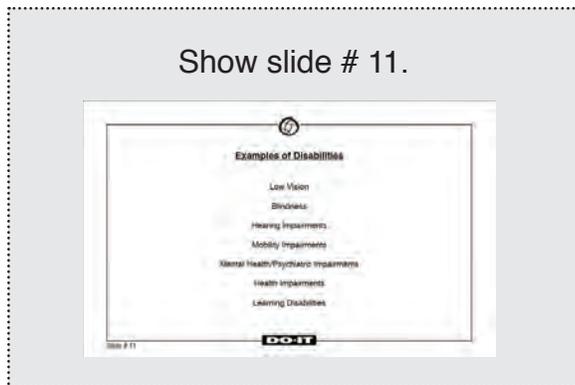
Ensuring that individuals with disabilities have access to computing resources can be argued on ethical grounds. Some simply consider it to be the right thing to do. Others are more responsive to legal mandates. The Americans with Disabilities Act (ADA) of 1990 requires that people with disabilities



be given the same access to public programs and services, including educational programs, that are offered to people without disabilities.



The ADA is federal civil rights legislation that reinforces and extends the requirements of Section 504 of the Rehabilitation Act of 1973 requirements to all postsecondary institutions. Section 504 states: “no otherwise qualified individuals with disabilities shall, solely by reason of their disabilities, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination in any program or activity of a public entity.” When people think of the ADA they often think of elevators in buildings, reserved spaces in parking lots, and lifts on busses. However, ADA accessibility requirements apply to people with all types of disabilities and to all programs and resources offered at our institutions, including those that use computers and the Internet.

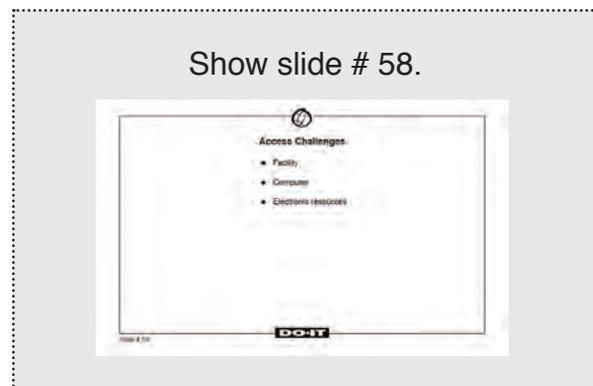


Disabilities covered by legislation include, but are not limited to, spinal cord injuries, loss of limbs, multiple sclerosis, muscular dystrophy, cerebral palsy, hearing impairments, visual impairments, speech impairments, specific learning disabilities, head injuries, psychiatric disorders, diabetes, cancer, and AIDS. The conditions listed may limit people’s abilities to perform specific tasks. Some of these conditions are readily apparent; some are invisible. Some affect computer use; some do not.

Additionally, some students who have the same diagnosis may have very different abilities when it comes to performing a specific tasks. For example, one student who has cerebral palsy may have difficulty walking. For another student, cerebral palsy may result in no functional use of his or her hands or voice. Ultimately, a student who has a disability requires accommodations only when faced with a task that requires a skill that his or her disability precludes. This may include computer access.

Universal Design (optional)

[Include the following content if appropriate for your audience.]



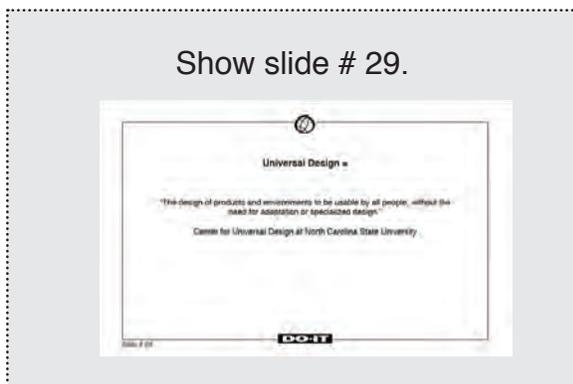
When it comes to using computing resources, individuals with disabilities face access issues in one or more of three areas. The first is access to the computing facility



itself. Users must be able to get to the facility and maneuver within it.

Second, users must be able to access a computer. When the needed accessibility features are not built into commercial products, special hardware and software (called adaptive or assistive technology) can be used to provide access. For example, people who are blind can equip their computers with software and hardware that will read aloud all text that appears on the screen.

Third, users must be able to access electronic resources. Once computer access barriers are removed, electronic resources, such as applications and websites, may present access challenges for some people with disabilities. This problem can be avoided if software and website developers employ principles of universal design when they create their products.



Designing a product or service involves the consideration of myriad factors that include aesthetics, engineering options, environmental issues, safety concerns, and cost. One issue that designers often overlook is that of universal design. In general, universal design refers to designing products and services that can be used by people with a range of characteristics, abilities, and disabilities.

Universal design is defined by the Center for Universal Design at North Carolina State University as “the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design.”

At this center, a group of architects, product designers, engineers, and environmental design researchers collaborated to establish a set of principles of universal design to provide guidance in the design of environments, communications, and products.

General principles of universal design require that the design is useful and marketable to people with diverse abilities; the design accommodates a wide range of individual preferences and abilities; the design communicates necessary information effectively to the user, regardless of ambient conditions or the user’s sensory abilities; the design can be used efficiently and comfortably, and with a minimum of fatigue; and appropriate size and space is provided for approach, reach, manipulation, and use regardless of user’s body size, posture, or mobility.

When designers apply these principles, their products meet the needs of potential users with a wide variety of characteristics. Disability is just one of these characteristics. For example, one person could be male, tall, fifteen years old, a poor reader, and blind. All of these characteristics, including his blindness, should be considered when developing a product he might use.

In the case of computer design, people with disabilities benefit when computers and software are designed with universal access in mind. Then, they can access the computer

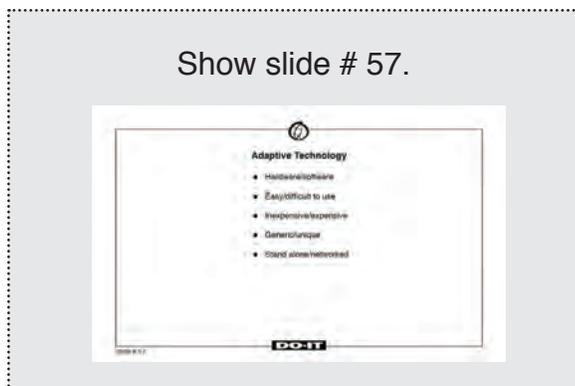


using built-in features or, in some cases, with the addition of adaptive technology.

Planning for Computer Access (optional)

[This section is optional; include if appropriate for your audience.]

Computer and network technologies can play a key role in increasing the independence, productivity, and participation of students with disabilities. Now that we've considered universal design, let's think generally about some of the characteristics of adaptive technology to consider as you plan to incorporate such technology into your department.



Adaptive technology comes in many forms with many different characteristics. It comes as hardware, software, or a combination of the two. What examples of hardware and software did you see in the video presentation?

[Examples:

- Jeffrey has a mobility impairment. He uses a keyboard on which the keys are enlarged and widely spaced to avoid hitting more than one key at a time.
- Oscar has a mobility impairment as well, and he uses a voice-activated system that replaces his keyboard.

It allows his computer to write what he says as he speaks into the microphone, allowing him to write his papers on his own.]

Adaptive technology can be easy to install or it can require long-range planning, analysis of needs and options, and funding for implementation. For example, a trackball is inexpensive and can be easily added to a workstation, assisting people who have difficulty using a standard mouse. On the other hand, a blind student may use hardware that includes a personal computer, screen reading software, and Braille printer. Setup and support of such a system requires extensive training to use effectively. Adaptive technology can be generic or unique to the individual. For example, screen enlargement software serves people with a variety of visual and learning impairments. On the other hand, a speech input system needs to be trained by an individual user. Each user must train the system to recognize his or her voice.

Adaptive technology software solutions, such as screen enlargement programs, can be installed on one machine or networked so that they are available from more than one computer workstation. Solutions that incorporate hardware are often most appropriate on stand-alone stations. However, if these are stored near computer workstations, they can be easily moved to the particular station a person is using.

Given these characteristics of adaptive technology, multiple approaches should be considered when providing accommodations. Some solutions can be implemented quickly and easily. These solutions will provide quick rewards that



will provide the necessary motivation and support for the longer processes required to install more complex equipment and software.

Remember, you don't have to do everything at once. A department can start small and add to its collection of adaptive technology as it receives requests and as staff gain skills in providing training and services for them.

Discussion Questions

[Discuss these and other questions of interest to participants.]

1. What are the ethical and legal issues related to providing students with disabilities access to computing resources?
2. How would you respond to administrative concerns related to the added costs involved in making campus computing resources accessible to people with disabilities?
3. In our institution, who should be responsible for ensuring that computing resources are accessible to individuals with disabilities?
4. What procedures do we have or should we have for responding to accommodation requests from students with disabilities?
5. When should we be proactive and when should we be reactive regarding provision of equipment and software that makes computers accessible to students with disabilities?

Case Study

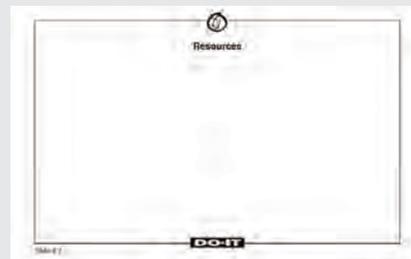
[Consider having participants discuss a case study. Case #2 on page 65 in the *Presentation Tips* section of this notebook would be appropriate.]

Conclusion

This presentation addressed issues related to adaptive technology. We learned how adaptive technology can assist people with a variety of disabilities. But remember, there are two other parts to the access equation—ensuring that campus computer facilities are accessible to students with disabilities and using universal design principles to ensure that electronic resources at our school are accessible. Only when all facilities, computers, and electronic resources are accessible can students with disabilities participate on a level playing field in academics and careers.

Resources

Show slide # 2 with your campus resources.



Here are some resources that might be useful to you as you work to maximize effective communication with all students in your classes. [Elaborate.]



Show slide # 3.



For comprehensive information on accommodations, a wide range of case studies, frequently asked questions, and general resources, visit *The Faculty Room* at <http://www.washington.edu/doit/Faculty/>. This resource was developed by the University of Washington as part of a nationwide project to provide resources to faculty and administrators so that they can make their courses and programs accessible to all students. You can link to this resource from _____. [Arrange to provide a link from your campus' disabled student services website before the presentation.] Consider linking to this website from your department's faculty website.

Thank you for your time today and for your interest in finding ways to ensure that all of the students in our programs have equal opportunities to learn, explore interests, and express ideas.

Making Computer Labs Accessible to Everyone



Purpose

After this presentation, participants will be able to

- summarize the legal rights of students with disabilities with regard to computer access,
- plan for making computer services accessible to a wide range of users by applying universal design principles, and
- list steps that can be taken to ensure that students with disabilities have access to campus computer labs.
- Add the contact information for campus resources to the “Resources” slide and to printed publications as appropriate.
- Photocopy the handout template *Equal Access: Universal Design of Computer Labs*. Create alternative formats as necessary.
- Photocopy the presentation evaluation instrument to distribute at the end of the session (see pages 189-191 for examples) or create your own.
- Add a link on your department’s website to *The Faculty Room* at <http://www.washington.edu/doit/Faculty/> and to *The Center for Universal Design in Education* at <http://www.washington.edu/doit/CUDE/>.

Length

Approximately 45-60 minutes.

Presenter

Department chair, faculty, staff, TA, student, or other department member who has experience working with computer facilities and students with disabilities. The program may be co-presented with a staff member of a campus unit responsible for providing computer accommodations for students with disabilities.

Preparation

- Select the presenter(s).
- Develop presentation outline and activities using the “Sample Script” provided in this section and the ideas listed in the *Presentation Tips* section of this notebook.
- Create presentation slides from provided templates.
- DVD player and monitor
- video projector, computer, and presentation slides; Internet connection (optional)
- video (open captioned and audio described version of *Equal Access: Universal Design of Computer Labs*)
- optional video (open captioned and audio described version of *Computer Access: In Our Own Words*)
- handout (*Equal Access: Universal Design of Computer Labs*)
- presentation evaluation instrument (pages 189-191)



Building the Team

Presentation Outline

1. Distribute handout.
2. Introductions.
3. Begin presentation.
4. Discuss access challenges and universal design.
5. Introduce and play video(s) as noted in script.
6. Discuss possible accommodations on your campus.
7. Discuss department or campus issues.
8. Note campus resources.
9. Distribute and collect completed evaluation instruments.

Resources

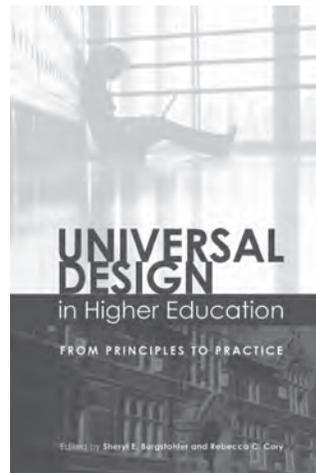
For further preparation resources for this presentation, consult

- *The Faculty Room* at <http://www.washington.edu/doit/Faculty/Strategies/Academic/ComputerLabs/>

- *The Center for Universal Design in Education* at <http://www.washington.edu/doit/CUDE/>

The screenshot shows the homepage of the Center for Universal Design in Education (CUDE). The header includes 'DO-IT Home', 'CUDE Home', and 'Glossary'. The main content area is titled 'The Center for Universal Design in Education' and provides an overview of the center's mission and resources. It lists various categories such as 'Introduction to Universal Design', 'Postsecondary Education', 'Elementary/Secondary Education', 'Projects, Exhibits, Conferences', and 'Resources and Training'. A sidebar on the left contains navigation links like 'Search Knowledge Base', 'Knowledge Base Index', and 'Promising Practices'.

- *Universal Design in Higher Education: From Principles to Practice* published by Harvard Education Press, 2008.

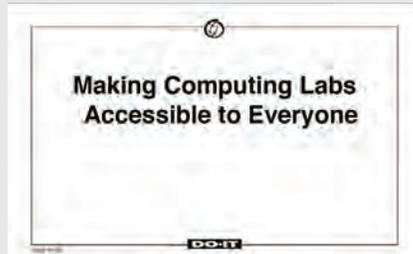


The screenshot shows the 'The Faculty Room' website. The header includes 'University of Washington', 'DO-IT Home', and 'Site Map Search Glossary'. The main content area is titled 'The Faculty Room' and provides an overview of the site's purpose and resources. It lists various categories such as 'Accommodations and Extended Desk', 'Rights and Responsibilities', 'Faculty Resources', 'Faculty Presentations', and 'Resources for Trainers, Staff, and Administrators'. A sidebar on the left contains navigation links like 'Search Knowledge Base', 'Knowledge Base Index', and 'Promising Practices'.



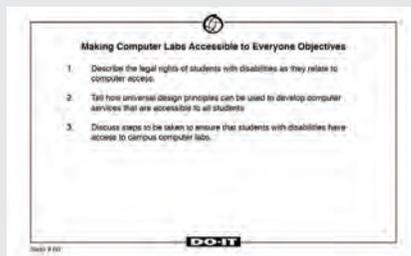
Sample Script

Show slide # 59.



Today we'll be discussing how to make computer labs accessible to all students, including those with disabilities.

Show slide # 60.



The objectives for this presentation are to

- describe the legal rights of students with disabilities as they relate to computer access.
- tell how universal design principles can be used to develop computer services that are accessible to all students.
- discuss steps to be taken to ensure that students with disabilities have access to campus computer labs.

Everyone who needs to use your computer lab should be able to do so comfortably. As increasing numbers of people with disabilities pursue educational

opportunities that require computer use, access to computing facilities becomes even more critical. The key is to provide equal access.

Legal Issues

Ensuring that individuals with disabilities have access to computing resources can be argued on ethical grounds. Some simply consider it to be the right thing to do. Others are more responsive to legal mandates. The Americans with Disabilities Act (ADA) of 1990 requires that people with disabilities be given the same access to public programs and services, including educational programs, that are offered to people without disabilities.

Show slide # 8.

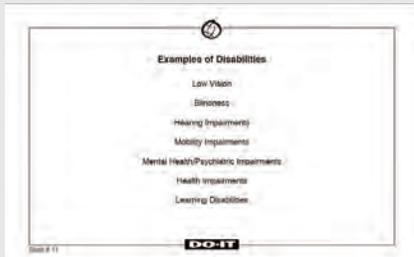


The ADA is civil rights legislation that reinforces and extends the requirements of Section 504 of the Rehabilitation Act of 1973 to all postsecondary institutions. Section 504 states: "no otherwise qualified individuals with disabilities shall, solely by reason of their disabilities, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination in any program or activity of a public entity." When people think of the ADA they often think of elevators in buildings, reserved spaces in parking lots, and lifts on busses. However, the ADA accessibility requirements apply to people with all types of disabilities and to all programs



and resources offered at our institutions, including those that use computers and the Internet.

Show slide # 11.



Disabilities covered by legislation include, but are not limited to spinal cord injuries, loss of limbs, multiple sclerosis, muscular dystrophy, cerebral palsy, hearing impairments, visual impairments, speech impairments, learning disabilities, head injuries, psychiatric disorders, diabetes, cancer, and AIDS. The conditions listed may limit people's abilities to perform specific tasks. Some of these conditions are readily apparent; some are invisible. Some affect computer use; some do not.

Additionally, some students who have the same diagnosis may have very different abilities when it comes to performing specific tasks. For example, one student who has cerebral palsy may have difficulty walking. For another student, cerebral palsy may result in no functional use of his hands or voice. Ultimately, a student who has a disability requires accommodations only when faced with a task that requires a skill that his or her disability precludes. This may include computer access.

In summary, federal legislation requires that we accept otherwise qualified students with disabilities into our academic programs. Additionally, we should work with students

to identify and implement academic accommodations, which will ensure that they have educational opportunities equal to those of their peers without disabilities. Ensuring access to computers and information technology is also an important step in leveling the playing field for students with disabilities in postsecondary institutions.

The rest of today's presentation will help you develop an understanding of access challenges, universal design principles, and strategies to create accessible computer labs for all students.

Access Challenges

Show slide # 58.

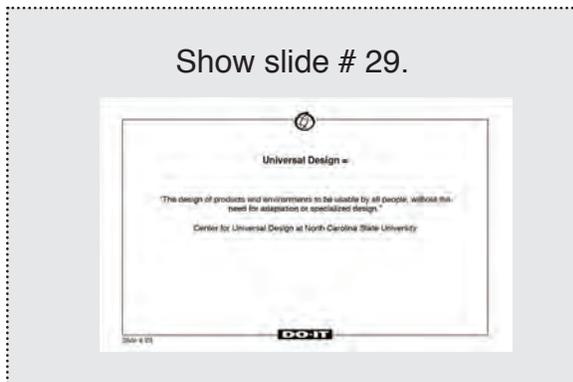


When it comes to using computer resources, students with some disabilities face access issues in one or more of three areas. The first is access to the computing facility itself. Students must be able to get to the facility and maneuver within it. Second, they must be able to access the computer. When the needed accessibility features are not built into commercial products, a wide variety of special hardware and software, adaptive (or assistive) technology, provides solutions. For example, people who are blind can equip their computers with software and hardware that will read aloud all text that appears on the screen.



[Optional: If you would like your audience to gain an overview of ways individuals with disabilities access and use computer technology, show the video *Access to Computers: In Our Own Words*.]

Third, users must be able to access electronic resources. Once computer access barriers are removed, electronic resources, such as software and websites, may present access challenges for some people with disabilities. This problem can be avoided if software and website developers employ principles of universal design when they create their products. The first challenge, computer lab access, is the topic of our presentation today.



Universal Design

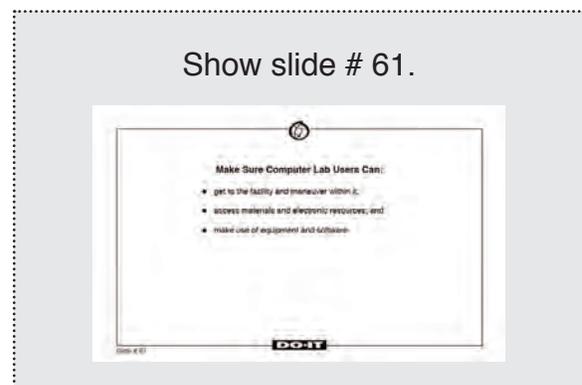
We'll start by talking about principles of universal design. Designing a product or service involves the consideration of myriad factors that include aesthetics, engineering options, environmental issues, safety concerns, and cost. One issue that designers often overlook is universal design. In general, universal design means designing products and services that can be used by people with a range of characteristics, abilities, and disabilities.

General principles of universal design require that the design is useful and marketable to people with diverse abilities;

the design accommodates a wide range of individual preferences and abilities; the design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities; and the design can be used by individuals with a wide variety of characteristics.

When designers apply these principles, their products meet the needs of potential users with a wide variety of characteristics. Disability is just one of these characteristics. For example, one person could be male, tall, fifteen years old, a poor reader, and blind. All of these characteristics, including his blindness, should be considered when developing a product he might use.

In the case of a computer lab, rather than design your facility for the average user, design it for people with a broad range of abilities. Keep in mind that individuals using your computing lab may have learning disabilities or visual, speech, hearing, and mobility impairments.



Accessible Computer Labs

As you plan services in your computing facility, consider all of your potential users, including those with disabilities. Make sure lab users can

- get to the facility and maneuver within it,



Building the Team

- access materials and electronic resources, and
- make use of equipment and software.

Also, make sure that staff are trained to support people with disabilities and have a plan in place to respond to specific requests in a timely manner. With these goals in mind, you can make your lab accessible to everyone. Let's watch the video *Equal Access: Computer Labs* to learn about the challenges and solutions for designing an accessible facility. Then we'll review some of the guidelines listed in your handout with the same title.

Show video,
*Equal Access: Universal Design of
Computer Labs*
(11 minutes).

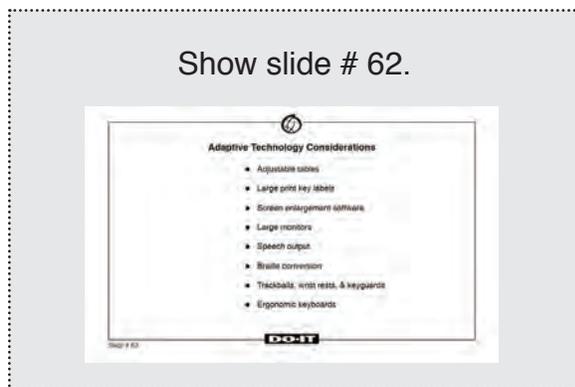
You can use the list of guidelines in the handout as a starting point for surveying your computer facility for accessibility. Designing an academic or work area that is accessible to everyone begins with the physical environment of the facility. Ask the following questions when determining how to make your facility more accessible [have participants refer to handout *Equal Access: Universal Design of Computer Labs*]:

- Is the lab wheelchair accessible?
- Are doorway openings at least 32 inches wide and are doorway thresholds no higher than a ½ inch vertically?
- Are aisles kept wide and clear for wheelchair users? Have protruding objects been removed or minimized for the safety of the users who are visually impaired?
- Are printed materials within reach from a variety of heights and not blocked by furniture?
- Are all levels of the computer facility connected? Are ramps or elevators provided as an alternative to stairs? Do elevators have both auditory and visual signals for designating floors? Are elevator controls marked in large print and Braille or raised letters? Can people seated in wheelchairs easily reach all of the elevator controls?
- Are wheelchair-accessible restrooms with well-marked signage available near the lab?
- Are service desks wheelchair accessible?
- Are there ample high-contrast, large print directional signs throughout the lab?
- Is equipment marked with large print and Braille labels?
- Are hearing protectors and quiet areas available for users who are distracted by noise and movement around them?
- Is at least one table for each type of computer adjustable so that a student or an employee who uses a wheelchair can type comfortably? Can users in wheelchairs reach the adjustment controls?
- Are wrist rests available for those who require extra wrist support while typing?



- Are document holders available to help position work papers so that they can be easily read?
- Is there a closed-circuit TV available to enlarge documents and user guides for lab users with low vision?
- at least one adjustable table for each type of electronic resource provides access to patrons who use wheelchairs;
- large-print key labels assist patrons with low vision;

In a computer lab, it is desirable to provide options at a computer workstation that will address the needs of a variety of users. You should also have procedures in place to deal with specific needs that these general solutions cannot address. Include students in discussions to come up with creative, simple solutions. For example, in the video, you saw Mitch, whose health impairment required him to lay on his side for a month. Staff turned Mitch's monitor on its side and built a holder for his keyboard so that he could use it independently.



Remember, you don't have to do everything at once. Start small and add to your collection of adaptive technology as you receive requests and as computer lab staff gain skills in providing training and services. Here is a sample of the adaptive technology you might want to purchase in order to get started right now. As you review this sample list, describe the types of adaptive technology, if any, currently available in your facility. [Encourage participants to share their ideas.] This list is also in your handout:

- software to enlarge screen images provides access to patrons with low vision and learning disabilities;
- large monitors of at least 17-inches assist patrons with low vision and learning disabilities;
- a speech output system can be used by patrons with low vision, blindness, and learning disabilities;
- Braille conversion software and a Braille printer can provide Braille output for patrons who are blind;
- trackballs provide an alternative for those who have difficulty controlling a mouse; wrist rests and keyguards assist patrons with limited fine motor skills; and
- different types of ergonomic keyboards are available to assist those with a variety of needs; compact keyboards are available for those with limited range of motion.

Discussion Questions

[Discuss the following questions as well as other relevant questions with participants.]

1. What are the ethical and legal issues related to providing students with disabilities access to resources in our computer labs?



2. How would you respond to administrative concerns related to the added costs involved in making computer labs accessible to people with disabilities?
3. In our institution, who should be responsible for ensuring that computing resources are accessible to individuals with disabilities?
4. What procedures do we have, or should we have, for responding to accommodation requests from students with disabilities?
5. What changes can we make now so that our computer labs are more accessible to students with disabilities?

Case Study

[Consider having participants discuss a case study. Case #2 on page 65 in the *Presentation Tips* section of the notebook would be appropriate.]

Conclusion

Making your computing resources accessible to all students, including those with disabilities, is a legal requirement and the right thing to do. Employing universal design principles as you plan for users with a broad range of abilities and disabilities will reduce the need for special accommodations as people with disabilities access your facility.

Show slide # 2 with your campus resources.



Resources

Here are some resources that might be useful to you as you work to maximize design computer labs that are accessible to all students, including those with disabilities. [Elaborate.]

Show slide # 3.



For comprehensive information on accommodations, a wide range of case studies, frequently asked questions, and general resources, visit *The Faculty Room* at <http://www.washington.edu/doit/Faculty/>. This resource was developed at the University of Washington as part of a nationwide project to provide resources to faculty and administrators so that they can make their courses and programs accessible to all students. You can link to this resource from _____. [Arrange to provide a link from your campus' disabled student services website before the presentation.] Consider linking to this website from your department's faculty website.

Thank you for your time today and for your interest in finding ways to ensure that all of the students in our programs have equal opportunities to learn, explore interests, and express ideas.



Purpose

After this presentation, faculty and administrators will be more aware of

- potential barriers to information access on websites for students with disabilities,
- their institution's legal responsibilities for ensuring equal access to information presented on websites,
- universal design guidelines for developing accessible websites, and
- universal design principles for developing websites and other electronic resources.

Length

Approximately 45-60 minutes.

Presenter

Department chair, faculty, staff, TA, student, or other department member who has an understanding of technology used by students who have disabilities and of key elements of accessible website design.

This presentation may be presented or co-presented by a staff member of a campus unit responsible for providing academic accommodations for students with disabilities and a website developer.

Preparation

- Select the presenter(s).
- Develop presentation outline and activities using the "Sample Script" provided in this section and the ideas listed in the *Presentation Tips* section of this notebook.

- Create presentation slides from provided templates.
- Add the contact information for campus resources to the "Resources" slide and to printed publications as appropriate.
- Photocopy the handout templates *Working Together: People with Disabilities and Computer Technology*, *World Wide Access: Accessible Web Design*, and *Web Accessibility: Guidelines for Administrators* (optional). Create alternative formats as necessary.
- Photocopy the presentation evaluation instrument to distribute at the end of the session (see pages 189-191 for examples) or create your own.
- Add a link on your department's website to *The Faculty Room* at <http://www.washington.edu/doit/Faculty/> and to *The Center for Universal Design in Education* at <http://www.washington.edu/doit/CUDE/>.

Equipment and Tools

- DVD player and monitor
- video projector, computer, and presentation slides; Internet connection (optional)
- videos (open captioned and audio described versions of *Computer Access: In Our Own Words* and *World Wide Access: Accessible Web Design*)
- handouts (*Working Together: People with Disabilities and Computer Technology*, *World Wide Access: Accessible Web Design*, and *Web Accessibility: Guidelines for Administrators* (optional))



Building the Team

- presentation evaluation instrument (pages 189-191)

Presentation Outline

1. Distribute handouts.
2. Introductions.
3. Begin presentation.
4. Introduce and play videos as noted in the script.
5. Discuss universal design, accessible website design, and possible accommodations on your campus.
6. Note campus resources.
7. Distribute and collect completed evaluation instruments.

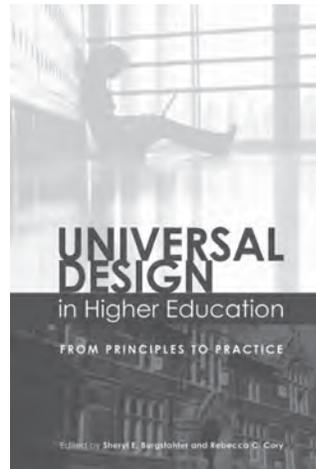
Resources

For further preparation resources for this presentation, consult

- *The Faculty Room* at <http://www.washington.edu/doit/Faculty/Strategies/Academic/Webpages/>

- *The Center for Universal Design in Higher Education* at <http://www.washington.edu/doit/CUDE/>

- *Universal Design in Higher Education: From Principles to Practice* published by Harvard Education Press, 2008.





Sample Script

Show slide # 63.



Today we'll be discussing the universal design of websites to allow access to information for all people, regardless of their abilities or disabilities.

Show slide # 64.



The objectives of today's presentation are to

- list potential barriers to accessing information on webpages for students with disabilities.
- describe the institution's legal responsibility to ensure access to information presented on webpages.
- describe universal design guidelines for developing accessible webpages.

The Internet is a popular tool for educators. Faculty members can post syllabi and other course materials on websites. They can also provide links to useful resources

for students. Much of the Internet's power comes from the fact that it presents information in a variety of formats while also cataloging information in a searchable manner. Unfortunately, due to the multimedia nature of the web, combined with the poor design of some websites, many students and other web users cannot use the full range of resources this revolutionary tool provides.

Show slide # 65.



For example, some visitors cannot see graphics because of visual impairments or cannot hear audio because of hearing impairments. Some users have difficulty navigating sites that are poorly organized with unclear directions because they have learning disabilities, speak English as a second language, or are younger than the average user. Other visitors use older equipment or slow connections or modems that limit access to multimedia features.

Some students use adaptive (or assistive) technology with their computer to access the web. For example, a student who is blind may use a speech output system to read aloud text that is presented on the screen. This system may be composed of screen reading software and a voice synthesizer. A person with a mobility impairment may not be able to use a mouse and therefore relies on the keyboard for web browsing.



We will now view a video in which individuals discuss various ways that they access computers, some using adaptive technology.

Show video,
Computer Access: In Our Own Words
(10 minutes).

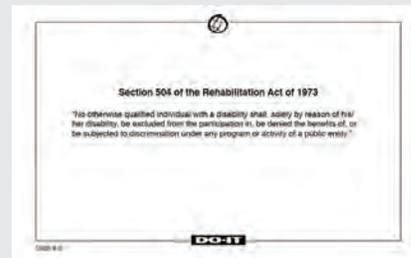
It is important to keep in mind that the people in this video might be accessing your website. To create resources that can be used by the widest spectrum of potential visitors rather than an idealized average, website designers should apply universal design principles. They should consider the special needs of individuals with disabilities, individuals older or younger than the average user, people for whom English is a second language, and those using outdated hardware and software.

Legal Issues

Ensuring that individuals with disabilities have access to computing resources can be argued on ethical grounds. Some simply consider it to be the right thing to do. Others are more responsive to legal mandates.

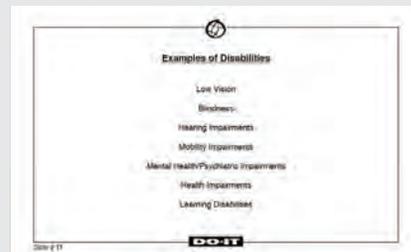
The Americans with Disabilities Act (ADA) of 1990 requires that people with disabilities be given the same access to public programs and services, including educational programs, that are offered to people without disabilities.

Show slide # 8.



The ADA is civil rights legislation that reinforces and extends the requirement of Section 504 of the Rehabilitation Act of 1973 that “no otherwise qualified individuals with disabilities shall, solely by reason of their disabilities, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination in any program or activity of a public entity.” When people think of the ADA, they often think of elevators in buildings, reserved spaces in parking lots, and lifts on busses. However, the ADA accessibility requirements apply to people with all types of disabilities and to all programs and resources offered at our institutions, including those offered using computers and the Internet.

Show slide # 11.



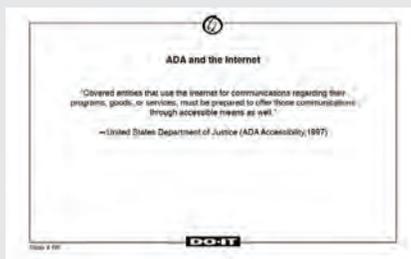
Disabilities covered by legislation include, but are not limited to, spinal cord injuries, loss of limbs, multiple sclerosis, muscular dystrophy, cerebral palsy, hearing impairments, visual impairments, speech



impairments, learning disabilities, head injuries, psychiatric disorders, diabetes, cancer, and AIDS. The conditions listed may limit people's abilities to perform specific tasks. Some of these conditions are readily apparent; some are invisible. Some affect computer use; some do not.

Additionally, some students who have the same diagnosis may have very different abilities when it comes to performing specific tasks. For example, one student who has cerebral palsy may have difficulty walking. For another student, cerebral palsy may result in no functional use of his or her hands or voice. Ultimately, a student who has a disability requires accommodations only when faced with a task that requires a skill that his or her disability precludes. This may include computer access.

Show slide # 66.



The Department of Justice has clarified that the ADA applies to Internet resources in that, "covered entities that use the Internet for communications regarding their programs, goods, or services, must be prepared to offer those communications through accessible means as well."

As more information is delivered using network technologies, postsecondary faculty and administrators play an increasingly important role in ensuring that everyone has access to resources provided via the Internet.

A good place to begin discussing accessible web design is with the principles of universal design.

Universal Design

Designing a product or service involves the consideration of myriad factors that include aesthetics, engineering options, environmental issues, safety concerns, and cost. One issue that designers often overlook is that of universal design.

Show slide # 29.



In general, universal design means designing products and services that can be used by people with a range of characteristics, abilities, and disabilities.

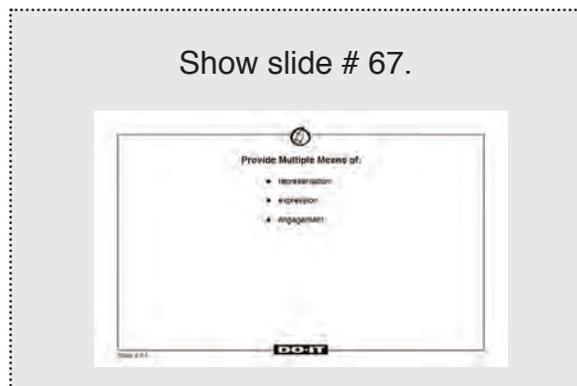
Universal design is defined by the Center for Universal Design at North Carolina State University as "the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design." At the center, a group of architects, product designers, engineers, and environmental design researchers collaborated to establish a set of principles of universal design to provide guidance in the design of environments, communications, and products.

General principles of universal design require that the design is useful and marketable to people with diverse abilities;



the design accommodates a wide range of individual preferences and abilities; the design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities; the design can be used efficiently and comfortably, and with a minimum of fatigue; and appropriate size and space is provided for approach, reach, manipulation, and use regardless of user's body size, posture, or mobility.

Electronic resources that are universally designed provide multiple means of representation, expression, and engagement.

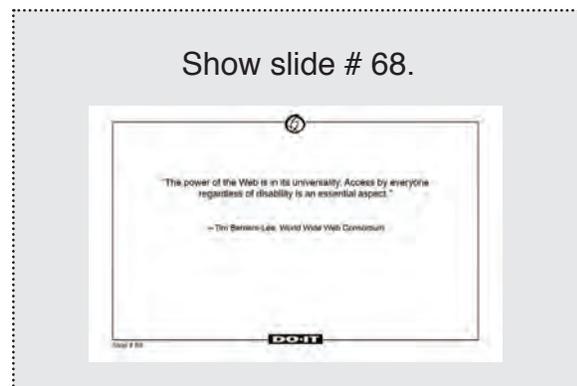


When designers apply these principles, their products meet the needs of potential users with a wide variety of characteristics. Disability is just one of these characteristics. For example, one person could be male, tall, fifteen years old, a poor reader, and blind. All of these characteristics, including blindness, should be considered when developing a product he might use.

Universal design techniques can be applied in the design of packaging, software, appliances, transportation systems, physical spaces, and many other products, services, and environments. Examples of universal design in architecture are ramps, automatic door openers, and Braille labels on elevator control buttons. Following universal design

principles in creating a website provides access to all users regardless of their abilities, their disabilities, or the limitations of their equipment and software.

Accessible Website Design



When universal design principles are applied to the design of webpages, people using a wide range of adaptive technology can access them. The World Wide Web Consortium (W3C), an industry group founded in 1994 that develops common protocols which enhance interoperability and guide the evolution of the web, has taken a leadership role in this area. The W3C is committed to promoting the full potential of the Internet to ensure a high degree of usability by people with disabilities.

As stated by Tim Berners-Lee, W3C Director and inventor of the World Wide Web, "The power of the web is in its universality. Access by everyone regardless of disability is an essential aspect." The Web Accessibility Initiative (WAI) coordinates W3C's efforts with organizations worldwide to promote accessibility. Its *Web Content Accessibility Guidelines* tell how to design webpages that are accessible to people with a wide variety of disabilities.

In response to Section 508 of the Rehabilitation Act, the Architectural and



Transportation Barriers Compliance Board has established standards for the procurement, development, and use of technology by federal agencies. One section establishes standards for designing accessible websites. Although the legislation applies directly to federal agencies, the standards are being used as guidelines by many institutions who want to ensure that they are compliant with the ADA.

Now we'll watch a video presentation, *World Wide Access: Accessible Web Design*. This presentation shares access issues and solutions for people with disabilities. The content of this presentation is included in your handout with the same title.

Show video,
"World Wide Access: Accessible Web Design" (11 minutes).

Show slide # 69.



To create pages that are accessible, website developers must either avoid certain types of data and features or create alternative methods for carrying out the functions or accessing the content that is provided using the inaccessible feature or format.

When it is not possible to use an accessible technology, an alternative version of the content should be provided. However, webpage designers should resort to separate, accessible pages only when other solutions fail. Maintaining a separate page is time consuming. Alternative pages tend to be updated less frequently than "primary" pages and, therefore, often provide outdated information to the site visitors using them.

Besides practicing universal design guidelines in developing your websites, encourage feedback about accessibility from web visitors.

Show slide # 70.



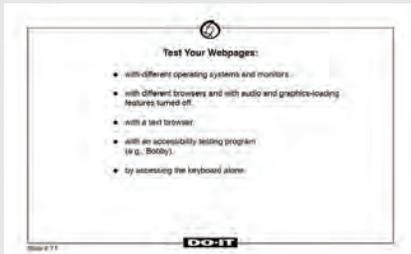
Notify your website visitors that you are concerned about accessibility by including a statement about accessibility on your page. Encourage your users to notify you with their accessibility concerns. For example, the DO-IT home page includes this statement:

"The DO-IT pages form a living document and are regularly updated. We strive to make them universally accessible. We minimize the use of graphics and photos, and provide descriptions of them when they are included. Video clips are open captioned, providing access to users who can't hear the audio, and audio described for those who cannot see the visual display. Suggestions for



increasing the accessibility of these pages are welcome.”

Show slide # 71.



Test your website with as many web browsers as you can, and always test your website with at least one text-based browser, such as Lynx, and with the audio- graphics-loading of a multimedia browser turned off. This way, you will see your web resources from the perspectives of people with sensory impairments.

Test your website with accessibility testing programs. These programs provide a report of accessibility barriers to your site. Several are referenced in your handout. Finally, test your website using the keyboard alone to determine if you have full access to the information.

Benefits to Everyone

If universal design principles are employed in website development, other people besides individuals with disabilities will also benefit from the design. They include people working in noisy or noiseless environments; people whose hands or eyes are occupied with other activities; people for whom English is a second language; people using older, outdated equipment; and individuals using monochrome monitors.

The Internet is just one example of an electronic resource that students with disabilities may need to access for their courses. When purchasing and designing other electronic resources, such as software and indexes, consider whether these resources will be accessible to students utilizing adaptive technology.

Show slide # 72.



Policies and Procedures

Instructional and administrative websites should be developed with universal access as a goal. Accessibility guidelines should be incorporated into general campus website guidelines or standards.

The standards your campus adopts could be those developed by the WAI of the W3C, those used by the federal government in response to Section 508 legislation, or a list tailored to your campus. When choosing standards or guidelines it is best to gain high level support and include all key stakeholders (including students with disabilities, faculty, administrators, and web designers) in the process.

A task force can then draft policy and select guidelines. They can develop dissemination plans and recommendations for the provision of training and support. They can also recommend how the policy might be enforced and how compliant sites will be rewarded. Policies and procedures should be evaluated and revised on a regular basis.



Discussion Questions

[Ask participants the following or similar questions for discussion.]

- What are the ethical and legal issues related to providing students with disabilities access to instructional webpages?
- How would you respond to administrative concerns related to the added costs involved in making departmental webpages accessible to people with disabilities?
- In our institution, who should be responsible for ensuring that institutional, departmental, and faculty webpages are accessible to individuals with disabilities?
- What are the benefits of employing universal design principles rather than focusing only on disability issues?

Case Study

[Consider discussing a case study from the *Presentation Tips* section of this notebook. Case #6 on page 73 would be appropriate.]

Conclusion

As our program comes to an end, what was the most significant insight or question you had today? Please feel free to share a brief comment with the group.

I hope this program has given you a clear understanding of the impact that the combination of computers, adaptive technology, and electronic resources can have on the lives of people with disabilities. Faculty and administrators have a legal responsibility to ensure equitable access to resources and services. The information

provided in this program should have given you tools to begin implementing universal design principles when developing and updating websites. Applying these guidelines will help level the playing field for people with disabilities.

Resources

Show slide # 2 with your campus resources.



Here are some resources that might be useful to you as you work to increase the accessibility of your web content. [Elaborate.]

Show slide # 3.



For comprehensive information on accommodations, a wide range of case studies, frequently asked questions, and general resources, visit *The Faculty Room* at <http://www.washington.edu/doit/Faculty/>. This resource was developed at the University of Washington as part of a nationwide project to provide resources to faculty and administrators so that they can make their courses and programs accessible to all



students. You can link to this resource from _____. [Arrange to provide a link from your campus' disabled student services website before the presentation.] Consider linking to this website from your department's faculty website.

Thank you for your time today and for your interest in finding ways to ensure that all of the students in our programs have equal opportunities to learn, explore interests, and express ideas.

Making Distance Learning Accessible to Everyone



Purpose

After this presentation, faculty and administrators will be able to

- list potential barriers to distance learning courses for students with disabilities,
- summarize their institution's legal responsibilities for ensuring equal access to online courses, and
- discuss universal design guidelines for developing accessible distance learning courses.

Length

Approximately 60 minutes.

Presenter

Department chair, faculty, staff, TA, student, or other department member who has an understanding of technology used by students who have disabilities and of key elements of online courses. This presentation may be co-presented by a staff member of a campus unit responsible for providing academic accommodations for students with disabilities and a website developer.

Preparation

- Select the presenter(s).
- Develop presentation outline and activities using the "Sample Script" provided in this section and the ideas listed in the *Presentation Tips* section of this notebook.
- Create presentation slides from provided templates.

- Add the contact information for campus resources to the "Resources" slide and to printed publications as appropriate.
- Photocopy the handout templates *Real Connections: Making Distance Learning Accessible to Everyone*, *Equal Access: Universal Design of Distance Learning*, and *World Wide Access: Accessible Web Design*. Create alternative formats as necessary.
- Photocopy the presentation evaluation instrument to distribute at the end of the session (see pages 189-191 for examples) or create your own.
- Add a link on your department's website to *The Faculty Room* at <http://www.washington.edu/doit/Faculty/> and to *The Center for Universal Design in Higher Education* at <http://www.washington.edu/doit/CUDE/>.

Equipment and Tools

- DVD player and monitor
- video projector, computer, and presentation slides; Internet connection (optional)
- videos (open captioned and audio-described version of *Real Connections: Making Distance Learning Accessible to Everyone* and *World Wide Access: Accessible Web Design*)
- handout (*Real Connections: Making Distance Learning Accessible to Everyone*, *Equal Access: Universal Design of Distance Learning*, and *World Wide Access: Accessible Web Design*)



Building the Team

- presentation evaluation instrument (pages 189-191)

Presentation Outline

1. Distribute handouts.
2. Introductions.
3. Begin presentation.
4. Discuss accommodations and universal design.
5. Introduce and play videos as noted in the script.
6. Discuss distance learning tools.
7. Discuss department or campus issues.
8. Note campus resources.
9. Distribute and collect completed evaluation instruments.

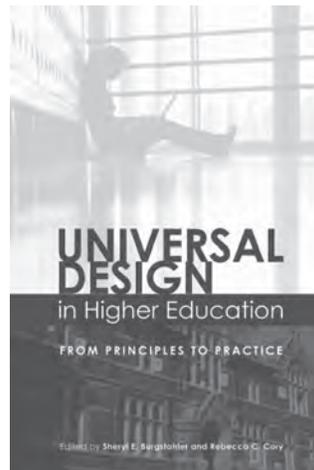
Resources

For further preparation resources for this presentation, consult

- *The Faculty Room* at <http://www.washington.edu/doit/Faculty/Strategies/Academic/Distancelearning/>

- *AccessDL* at <http://www.washington.edu/doit/Resources/accessdl.html>

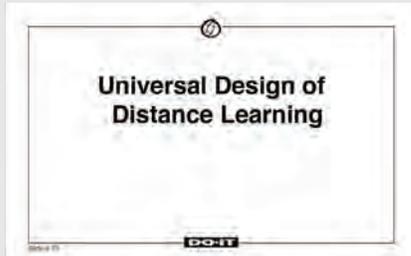
- *Universal Design in Higher Education: From Principles to Practice* published by Harvard Education Press, 2008.





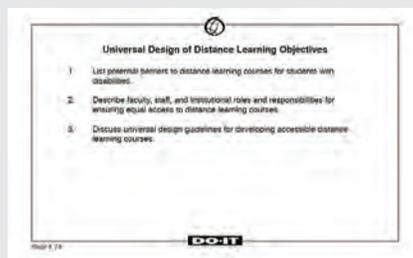
Sample Script

Show slide # 73.



Today we'll be discussing how to make distance learning accessible to everyone.

Show slide # 74.



The objectives of today's presentation is to

- list potential barriers to distance learning courses for students with disabilities.
- describe faculty, staff, and institutional roles and responsibilities for ensuring equal access to distance learning courses.
- discuss universal design guidelines for developing accessible distance learning courses.

Increasing numbers of postsecondary courses are online. Reaching out to larger audiences and offering anytime, anywhere learning options are common arguments for developing online distance learning courses. However, rarely do these arguments

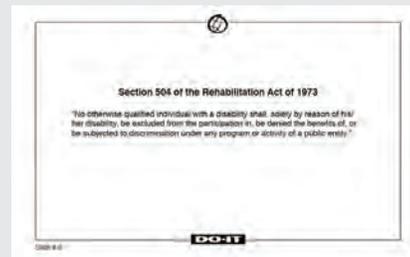
explicitly address access issues for students with disabilities.

Legal Issues

Ensuring that individuals with disabilities have access to computing resources can be argued on ethical grounds. Some simply consider it to be the right thing to do; others are more responsive to legal mandates.

The Americans with Disabilities Act (ADA) of 1990 requires that people with disabilities be given the same access to public programs and services, including educational programs that are offered to people without disabilities.

Show slide # 8.

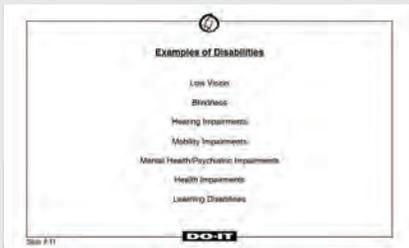


The ADA is civil rights legislation that reinforces and extends the requirements of Section 504 of the Rehabilitation Act of 1973 that "no otherwise qualified individuals with disabilities shall, solely by reason of their disabilities, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination in any program or activity of a public entity." When people think of the ADA, they often think of elevators in buildings, reserved spaces in parking lots, and lifts on busses. However, the ADA accessibility requirements apply to people with all types of disabilities and to all programs and resources offered at our institutions,



including those offered using computers and the Internet.

Show slide # 11.



Disabilities covered by legislation include, but are not limited to, spinal cord injuries, loss of limbs, multiple sclerosis, muscular dystrophy, cerebral palsy, hearing impairments, visual impairments, speech impairments, specific learning disabilities, head injuries, psychiatric disorders, diabetes, cancer, and AIDS. The conditions listed may limit people's abilities to perform specific tasks. Some of these conditions are readily apparent; some are invisible. Some affect computer use; some do not.

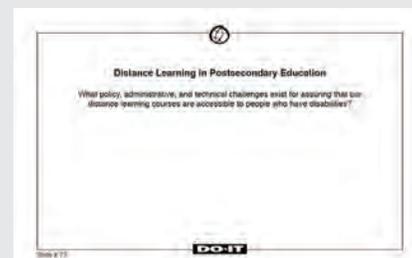
Additionally, some students who have the same diagnosis may have very different abilities when it comes to performing specific tasks. For example, one student who has cerebral palsy may have difficulty walking. For another student, cerebral palsy may result in no functional use of his or her hands or voice. Ultimately, a student who has a disability requires accommodations only when faced with a task that requires a skill that his or her disability precludes. This may include computer access.

Show slide # 66.



The ADA accessibility requirements also apply to programs offered on the Internet. As the United States Department of Justice clarifies, "Covered entities that use the Internet for communications regarding their programs, goods, or services must be prepared to offer those communications through accessible means as well." Specifically, if a qualified person with a disability enrolls in a distance learning course offered via the Internet, the course must be made available to her or him.

Show slide # 75.



Some technical requirements for ensuring that a distance learning class is accessible to people who have disabilities have already been resolved for many students before they enrolled in the course. Their own computer systems provide whatever accommodations they need in this area. Email communication between individual students and course administration staff, the instructor, and other students is accessible to all parties, regardless of disability. Email can be used



to deliver the course syllabus, lessons, assignments, and reminders. Guest speakers with disabilities can also join the email-based course discussions. Students can also turn in their assignments and tests using this accessible tool.

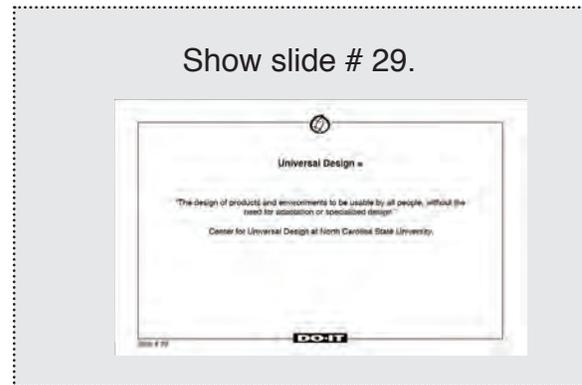
Accommodation vs. Universal Design



Usually, when we think of providing access to a service for a person with a disability, we think about providing appropriate accommodations. In contrast, universal design means that we consider the broad range of students who might enroll in a course at the design phase.

An example of an accommodation for a person who uses a wheelchair to open a door is to provide a wheelchair-height, large button for them to press in order to activate the automatic door opener; the solution does not work for a wheelchair user with no functional arm use; this solution is appropriate only for a narrow range of the population and is an “add on” to an existing product, the standard door. An example of a solution that employs the principles of universal design is a supermarket door that opens when it senses an individual in front of the door. A person can roll a wheelchair to the sensor, regardless of ability to use his or her hands; so can a person using a walker;

so can a person who walks; so can a small child or a large adult. It is the standard way to enter the building, not an add-on to the standard.



Universal design has been defined by the Center for Universal Design at North Carolina State University as “the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design.” At the center, a group of architects, product designers, engineers, and environmental design researchers collaborated to establish a set of principles of universal design to provide guidance in the design of environments, communications, and products.

When designers apply these principles, their products meet the needs of potential users with a wide variety of characteristics. Disability is just one of many characteristics that an individual might possess. Others include height, age, race, ethnicity, gender, and native language. All of these characteristics, including disability, should be considered when developing a distance learning course.

When universal design principles are applied to the design of distance learning courses, students and instructors with a wide range of characteristics can fully



participate. Now we'll watch a video that tells us how to design an accessible distance learning course.

Show video,
Real Connections: Making Distance Learning Accessible to Everyone
(12 minutes).

Let's discuss further some of the tools typically used in a distance learning course and how they can be made universally accessible. These tools might include email, websites, social networking tools, chat, teleconferencing, print materials, and videos.

Show slide # 77.



Asynchronous Communication

If a prerequisite to the course is for students to have access to email, they can use any software that supports email on the Internet. Therefore, any access issues that students with disabilities might face have already been resolved before enrolling in the course. Their own computer systems provide whatever accommodations they need in this area. Email communication between individual students and course administration staff, the instructor, and other students is accessible to all parties, regardless of disability. Email can be used

to deliver the course syllabus, lessons, assignments, and reminders. Guest speakers with disabilities can also join the email-based course discussions. Students can also turn in their assignments and tests using this accessible tool.

Other asynchronous communication tools include blogs and social networking sites, like Facebook. The accessibility issues discussed in the next video apply these tools when used in a distance learning class.

Synchronous Communication

Some distance learning courses employ online chat and other synchronous communication in their courses. In this case, students communicate synchronously (at the same time). Besides providing scheduling challenges, synchronous communication is difficult or impossible for someone who cannot communicate quickly. For example, someone with a learning disability who takes a long time to compose his or her thoughts, or someone with cerebral palsy whose input method is slow, may not be fully included in the discussion. If you choose to use this type of tool, be sure to make it optional or provide an alternate, equivalent assignment for those who cannot fully participate.

Websites

The most common tool used in distance learning classes is the Internet. We will now watch a short video, *World Wide Access: Accessible Web Design*, which demonstrates web access challenges that people with disabilities face and solutions for meeting these challenges. Guidelines for making webpages accessible to everyone are included in your handout of the same title.



Show video,
*World Wide Access: Accessible Web
Design* (11 minutes).

Your webpages should be designed to be device-independent. Device-independence means that a person may interact with webpages using a wide variety of input and output devices (e.g., mouse, keyboard, voice). If, for example, a selection can only be made with a mouse or other pointing device, someone who is using speech input or a keyboard alone will not be able to activate the function. Following this guideline benefits people with a variety of system configurations.

Webpages used in a distance learning class should be tested with a variety of monitors, computer platforms, and web browsers. One of the test browsers should be text-only, such as Lynx. If a webpage makes sense with Lynx, then most people with sensory impairments can read it, too. Another good accessibility test is to determine if all functions at a website can be accessed using a keyboard alone. A website can also be tested for accessibility using the HTML validator programs listed in your handout.

If, in some cases, it is not possible to make a specific feature of your website accessible, be sure to develop an accommodation strategy. For example, provide text-only information for a student who is blind if a particular part of your website cannot be made accessible to him or her. The key is to assure that the student has full access to the content of your course.

If universal design principles are employed in webpage development, people with characteristics other than disabilities will also benefit from the design. They include people working in noisy or noiseless environments; people whose hands or eyes are occupied with other activities; people for whom English is a second language; people using older, outdated computer equipment; and individuals using monochrome monitors.

Teleconferencing

Sometimes, online courses include teleconferencing opportunities for students to communicate in small groups. This mode of communication creates scheduling and access challenges for everyone. It is also inaccessible to a student who is deaf. If you choose to use teleconferencing for small group discussion in your course, you might want to provide it as an option or give all students an alternative assignment if appropriate (for example, to conduct the discussion online.) Or, a student who is deaf can participate by using a relay system, where someone translates his or her printed input via TTY into speech. Consult with the student about the best option.

Printed Materials

Some distance learning courses use printed materials to support Internet-based instruction. Students who are blind or who have specific learning disabilities that affect their ability to read may require these materials in alternative formats. Making the text of printed materials available online may provide the best solution. You can also contact the campus disabled student services office to discuss options for obtaining printed materials in alternative formats [include campus-specific information here].



Videos

Ideally, if a video is one of the course materials, captioning is available for those who have hearing impairments and audio description (which aurally describes the visual content) is provided for those who are blind. If the publisher does not make these access options available, the distance learning program should have a system in place to accommodate students who have sensory impairments. For example, the institution could hire someone to describe visual material to a blind student or sign audio material for a student who is deaf. Or you could work with the publisher to provide, in accessible format, a transcription of the content.

When universal design features are employed in developing and applying tools used in distance learning courses, you will minimize the number of special accommodations that will be needed by students with disabilities who enroll in your class.

Discussion Questions

[Ask participants the following or similar questions for discussion.]

1. What are the ethical and legal issues related to providing students with disabilities access to distance learning courses?
2. In our institution, who should be responsible for ensuring that distance learning courses are accessible to individuals with disabilities?
3. What are the benefits of employing universal design principles in distance education rather than focusing only on disability issues?

Case Study

[Consider discussing a case study from the *Presentation Tips* section of this notebook. Case #6 on page 73 would be appropriate.]

Conclusion

As our program comes to an end, what was the most significant insight or question you had today? Please feel free to share a brief comment with the group.

I hope this program has given you a clear understanding of the impact that the combination of computers, adaptive technology, and electronic resources can have on the lives of people with disabilities. Faculty and administrators have a legal responsibility to ensure equitable access to resources and services. The information provided in this program gave you tools to begin implementing universal design principles in developing and updating your distance learning courses. Applying these guidelines will help level the playing field for people with disabilities.

Resources

Show slide # 2 with your campus resources.



Here are some resources that might be useful to you as you work to maximize the accessibility of your distance learning courses. [Elaborate.]



Show slide # 3.



Thank you for your time today and for your interest in finding ways to ensure that all of the students in our programs have equal opportunities to learn, explore interests, and express ideas.

For comprehensive information on accommodations, a wide range of case studies, frequently asked questions, and general resources, visit *The Faculty Room* at <http://www.washington.edu/doit/Faculty/>. This resource was developed at the University of Washington as part of a nationwide project to provide resources to faculty and administrators so that they can make their courses and programs accessible to all students. You can link to this resource from _____. [Arrange to provide a link from your campus' disabled student services website before the presentation.] Consider linking to this website from your department's faculty website.

Show slide # 96.



A website specifically for content related to making distance learning courses and programs accessible to students and instructors with disabilities is *AccessDL* at <http://www.washington.edu/doit/Resources/accessdl.html>.



Building the Team



Purpose

After this presentation, faculty and administrators will be able to

- list challenges in gaining and demonstrating knowledge of students with disabilities in science, technology, engineering, and mathematics (STEM) classes;
- discuss accommodations for students with various types of disabilities in STEM courses; and
- describe a process for selecting appropriate accommodations.

Length

Approximately 45 minutes.

Presenter

The disabled student services coordinator or counselor would be responsible for coordinating the presentation. This program may be co-presented with a staff member or student on campus who has experience with people with disabilities in STEM.

Preparation

- Select the presenter(s).
- Develop presentation outline and activities using the “Sample Script” provided in this section and the ideas listed in the *Presentation Tips* section of this notebook.
- Create presentation slides from provided templates.
- Add the contact information for campus resources to the “Resources” slide and to printed publications as appropriate.

- Photocopy the handout templates *Working Together: Science Teachers and Students with Disabilities and Equal Access: Science and Students with Sensory Impairments*. Create alternative formats as necessary.
- Photocopy the presentation evaluation instrument to distribute at the end of the session (see pages 189-191 for examples) or create your own.
- Add a link on your department’s website to *The Faculty Room* at <http://www.washington.edu/doit/Faculty/>.

Equipment and Tools

- DVD player and monitor
- video projector, computer, and presentation slides; Internet connection (optional)
- video (open captioned and audio described version of *Working Together: Science Teachers and Students with Disabilities*)
- handouts (*Working Together: Science Teachers and Students with Disabilities and Equal Access: Science and Students with Sensory Impairments*)
- presentation evaluation instrument (pages 189-191)



Presentation Outline

1. Distribute handouts.
2. Introductions.
3. Begin presentation.
4. Introduce and play video as noted in the script.
5. Discuss possible accommodation strategies.
6. Discuss department or campus issues.
7. Note campus resources.
8. Distribute and collect completed evaluation instruments.

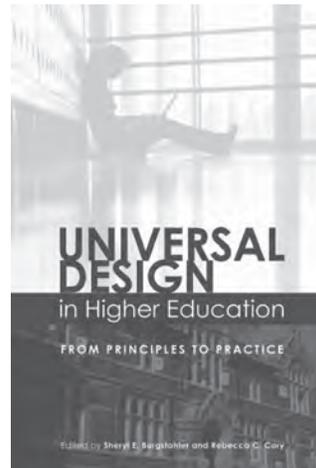
Resources

For further preparation resources for this presentation, consult

- *The Faculty Room* at <http://www.washington.edu/doit/Faculty/Strategies/Academic/Science/>



- *Universal Design in Higher Education: From Principles to Practice* published by Harvard Education Press, 2008.





Sample Script

Show slide # 78.



Today we will be discussing how to provide full access to science, technology, engineering, and mathematics (STEM) classes for students with disabilities.

Show slide # 79.



The objectives of today's presentation are to

- discuss the challenges students with disabilities face in gaining and demonstrating knowledge in STEM classes.
- list examples of accommodations for students with various types of disabilities in STEM courses.
- describe a process for selecting appropriate accommodations.

As scientific fields make increasing use of technology, new opportunities emerge for people with a variety of abilities and

disabilities. When students with disabilities and teachers form learning partnerships, the possibilities for academic and career success multiply.

Some conditions of students with disabilities are visible; some are invisible. Since each person's situation is unique, the best solutions for maximizing participation arise when the student and teacher work together to develop creative alternatives to challenges faced by students with disabilities. Such challenges occur when gaining and demonstrating knowledge. In most cases, it takes just a little creativity, patience, and common sense to make it possible for everyone to participate and learn.

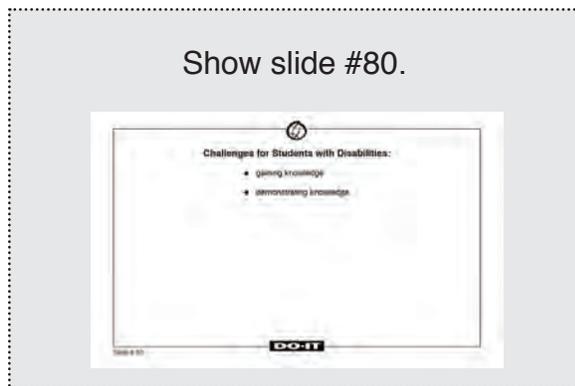
We will view a video in which college-bound and postsecondary students with disabilities share their access challenges and accommodation needs in science courses.

Show video,
Working Together: Science Teachers and Students with Disabilities
(13 minutes).

The students in this presentation shared their experiences in the science classroom. Let's discuss some of their solutions to the challenges they encountered. This information is summarized in your handout entitled *Working Together: Science Teachers and Students with Disabilities*. Imagine having these students enrolled in a freshman science course at our institution. Their challenges can be broken down into two areas: gaining knowledge and demonstrating knowledge.



[Discuss the access challenges and solutions that follow and those that can be found in the handout. Encourage comments, suggestions, and experiences from the participants.]



Gaining Knowledge

Many students with disabilities face challenges gaining knowledge. Examples of specific challenges and accommodations follow:

- The student who has difficulty reading standard text or graphics due to a visual impairment can benefit from materials in large print or Braille, an electronic format, or enlarged or tactile drawings. Provide access to adaptive technology that creates content in these formats.
- The student who cannot see materials on a blackboard or in a slide presentation due to visual impairment can benefit from binoculars, verbalization of the content, and oral descriptions of all visually displayed materials.
- For a student who cannot read output from standard equipment because of a visual impairment, you can interface lab equipment with a computer and provide large print or speech output; utilize scientific equipment with Braille and large print markings.
- A student with difficulty hearing a presentation or instruction may use an FM system, interpreter, and printed materials. In addition, the instructor can face the student for lip-reading and use presentation slides or a blackboard.
- A student who cannot hear multimedia presentations can be accommodated by captioned presentations or an interpreter.
- Students unable to participate in class discussions due to a hearing or speech impairment may be accommodated with electronic communications (e.g., Internet or online chat); where the ability to hear or speak is required, a portable computer with speech output can be used.
- Visual, aural, and tactile demonstrations can be incorporated into instruction for students with trouble understanding concepts due to a specific learning disability.
- A student experiencing reading difficulties due to a learning disability may benefit from extra time and access to materials via a computer equipped with speech and large print output and Internet access.
- Students unable to take notes in class because of a mobility or visual impairment can benefit from in-class access to a computer with adaptive technology and word processing.
- Some accommodations for students experiencing problems operating lab equipment and conducting lab experiments due to a mobility impairment may include accessible



facility, adjustable-height tables, lab partner, scribe, computer-controlled lab equipment with alternative input devices (e.g., speech, Morse code, alternative keyboard), or modified scientific equipment.

- A student who has difficulty seeing demonstrations or viewing lab experiments while seated in a wheelchair can benefit from adjustable height tables and flexible seating arrangements.
- Flexible scheduling arrangements may assist students with difficulties completing assignments or labs due to a health impairment.
- Information accessible on computers with adaptive technology can accommodate students who have problems doing research.

Demonstrating Knowledge

Some students with disabilities cannot demonstrate mastery of a subject by writing, speaking, or by working through a problem in a lab. Many of the accommodations for gaining knowledge can help the student demonstrate mastery of a subject as well. Examples of other accommodations follow:

- The student who has difficulty completing and submitting worksheets and tests because of a visual impairment or a specific learning disability can be accommodated by worksheets and tests in large print, Braille, on tape, or in an electronic format. Access to adaptive technology that provides enlarged text, voice, or Braille as well as standard print output may be necessary.

- For students experiencing trouble completing a test or assignment because of a disability that affects the speed at which it can be completed, the instructor can schedule extra time for the test or make alternative testing arrangements for the students.
- In-class access to a computer with alternative input (e.g., Morse code, speech, alternative keyboard) devices can benefit students who cannot complete a test or assignment due to a physical impairment.

Case Study

[Consider having participants discuss a case study. Case #2 on page 65 in the *Presentation Tips* section of this notebook would be appropriate.]

Conclusion

A common perception is that accommodations for students with disabilities are complex and expensive. However, most accommodations are inexpensive and simply require creative problem-solving on the part of the students, instructors, and disability services staff.



Resources

Show slide # 2 with your campus resources.



Thank you for your time today and for your interest in finding ways to ensure that all of the students in our programs have equal opportunities to learn, explore interests, and express ideas.

Here are some resources that might be useful to you as you work to maximize effective communication with all students in your STEM classes. [Elaborate.]

Show slide # 3.



For comprehensive information on accommodations, a wide range of case studies, frequently asked questions, and general resources, visit *The Faculty Room* at <http://www.washington.edu/doit/Faculty/>. This resource was developed at the University of Washington as part of a nationwide project to provide resources to faculty and administrators so that they can make their courses and programs accessible to all students. You can link to this resource from _____. [Arrange to provide a link from your campus' disabled student services website before the presentation.] Consider linking to this website from your department's faculty website.

Accommodating Students with Learning Disabilities



Purpose

After this presentation faculty and administrators will be more aware of

- types of learning disabilities and how they impact learning, participation, and demonstration of knowledge in class;
 - typical accommodation strategies for students with learning disabilities; and
 - how technology can be used to help students with learning disabilities achieve academic and career success.
- Photocopy handout templates *Academic Accommodations for Students with Learning Disabilities* and *Invisible Disabilities and Postsecondary Education*. Create alternative formats as necessary.
 - Photocopy the presentation evaluation instrument to distribute at the end of the session (see pages 189-191 for examples) or create your own.
 - Add a link on your department's website to *The Faculty Room* at <http://www.washington.edu/doi/Faculty/>.

Length

Approximately 60 minutes.

Presenter

The disabled student services coordinator or counselor would be responsible for coordinating the presentation. This program can be co-presented with a staff member who has experience with people with disabilities or a student on campus with a learning disability.

Preparation

- Select the presenter(s).
- Develop presentation outline and activities using the "Sample Script" provided in this section and the ideas listed in the *Presentation Tips* section of this notebook.
- Create presentation slides from provided templates.
- Add the contact information for campus resources to the "Resources" slide and to printed publications as appropriate.

Equipment and Tools

- DVD player and monitor
- video projector, computer, and presentation slides; Internet connection (optional)
- video (open captioned and audio described version of *Invisible Disabilities and Postsecondary Education*)
- handouts (*Academic Accommodations for Students with Learning Disabilities* and *Invisible Disabilities and Postsecondary Education*)
- presentation evaluation instrument (pages 189-191)

Presentation Outline

1. Distribute handouts.
2. Introductions.
3. Begin presentation.
4. Introduce and play video as noted in the script.



5. Discuss accommodation strategies for students with specific learning disabilities.
6. Discuss department or campus issues.
7. Note campus resources.
8. Distribute and collect completed evaluation instruments.

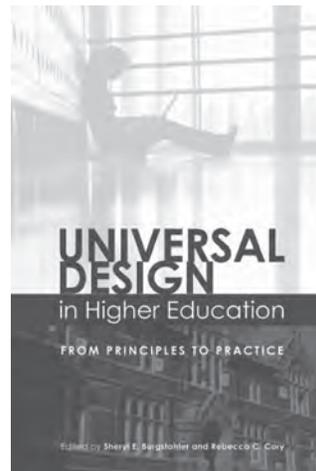
Resources

For further preparation resources for this presentation, consult

- *The Faculty Room at <http://www.washington.edu/doit/Faculty/Strategies/Disability/LD/>*

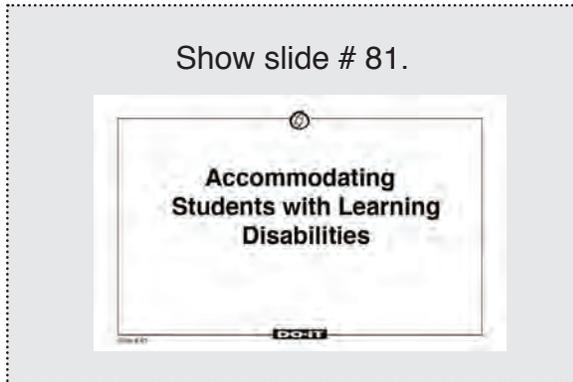


- *Universal Design in Higher Education: From Principles to Practice* published by Harvard Education Press, 2008.

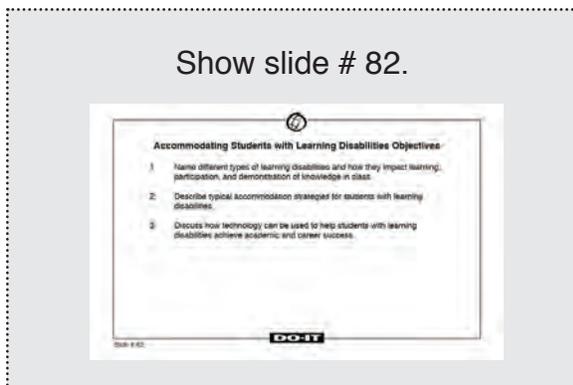




Sample Script

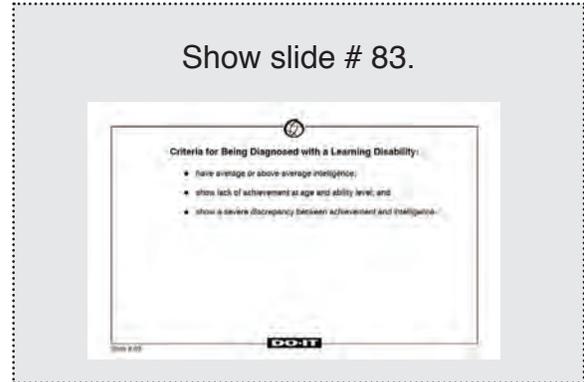


Today we will be discussing how to provide full access to college courses for students with learning disabilities.



The objectives for today’s presentation are to

- name different types of learning disabilities and how they impact learning, participation, and demonstration of knowledge in class.
- describe typical accommodation strategies for students with learning disabilities.
- discuss how technology can be used to help students with learning disabilities achieve academic and career success.



What is a Learning Disability?

Learning disabilities refer to a group of disorders manifested by significant difficulties in listening, speaking, reading, writing, reasoning, or mathematical abilities. A specific learning disability in most situations is a invisible disability. There are no outward signs of a disability, such as a white cane or wheelchair. A learning disability is unique to the individual and impacts learning in a variety of ways.

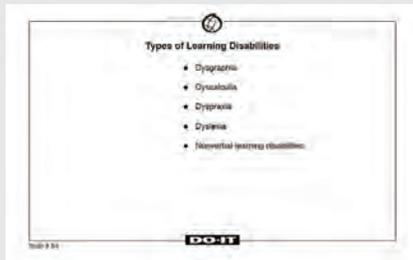
Generally speaking, someone may be diagnosed with a learning disability if he or she is of average or above-average intelligence and there is

- a lack of achievement at age and ability level, and
- a severe discrepancy between achievement and intellectual ability.

An untrained observer may conclude that a person with a learning disability is lazy or just not trying hard enough. He or she may have a difficult time understanding the large discrepancy between reading comprehension and verbal skills. The observer sees only the input and output, not the processing of the information.



Show slide # 84.



Learning disabilities usually fall within four broad categories: spoken language, which affects listening and speaking; written language, which affects reading, writing, and spelling; arithmetic which affects calculation and concepts; and reasoning, which impacts organization and integration of ideas and thoughts.

A person with a learning disability may have discrepancies in one or all of these categories. The effects of a learning disability range from mild to severe. Learning disabilities may also be present along with other disabilities, such as mobility or sensory impairments. Often people with Attention Deficit Disorder / Attention Deficit Hyperactivity Disorder, although usually not classified as a learning disability itself, also have learning disabilities.

There are specific types of learning disabilities:

- An individual with **dysgraphia** has a difficult time with the physical task of forming letters and words using a pen and paper and has difficulty producing legible handwriting.
- A person with **dyscalculia** has difficulty understanding and using math concepts and symbols.

- Language comprehension of a person with **dyspraxia** does not match language production. She or he may mix up words and sentences while talking.
- An individual with **dyslexia** may mix up letters within words and words within sentences while reading. He or she may also have difficulty spelling words correctly while writing; letter reversals are common. Some individuals with dyslexia may also have a difficult time with navigating and route-finding using relative directions (right, left, forward, backward, up, and down) or cardinal directions (north, south, east, and west).
- A **nonverbal learning disorder** is demonstrated by below-average motor coordination, visual-spatial organization, and social skills.

Accommodations

Students with specific learning disabilities may have difficulties acquiring or demonstrating knowledge. For a student who has a learning disability, auditory, visual, or tactile information can become jumbled at any point when it is transmitted, received, processed, or retransmitted. It may take longer for some students who have learning disabilities to process written information, making lengthy reading or writing assignments or tests difficult to complete in a standard amount of time. Some students who have learning disabilities may find it difficult to process and digest oral instruction and lectures. Some students who have learning disabilities may be able to organize and communicate their thoughts in a one-on-one conversation, but may find it difficult to articulate those same ideas in a noisy classroom.



Show slide # 14.



Examples of accommodations for students with learning disabilities include notetakers and scribes; visual, aural, and tactile demonstrations incorporated into directions; computers with speech output, spelling checker, and grammar checker; course and lecture outlines; and extra time or alternate testing arrangements.

Show slide # 15.



Audio or video recorded class sessions, audio textbooks, and assignments in advance are also common accommodations for students with learning disabilities.

Technology and Learning Disabilities

Technology can play a role in helping people with learning disabilities find success in academics and careers. Technology tools do not cure a specific learning disability; rather, they compensate for the disability. With appropriate strategies, the person with a learning disability can apply his or her intelligence and demonstrate his or her knowledge using computer and

adaptive technology. Trial and error may be required to find a set of appropriate tools and techniques for a specific individual. The person with the disability should help to determine what works and what does not. Once basic tools and strategies are selected, they can be test-driven, discarded, adapted, or refined.

Next, we will view a short video in which college students with learning and other invisible disabilities discuss their challenges and how technology plays a role in their success in school. Your handouts summarize the content of this video presentation.

Show video,
Invisible Disabilities and Postsecondary Education
(19 minutes).

Discussion Questions

[Facilitate a discussion using the questions below or other relevant questions.]

- Does anyone have examples of how you have effectively (or not effectively) worked with students with specific learning disabilities?
- What challenges did you encounter? Which accommodations were successful? Which were unsuccessful?
- What questions do you have about accommodating students with learning disabilities on our campus?



Case Study

[Consider having participants discuss a case study. Case #1 on page 63 in the *Presentation Tips* section of this notebook would be appropriate.]

Conclusion

Most students with learning disabilities are bright and motivated to learn. However, academic failures can lead to low self-esteem and reduced motivation. Students, technology staff, and instructors can work together to develop appropriate accommodations, including the use of technology, that will lead to positive postsecondary and career outcomes for students with learning disabilities.

Resources

Show slide # 2 with your campus resources.



Here are some resources that might be useful to you as you work to maximize effective communication with all students in your classes. [Elaborate.]

Show slide # 3.



For comprehensive information on accommodations, a wide range of case studies, frequently asked questions, and general resources, visit *The Faculty Room* at <http://www.washington.edu/doi/Faculty/>. This resource was developed at the University of Washington as part of a nationwide project to provide resources to faculty and administrators so that they can make their courses and programs accessible to all students. You can link to this resource from _____. [Arrange to provide a link from your campus' disabled student services website before the presentation.] Consider linking to this website from your department's faculty website.

Thank you for your time today and for your interest in finding ways to ensure that all of the students in our programs have equal opportunities to learn, explore interests, and express ideas.

Accommodating Students with Psychiatric Disabilities



Purpose

After this presentation faculty and administrators will be able to

- list types of psychiatric disabilities and how they affect learning,
- discuss functional limitations resulting from psychiatric disabilities, and
- list typical accommodations for students who have a psychiatric disability.

Length

Approximately 45 minutes.

Presenter

The disabled student services coordinator or other staff member who has experience with individuals with psychiatric disabilities; a student with a psychiatric disability could deliver some of the presentation or participate in discussions.

Preparation

- Select the presenter(s).
- Develop presentation outline and activities using the “Sample Script” provided in this section and the ideas listed in the *Presentation Tips* section of this notebook.
- Create presentation slides from provided templates.
- Add the contact information for campus resources to the “Resources” slide and to printed publications as appropriate.
- Photocopy the handout template

Academic Accommodations for Students with Psychiatric Disabilities. Create alternative formats as necessary.

- Photocopy the presentation evaluation instrument to distribute at the end of the session (see pages 189-191 for examples) or create your own.
- Add a link on your department’s website to *The Faculty Room* at <http://www.washington.edu/doi/Faculty/>.

Equipment and Tools

- Video projector, computer and presentation slides; Internet connection (optional)
- handout (*Academic Accommodations for Students with Psychiatric Disabilities*)
- presentation evaluation instrument (pages 189-191)

Presentation Outline

1. Distribute handout.
2. Introductions.
3. Begin presentation.
4. Discuss possible accommodation strategies.
5. Discuss department or campus issues.
6. Note campus resources.
7. Distribute and collect completed evaluation instruments.



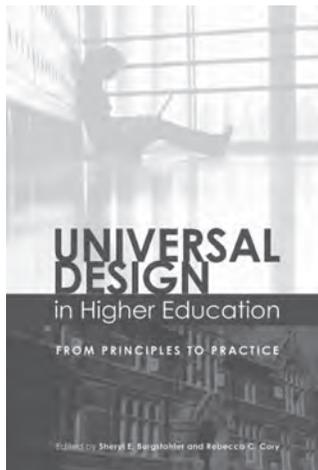
Resources

For further preparation resources for this presentation, consult

- *The Faculty Room* at <http://www.washington.edu/doit/Faculty/Strategies/Disability/Psych/>

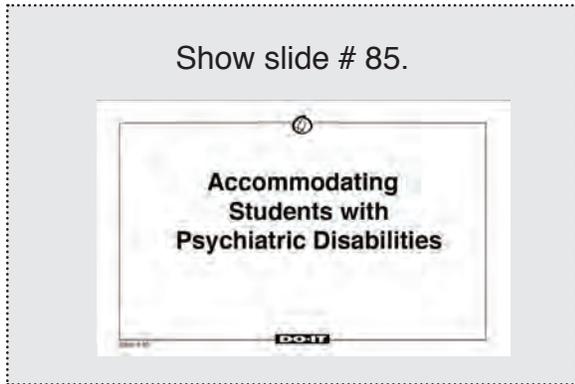


- *Universal Design in Higher Education: From Principles to Practice* published by Harvard Education Press, 2008.

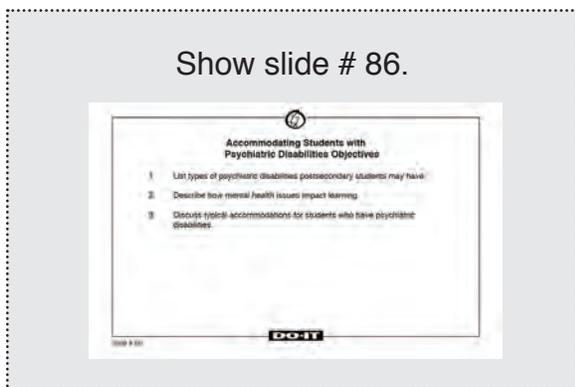




Sample Script

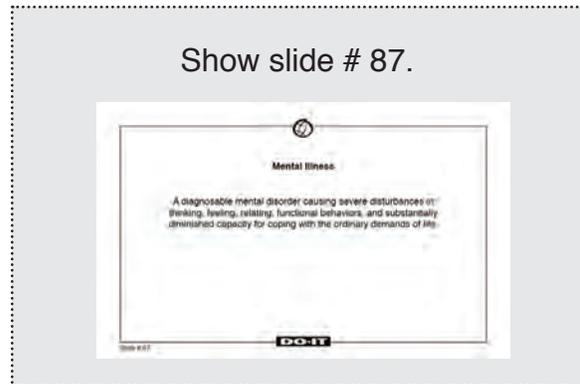


Today we will be discussing how to accommodate students with psychiatric disabilities for full inclusion in your courses.



The objectives of today's presentation are to

- list types of psychiatric disabilities postsecondary students may have.
- describe how mental health issues impact learning.
- discuss typical accommodations for students who have psychiatric disabilities.



What is a Psychiatric Disability?

A person with a psychiatric disability has a diagnosable mental illness causing severe disturbances in thinking, feeling, relating, or functional behaviors that results in a substantially diminished capacity to cope with the demands of daily life (<http://www2.bu.edu/cpr/reasaccom/whatis-psych.html>).

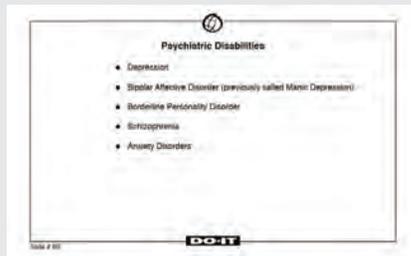
A psychiatric disability is an invisible disability; it is typically not apparent to others. However, students with psychiatric disabilities may experience symptoms that interfere with their educational goals, which may include, yet are not limited to:

- heightened anxieties, fears, suspicions, or blaming others;
- marked personality change over time;
- confused or disorganized thinking;
- strange or grandiose ideas;
- difficulty concentrating, making decisions, or remembering things;
- extreme highs and lows in mood;
- denial of obvious problems or a strong resistance to offers of help; and
- thinking or talking about suicide.



Psychiatric Diagnosis

Show slide # 88.



These diagnoses are defined by the American Psychiatric Association.

Depression

This is a mood disorder that can begin at any age. Major depression may be characterized by a depressed mood most of each day, a lack of pleasure in previously enjoyed activities, thoughts of suicide, insomnia, and consistent feelings of worthlessness or guilt.

Bipolar Affective Disorder (BAD, formerly Manic Depressive Disorder)

BAD is a mood disorder with revolving periods of mania and depression. In the manic phase, a person might experience inflated self-esteem, high work and creative productivity, and a decreased need to sleep. In the depressed phase, the person experiences the symptoms of depression.

Borderline Personality Disorder (BPD)

BPD is a personality disorder that includes both mood disorder and thought disorder symptoms. This diagnosis has both biological and environmental determinants. Individuals diagnosed with BPD may have experienced childhood abuse and family dysfunction. They may experience mood fluctuations, insecurities and mistrust, distortion of perceptions, dissociations,

difficulty with interpersonal relationships, and limited coping skills.

Schizophrenia

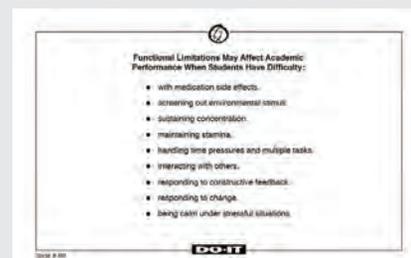
This is a thought disorder that can cause a person to experience delusions, hallucinations, and paranoia. Schizophrenic individuals typically demonstrate concrete thought processing and appreciate structure and routines.

Anxiety Disorders

These are mood disorders in which the individual responds to thoughts, situations, environments, or people with fear and anxiety. Anxiety symptoms can disrupt a person's ability to concentrate and focus on tasks at hand. Symptoms may be in response to real or imagined fears. Specific anxiety disorders include generalized anxiety disorder, obsessive-compulsive disorder, panic disorder, social and specific phobias, and post-traumatic stress disorder.

Functional Limitations

Show slide # 89.



The following functional limitations related to psychiatric disabilities may affect academic performance and may require accommodations (Center for Psychiatric Rehabilitation, 1997):

- **Difficulty with medication side effects:** Side effects of psychiatric medications

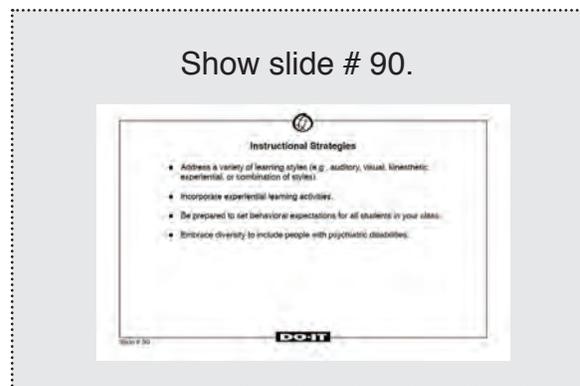


that may affect academic performance include drowsiness, fatigue, dry mouth, thirst, blurred vision, hand tremors, slowed response time, and difficulty initiating interpersonal contact.

- **Screening out environmental stimuli:** An inability to block out sounds, sights, or odors that interfere with focusing on tasks. Limited ability to tolerate noise and crowds.
- **Sustaining concentration:** Restlessness, shortened attention span, distraction, and difficulty understanding or remembering verbal directions.
- **Maintaining stamina:** Difficulty sustaining enough energy to attend a whole day of classes on campus; combating drowsiness due to medications.
- **Handling time pressures and multiple tasks:** Difficulty managing assignments, prioritizing tasks, and meeting deadlines. Inability to multi-task.
- **Interacting with others:** Difficulty getting along, fitting in, contributing to group work, and reading social cues.
- **Fear of authority figures:** Difficulty approaching instructors or teaching assistants.
- **Responding to negative feedback:** Difficulty understanding and correctly interpreting criticism or poor grades. May not be able to separate person from task (personalization or defensiveness due to low self-esteem).

- **Responding to change:** Difficulty coping with unexpected changes in coursework, such as changes in the assignments, due dates, or instructors. Limited ability to tolerate interruptions.
- **Severe test anxiety:** Anxiety to the extent that the individual is rendered emotionally and physically unable to take the exam.

Instructional Strategies



Students with a history of psychiatric disabilities can be intelligent, sensitive, creative, and interesting. You can employ strategies that will promote their success in your class. For example:

- Address a variety of learning styles (e.g., auditory, visual, kinesthetic, experiential, or combination of styles).
- Incorporate experiential learning activities.
- Be prepared to set behavioral expectations for all students in your class.
- Embrace diversity to include people with psychiatric disabilities.



Reasonable Accommodations

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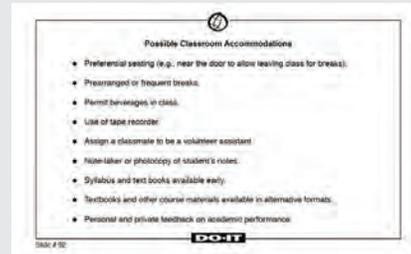


Some students with psychiatric disabilities may require accommodations to allow them equal access to classes, programs, and coursework. An accommodation is the removal of a barrier to full participation and learning. The emphasis is on access, not on outcome. This is done by providing the student with a disability equal access to the content and activities of a course, but not ensuring success.

Each student with a disability is encouraged to register with their campus office that supports students with disabilities in order to receive accommodations. Personnel from this office typically send instructors a letter documenting specific accommodations required for the student with the disability. It is the responsibility of the instructor to provide the accommodations. It is the student's responsibility to fulfill the academic requirements of the course. The best solutions result when the instructor, student, and disability support service professional work cooperatively. Meeting as a group may facilitate problem-solving alternatives. Respecting the privacy of the student by not discussing his or her disability or accommodations with others outside of this meeting is essential. Review accommodations periodically with the student to assess effectiveness and adjust to changing needs.

Classroom Accommodations

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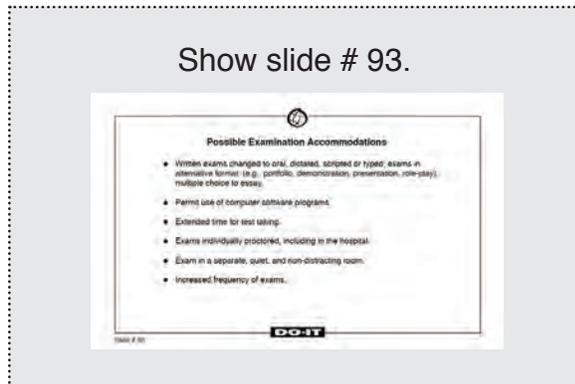


Typical classroom, exam, and assignment accommodations that may be recommended by the disabled student service professional for a student with a psychiatric disability include the following:

- preferential seating, especially near the door, to allow the student to leave class for breaks;
- prearranged or frequent breaks;
- beverages permitted in class;
- audio or video recorder use;
- assigned classmate as a volunteer assistant;
- notetaker or photocopies of another's notes;
- early availability of syllabus and text books;
- availability of course materials (lectures, handouts) in alternative formats; and
- private feedback on academic performance.



Examination Accommodations



Typical accommodations for students with psychiatric disabilities taking exams include the following:

- exams in alternative format (e.g., multiple choice, essay, oral, presentation, role-play, or portfolio);
- use of adaptive computer software (e.g. optical character recognition, allowing scanned text to be read aloud by the computer's sound card; or speech recognition for converting the spoken word to printed word on the computer screen);
- extended time for test taking;
- exams individually proctored, including in the hospital;
- exam in a separate, quiet, and non-distracting room; and
- increased frequency of exams.

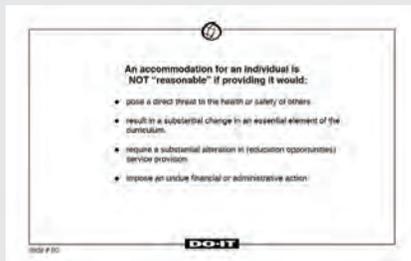
Assignment Accommodations

Typical assignment accommodations for students with disabilities include the following:

- substitute assignments in specific circumstances;
- advance notice of assignments;
- permission to submit assignments handwritten rather than typed (if possible);
- written assignments in lieu of oral presentations, or vice versa;
- assignments completed in dramatic formats (e.g. demonstration, role-play, and sculpture);
- assignment assistance during hospitalization; and
- extended time to complete assignments.



Show slide # 95.



Not all requested accommodations are reasonable. An accommodation is not reasonable if it would:

- pose a direct threat to the health or safety of others;
- result in substantial change in an essential element of the curriculum;
- require a substantial alteration in the manner in which educational opportunities are provided; or
- pose an undue financial or administrative burden to the institution.

Conclusion

On most campuses, a student with a disability must register with the disabled student services office to receive accommodations. Personnel from this office typically send instructors a letter documenting specific accommodations required for the student. It is often helpful to schedule a three-way meeting with the student, instructor, and disability counselor. Review accommodations periodically with the student to assess effectiveness. Respect the privacy of the student by not discussing his or her disability or accommodations with others. It is important that the instructor provides the accommodations required; it is the student's responsibility to fulfill the academic requirements of the course.



Resources

Show slide # 2 with your campus resources.



Thank you for your time today and for your interest in finding ways to ensure that all of the students in our programs have equal opportunities to learn, explore interests, and express ideas.

Here are some resources that might be useful to you as you work to maximize effective communication with all students in your classes. [Elaborate.]

Show slide # 3.



For comprehensive information on accommodations, a wide range of case studies, frequently asked questions, and general resources, visit *The Faculty Room* at <http://www.washington.edu/doit/Faculty/>. This resource was developed at the University of Washington as part of a nationwide project to provide resources to faculty and administrators so that they can make their courses and programs accessible to all students. You can link to this resource from _____. [Arrange to provide a link from your campus' disabled student services website before the presentation.] Consider linking to this website from your department's faculty website.



Building the Team



DO-IT

Presentation Evaluation

Part One: Help us know what you learned as a result of this presentation. Please indicate your agreement or disagreement with these statements where 1= Strongly Disagree, 5= Strongly Agree, and N/A = Not Applicable.

	<u>Strongly Disagree</u>			<u>Strongly Agree</u>			
	1	2	3	4	5		N/A
1. I am better able to find resources on my campus to accommodate students with disabilities.							
2. I gained knowledge about legal obligations relating to students with disabilities.							
3. I gained knowledge about specific accommodations for students with disabilities.							
4. I gained knowledge about technology available to support students with disabilities.							

Please answer the following questions with responses based on today's presentation (as opposed to what you already knew). Describe one thing you learned today about each of the following:

1. Legal issues affecting students with disabilities:
2. Campus services for students with disabilities:
3. Accommodations that can be used for students with disabilities in classes or labs:

Describe additional information you would like to have in order to more fully include students with disabilities in your courses.

Part Two: Please provide input to help us improve our professional development offerings. Please indicate your agreement or disagreement where 1 = Strongly Disagree and 5 = Strongly Agree with the following statements. N/A = Not Applicable.

	<u>Strongly</u> <u>Disagree</u>			<u>Strongly</u> <u>Agree</u>		
■ The facility for this presentation was appropriate.	1	2	3	4	5	N/A
■ The presenter(s) was (were) well prepared.	1	2	3	4	5	N/A
■ Overall, the information presented was useful.	1	2	3	4	5	N/A
■ The pace of the presentation was appropriate.	1	2	3	4	5	N/A
■ The question and answer time was useful.	1	2	3	4	5	N/A
■ The handouts will be useful.	1	2	3	4	5	N/A

1. Which part of the presentation/material was the most useful to you and why?

2. Describe what could make the presentation more useful.

3. To whom would you recommend a workshop on this topic (check all that apply)?

- Faculty
- Teaching Assistants
- Administrators
- Other (please specify): _____

4. The length of the presentation was: about right too short too long
 The amount of material was: about right not enough too much

Part Three: Please tell us about yourself:

- Male Female
- Faculty Administrator
- Teaching Assistant Other

Have you ever provided an accommodation to a student with a disability? Yes No
 If yes, please give an example:



Presentation Evaluation

Please indicate your agreement or disagreement with these statements where 1= Strongly Disagree, 5= Strongly Agree, and N/A= Not Applicable.

	<u>Strongly Disagree</u>				<u>Strongly Agree</u>		
■ I am better able to find resources on my campus to accommodate students with disabilities.	1	2	3	4	5	N/A	
■ I gained knowledge about legal obligations relating to students with disabilities.	1	2	3	4	5	N/A	
■ I gained knowledge about specific accommodations for students with disabilities.	1	2	3	4	5	N/A	
■ I gained knowledge about technology available to support students with disabilities.	1	2	3	4	5	N/A	
■ The presenter(s) was (were) well prepared.	1	2	3	4	5	N/A	
■ Overall, the information presented was useful.	1	2	3	4	5	N/A	
■ The handouts will be useful.	1	2	3	4	5	N/A	

1. The length of the presentation was: about right ____ too short ____ too long ____

2. The amount of material was: about right ____ not enough ____ too much ____

3. Please tell us about yourself:

<input type="checkbox"/> Male	<input type="checkbox"/> Female
<input type="checkbox"/> Faculty	<input type="checkbox"/> Administrator
<input type="checkbox"/> Teaching Assistant	<input type="checkbox"/> Other

Please make specific comments about this presentation on the back of this form.



Building the Team



In this section a few questions commonly asked by postsecondary faculty and administrators are presented along with answers. Additional questions and answers, case studies, and promising practices can be found in *The Faculty Room Knowledge Base* at <http://www.washington.edu/doit/Faculty/kb.html>.

LOW VISION

Q TERMINOLOGY: What are the differences between low vision, visual impairment, and blindness?

A Standard vision is measured as 20/20. A person is considered visually impaired if he or she can see no better than 20/70 with correction in his or her better eye. This means she can see at twenty feet what people with standard vision see at seventy feet. If an individual's vision is no better than 20/200, he or she is considered legally blind. A person is also considered legally blind if his or her central vision is no greater than twelve degrees (i.e., he or she has limited peripheral vision and appears to be seeing things as if looking through a tube or straw). A person is typically referred to as totally blind or black blind if he or she has no usable sight. Low vision or limited vision usually refers to someone who has a visual impairment but is not totally blind.

Q TEXT ENLARGEMENT: How much do I need to enlarge handouts for someone with low vision?

A Ideal print size will depend on the needs of the individual. The student is the best source of information regarding preferred print size. However, large print is usually defined as 16- to 18-point bold type, depending on the typeface used. A standard Roman typeface, using upper and lower cases, is more readable than italicized, oblique, or condensed fonts. To enlarge print from standard 12-point text to 16- or 18-point, use a 150-165% enlargement setting on a photocopier. For electronic documents, enlarge the font size before printing.

Q TEXT: Other than enlarging the size, how should I adapt text for handouts to accommodate students with low vision?

A There are several ways:

- Use a Roman type standard serif or sans-serif font, size 16- or 18-point. These fonts tend to have more space between letters (i.e., non-condensed).
- Print text using the highest contrast possible. Light or white letters printed on a dark background are usually more readable than dark letters on a white background. High contrast can be difficult to achieve with colored type on a colored background. It is important to check with the student to see what type of contrast he or she prefers.
- Allow extra line space between the lines of text. The spacing should be at least 25-30% of the point size. For example, when using a 16-point font, there should be at least four spaces between the lines of text.



- Extra-wide margins and the ability to open a printed document flat are helpful if the document is bound.
- Use paper with a matte finish, which is easier to read than a glossy finish.

Remember, the student is the best source of information about preferred text characteristics.

Q LITERATURE SEARCHES: How does a student with low vision conduct a literature search and access electronic and library resources in preparation for a writing assignment?

A Many students with low vision are able to access library catalogs and other databases on the Internet to search for relevant articles and books, as long as computers are equipped to enlarge text on the screen and/or read the screen with speech output software. Students may also work with library staff or the disability services office to request a library assistant.

Q LIBRARY MATERIALS: What are strategies that can be used by students with low vision to access printed library materials?

A Pages can be enlarged with a photocopier for a student able to read large print. An article can be scanned and accessed by a computer with speech and/or large-print output. A closed-circuit television (CCTV) can enlarge the printed material for the student. A reader may read the article aloud to the student. The disabled student services office may be asked to prepare printed articles in an alternate format or provide a reader.

A complete list of recommendations for creating text for people with low vision can be found on the American Foundation for the Blind's website, <http://www.afb.org/>.

BLINDNESS

Q TEST TAKING: Does a student who is blind require extended time on tests?

A A student who is blind or who has low vision may require up to double the time that is allotted sighted peers due to extended time necessary to utilize accommodations.

Q VIDEOS: How can a student who is blind watch a video?

A If all essential information contained in the video is provided verbally, and if another person watching the video describes important visual content, the student who is blind can benefit from the video. Ideally, videos should be available with audio description, which includes extra spoken content that describes the visual content.

Q LABS: How can a student who has a visual impairment participate in labs that require computer graphing?

A A student who has low vision may be able to use graphing software if the text and graphics on the screen can be enlarged using either features built into the operating system or adaptive software. A student who is completely blind can work with a partner who can describe the graphs or tactile graphics software can be used to create a computer-generated tactile diagram.



Q FOREIGN TRAVEL: How can a student who is blind navigate in a foreign country?

A That depends on the student, the nature and length of the trip, and the destination. When in doubt, it is best to ask the student how he or she plans to get around and whether assistance will be needed. Traveling with a sighted partner is helpful but some students are comfortable navigating and asking for direction on their own. The student may enlist the support of the disabled student services office for resources and development of a plan. If the student is traveling in a group, other members of the group may be able to serve as sighted guides when necessary.

Q LITERATURE SEARCHES AND ACCESS: How does a student who is blind conduct a literature search and access the literature in preparation for a writing assignment?

A Many students who are blind are able to access library catalogs and other databases on the Internet to search for relevant articles and books. They may order the articles online or ask a librarian or another person for assistance. Alternative methods for accessing the materials include:

- They may be enlarged with a photocopier (if the student is able to read large print).
- A reader may read them aloud.
- Articles may be scanned and accessed by a computer with speech output.

- The university's disabled student services office may be asked to prepare the articles in an alternate format (e.g., audio).

Q CLASS DISCUSSIONS: Does a student who is blind need accommodations to benefit from class discussions?

A It is most helpful if all speakers identify themselves by name prior to responding to a question or making a discussion comment. Any demonstration or visual aids will also need to be verbally described.

DEAF OR HARD OF HEARING

Q COMMUNICATION: What is the best way to speak to a student with a hearing impairment?

A Face the student as you speak. Do not overemphasize words. Speak clearly and at a normal speed. Communicate in a quiet area if possible. Do not obstruct the student's view of your lips; keep your hands and other objects away from your face while you are speaking. Mustaches can make lip-reading more difficult.

Q LECTURES: What can I do to make sure a student who is hard of hearing can access spoken information in a large lecture?

A Do not turn your back to the group. Avoid lecturing against a window since the light through the window may throw a shadow over your mouth, making lip-reading difficult. Finally, avoid obscuring your mouth with books, hands, or other materials.



Q TELEPHONE: How do individuals with hearing impairments communicate by telephone?

A There are three different kinds of technology used for telephone communication:

1. The TTY, TDD, and TT acronyms are used interchangeably for the same mechanical teleprinter equipment. TTY means "TeleTYpe." TDD stands for "Telecommunications Device for the Deaf," and TT stands for "Text Telephone." A TTY is used by a person who does not have enough functional hearing to understand speech, even with amplification. Users of this system communicate through typed text.
2. Amplification devices can be added to telephones to allow people who are hard of hearing to benefit from enhanced volume. Amplification can be provided through the handset, headset, in-line amplifier, portable amplifier, or a control on a telephone base. Cellular telephones can also be used with amplification devices.
3. A third method is through a relay service, which is used when only the person with a hearing impairment has a TTY/TDD/TT. The person with a hearing impairment types his or her part of the conversation into a TTY, and the message is read by a relay operator who also has a TTY. The relay operator reads the message to the hearing party. As this party responds orally, the relay operator types what is spoken into the TTY unit which is read by the person who has a hearing impairment.

Q TTY/TDD/TT: How does a TTY/TDD/TT work?

A A TTY (TeleTYpe), TDD (Telecommunications Device for the Deaf), or TT (Text Telephone) refers to one piece of equipment with a small keyboard and visual display. The person using the equipment types what they would like to say and the text is shown on the display. TTYs use a coupler or modem to convert electric impulses into acoustic signals which are then transmitted to a telephone receiver. The signals are sent to the receiver's TTY and are converted into text messages. In order for a person to use a TTY, the individual at the other end of the conversation must also have one, or they must use a relay service whose operator has a TTY.

Q VIDEOS: I use several instructional videos in my course; how can I make sure students with hearing impairments are able to access the content?

A Video or film information can be accessed by those who cannot hear the audio in three ways: (1) captioning, (2) sign-language interpreting, or (3) transcribing. Closed captioning requires the use of a television decoder to view the captioning. Open captioning displays the text automatically during every viewing. No special equipment is needed to view open captioning. Ask the publisher for captioned versions of videos you use in class. If a captioned version of a video is not available, a sign language interpreter can translate verbal information from the video for a student who knows sign language. Transcription can be provided as a last resort. Ask for



a transcript of the video. Be sure the student has time to read the transcript before the video is shown since he or she cannot read the script and watch visual content at the same time.

Q CAPTIONING: How do I caption videos that I create?

A Your videos can be captioned on your campus if the proper equipment and expertise is available, or they can be sent out to a captioning service for a fee. Check with your video production center or disabled student services office to find out if this service is provided on campus. Video productions presented on your website can be captioned using Magpie software from the National Center on Accessible Media at <http://ncam.wgbh.org/richmedia>.

Q ASSISTIVE LISTENING DEVICES (ALDs): What are ALDs?

A ALDs consist of a microphone/transmitter that is positioned close to the speaker's mouth and sends the speaker's voice through the air or by cable to a receiver worn by the student. ALDs can provide clear sound over distances, eliminating echoes and reducing the distraction of surrounding noises, allowing the student to more easily attend to the instructor.

LEARNING DISABILITIES

Q TEACHING AND CLASSROOM ACCOMMODATION: How can I present information (e.g., written, oral, hands-on activities, demonstrations, and video formats) adequately to teach students with learning disabilities in my class?

A Presenting content using multiple modes (e.g., written, oral, hands-on activities, demonstrations, and video formats) benefits all students and may reduce the need for specific accommodations for students with many types of disabilities. However, some students with learning disabilities will still require specific accommodations. Accommodations should be individualized and may change over time as a student's needs change or the course requires different types of work. Access is most easily addressed if the course content is clearly outlined and there is an ongoing dialog between faculty, the disability services office, and the student. Reasonable accommodations may include but are not limited to

- enlarged visual aids and handouts;
- audio or visual recording of sessions;
- extended time on assignments and during test taking;
- distraction-free testing environment;
- alternative evaluation options and formats (e.g., audio, portfolios);



- computers with speech input and output, spelling checker, and grammar checker;
- notetaker, scribe, or reader; and
- audio textbooks.

Q HANDOUTS AND TESTS: How can I adjust testing or handout materials to make them more user-friendly for students with a range of learning disabilities?

A When constructing test items, use a style consistent with that used during lectures. On the test, group related questions together. This can help students retrieve information contained in their notes. Concise and well-organized handouts that highlight key points can also structure and reinforce content.

Q DIAGNOSIS: How do I know if a student has a specific learning disability?

A Learning disabilities are generally invisible disabilities. It is the student's responsibility to disclose his or her disability and seek necessary accommodations. A student will usually provide documentation of the disability to the disabled student services office. The student or the disabled student services counselor will contact you and discuss accommodations as needed. During the first class session it may be helpful to encourage students who need accommodations to arrange a meeting with you. Also include a similar statement on your course syllabus. Some students choose not to disclose their disabilities, and their privacy should be respected by not asking them about the possible presence of a disability.

Q COMPUTER ACCOMMODATIONS: Do all computer-based accommodations used by students with learning disabilities require special hardware or software applications?

A No. Many students benefit from standard software features. Features such as spelling and grammar checkers can help students correct spelling and grammar errors. Word-processing programs that include tools for outlining and color coding text can help people with organization and sequencing difficulties sort their thoughts and ideas.

Q READING: How can a student with a reading disability be expected to keep up with the high level of reading content in my course?

A There are several options students can consider. Students can arrange to obtain their textbooks in an audio or electronic format through agencies such as Recordings for the Blind and Dyslexic or the disabled student services office on campus. Some students may benefit from a computer-based reading system. These systems convert native electronic text or scanned text (from textbooks, journals) to speech output. This requires the availability of an appropriate configuration of computer software and hardware.

Not every textbook is available in an alternate format. Choose your textbooks well in advance, so students can order these books early and prepare the accommodations before the classes begin.



You can also assist students by offering handouts, tests, and other class materials in electronic format. Materials in electronic format are often easier and faster for the student to convert to an accessible format.

Q EXTENDING DEADLINES: Do I need to extend assignment deadlines for students who have learning disabilities that affect their writing or students who have limited use of their hands?

A An extended assignment deadline might be a reasonable accommodation for students with these types of disabilities, as well as those with low vision, health, or psychiatric impairments. The need for an extended deadline depends on the student's disability and the nature of the assignment. Consult the staff at your disabled student services office regarding the most appropriate accommodation for a specific student.

Q LOW-TECH: What are some low-tech strategies that students with learning disabilities use to achieve academic success?

A Some simple accommodations do not require computers. Low-tech solutions such as post-it notes, daily organizers, and highlighter pens may be helpful organizers and learning tools for students with learning disabilities.

MOBILITY IMPAIRMENTS

Q LAB ACCESSIBILITY: Are there any standards for lab accessibility for students with mobility impairments?

A There are no overall standards for setting up science and computer labs as needs vary considerably depending on the subject, the physical facility, and the physical abilities of each student. Specifications for wheelchair accessibility to the facility, however, do exist. For example, doors need to be 32 inches wide and thresholds should be no higher than a half of an inch. Ramps or elevators need to be provided as an alternative to stairs, and a wheelchair-accessible restroom needs to be close by. There are also general guidelines that can enhance access to the physical space and equipment in the laboratory. For example, aisles should be kept wide and clear. Lab tables, sinks, and other workspaces should allow wheelchair access and proper workspace height. At least one adjustable workstation is recommended. For students with limited use of their hands, a wide range of adaptive devices or computer technology can provide access to lab equipment that requires fine motor coordination, dexterity, and precision (e.g., clamps can be used to stabilize objects, or software can be used for measuring and graphing).

Q LAB ACCESS FOR WHEELCHAIR USERS: How can I improve the accessibility of my lab for a student who uses a wheelchair?



- A Principles of universal design promote access for individuals with a wide range of abilities and disabilities and should be considered when planning and organizing the physical environment. Contact your campus disabled student services office for assistance. Examples of basic universal design guidelines you can readily implement include the following:
- Make sure all routes to the lab are wheelchair accessible.
 - Keep aisles wide and clear.
 - Place handouts and other documents within reach from a wheelchair. If some materials are inaccessible, provide a means to assist the student.
 - Provide at least one adjustable table or workspace.
 - Make sure controls for computers and other equipment can be reached by someone sitting in a wheelchair.
- Q EMERGENCY EVACUATION:** In an emergency evacuation, what is my responsibility for a student who uses a wheelchair or who has another mobility impairment?
- A Inform the student about emergency procedures. Work with the student and the disabled student services office on your campus to develop a clear evacuation plan.
- Q EQUIPMENT COSTS:** Who is responsible for ordering and paying for special lab equipment or making architectural modifications?
- A It is the institution's responsibility to provide and pay for accommodations on campus, but the unit that pays for a specific product or modification depends on campus policies and specific circumstances. Typically, the unit providing the program (e.g., a departmental computer lab) provides accommodations for that activity (e.g., adaptive computer technology). Your disabled student services office may be able to answer these questions and facilitate the acquisition process.
- Q FIELDWORK:** My course involves fieldwork experiences that require community travel that may pose some challenges for a student with a mobility impairment. How can I prepare?
- A Consider transportation needs as well as accessibility at each site. Prior knowledge will help you respond quickly when the need arises. If a wheelchair user enrolls in your class, discuss potential barriers and solutions. The campus disabled student services office may also have suggestions. If access to a field experience cannot be provided due to unavoidable barriers, develop alternative experiences or assignments.
- Q HAND USE:** How can a student with limited hand function participate in my science lab?
- A You can structure the activities so that students work with lab partners. Be sure the student with a disability participates actively and is not just an observer. For example, a student could input data into a laptop computer, while his or



her partner carries out the procedure. There are also a variety of ways to adapt lab equipment (e.g., enlarging tool handles, using grippers) to make it accessible to someone with limited hand function. Using computer-controlled lab equipment with alternative input devices (e.g., speech, Morse code, switches) is another possibility.

HEALTH IMPAIRMENTS

Q FIELDWORK: How can a student with a health impairment manage fieldwork requirements?

A Accommodations, if needed, can be negotiated between the instructor, the disabled student services office, and the student. Selecting a site that is close to the student's home to minimize the transportation requirements may be helpful. The student could also be given priority in fieldwork selection to help accommodate his or her needs. Extending the length of the fieldwork to allow participation on a part-time basis could also be considered.

Q CLASS DISCUSSIONS: How can a student with a health impairment maintain participation in classroom discussions when he or she is frequently absent?

A There are several electronic options to consider. Online discussions can facilitate communication between students and instructors. Consider having students post their work on the web and allow peer review and discussion of papers, assignments, and

lab results. A few ground rules and participation requirements can be set to keep the discussion relevant and active. In addition, email exchanges with professionals, students on other campuses, and community members can extend learning beyond your campus.

Q NOTETAKING SERVICES: What can I do to assist students with disabilities who need notetaking services but are reluctant to request and recruit a fellow classmate for copies of notes?

A Consider providing the course syllabus, instructor notes, and objectives on an accessible website. Include a statement in your syllabus encouraging students with disabilities needing academic adjustments to contact the disabled student services office. Encourage students to meet with you to implement appropriate accommodations.

If a student requests your assistance for a notetaker, offer to make a general announcement in class. Have interested student(s) meet with you after class or during office hours to make arrangements. Avoid specific references to the student with a disability. Rather, emphasize the campus commitment to provide equal access and accommodations for qualified students in support of learning.

Q ABSENCES: How do I accommodate a student whose disability causes him or her to miss classes?



A Determine to what extent class absences may fundamentally interfere with the student completing your course objectives and learning outcomes. In other words, consider if it is essential that all, most, or some classes be attended. The impact of absences depends upon the nature of the course; for example, missing classes in a science lab or an upper-division sociology course with regular group work may have a greater impact than missing classes in a lecture-only course. Consult with your campus disability resource office about notetaking services, exam accommodations (e.g., opportunities to reschedule missed exams), and if available, on-campus access assistance such as disabled parking or transportation (to reduce potential fatigue factors). It is important to note that you must not lower your academic expectations; ultimately, the student is responsible for gaining the knowledge and skills required in the class.

SCIENCE LABS

Q SCANNING MATHEMATICS AND SCIENCE INFORMATION: Can mathematical or scientific information be converted with a scanner to speech or Braille output for students with visual impairments?

A Text information can be readily scanned and converted by optical character recognition (OCR) to Braille or speech output with appropriate hardware and software. Current OCR technology does not always recognize scanned mathematical or scientific notations

accurately. Proofreading is an essential part of the transcription process to ensure the accuracy of the material.

Q TACTILE DIAGRAMS: What are tactile diagrams?

A Tactile diagrams are raised line drawings (similar to Braille) that can be used to transmit visual information, such as that found in graphs, chemical structures, and biological drawings. Tactile diagrams are created by using computer software files or a line drawings of images. Diagrams are transferred to tactile image paper and a thermal image enhancer burns the raised lines into the paper. Tactile drawings are typically used by individuals who are blind. Tactile diagrams can be accessed through a diagram library, or they can be created with the equipment just described. Your campus disability student services staff can help you procure tactile diagrams if a student needs them as an accommodation in your course. A good source for information on tactile diagrams and a tactile diagram library can be found at Purdue University at http://www.purdue.edu/odos/drc/tactile_diagrams.html.

Q DEAF OR HARD OF HEARING: Do I need to make any special adjustments in a laboratory for a student who is deaf?

A Yes. Provide written instructions, captioned video instructions, or demonstrations prior to the lab. Safety procedures should also be reviewed with the students and visual lab warning signals (e.g., flashing lights) need to be in place. It may also be helpful to provide preferential seating, so the student



can easily view demonstrations and watch the instructor. It is important to remember that students who use a sign language interpreter or read lips may have difficulty simultaneously observing a demonstration while watching the interpreter or reading lips. Discuss lab activities with the student, as he or she is the best source of information about his or her needs.

WRITING ASSIGNMENTS

Q GRAMMAR: How do I grade written essays when syntax and grammatical errors are evident for students who have a hearing loss and use American Sign Language (ASL)?

A English is a second language for many people who are deaf and, therefore, presents unique challenges for the student and professor when written assignments are evaluated. For students who rely on ASL, transferring thoughts to a written form is difficult because ASL does not have verb tenses. As a student who is deaf explained, "I cannot hear the tenses in phrases such as 'I have been doing,' because American Sign Language uses symbols."

You must provide a reasonable accommodation for a disability but should not lower your academic standards. Correct grammar and syntax and assist the student in developing English skills. You may wish to refer him or her to a tutor or writing lab.

You may suggest that the student submit two copies of each written assignment.

This provides the opportunity to comment and grade an essay for content and then to note or grade grammatical errors on the duplicate essay, as applicable to the course criteria. The student can rewrite the essay incorporating grammatical feedback and place the corrected copy in a personal grammar journal to use as a reference in future writing.

Q BLINDNESS: In what format can a student who is blind turn in written assignments?

A In most cases, a student who is blind will type written assignments using a computer that is equipped with speech output. The assignments can then be submitted in print form or via email, depending on the preferences of the instructor. At times, students may also choose to dictate short answers to a reader who will handwrite responses. The reader is typically provided by the campus disabled student services office.

INTERNATIONAL TRAVEL PROGRAMS

Q INTERNATIONAL ACCESS BARRIERS: What access barriers do students with disabilities face when traveling internationally?

A Academic and daily life in a foreign country can introduce new challenges that may require different accommodations and compromises. Accommodations and needs will vary greatly depending on the student and the travel destination. During the



planning process, research the access issues in the country to which the student will travel. Provide the student with essential information to build realistic expectations for a successful experience.

Q CIVIL RIGHTS ABROAD: Are students studying abroad protected by the ADA?

A While the ADA has improved access to public transportation, travel accommodations, and other public and private facilities in the United States, these requirements are not consistent worldwide. The student who travels to a foreign country must be prepared to cope with potential barriers. Developing self-advocacy skills, making local contacts in the host country, as well as practicing and role-playing scenarios can help prepare the student for potential problems.



This section contains three parts:

- **Associations and Comprehensive Resources**

Resources for general information pertaining to higher education and people with disabilities

- **Glossary**

Definitions of terms used in this manual

- **References**

Lists all cited materials in this text





Building the Team



Ability: Internet Index

<http://www.ability.org.uk/index1.html>

Online services and Internet index for individuals with disabilities.

AbleData

8630 Fenton St., Ste. 930

Silver Spring, MD 20910

800-227-0216 (toll free voice)

301-608-8912 (TTY)

301-608-8958 (fax)

abledata@macrointernational.com

<http://www.abledata.com/>

Information on assistive technology and disability issues in general. Sponsored by NIDRR and the U.S. Department of Education.

Access Board

1331 F St. N.W., Ste. 1000

Washington, DC 20004-1111

800-872-2253 (toll free voice)

800-993-2822 (toll free TTY)

202-272-0080 (voice)

202-272-0082 (TTY)

202-272-0081 (fax)

info@access-board.gov

<http://www.access-board.gov/>

Federal agency that enforces requirements for access to Federally-funded buildings and facilities, sets guidelines under the Americans with Disabilities Act, Section 508 of the Rehabilitation Act, and other federal laws, and provides technical assistance and information.

AccessCollege

<http://www.washington.edu/doit/Resources/postsec.html>

Features websites for postsecondary educators, student services staff, employment personnel, students with disabilities, administrators, and campus-wide leaders.

AccessComputing

<http://www.washington.edu/accesscomputing/>

Resources on making computing departments and labs accessible to students and instructors with disabilities.

AccessDL

<http://www.washington.edu/doit/Resources/accessdl.html>

Resources on how to design distance learning courses that are accessible to students and instructors with disabilities.

AccessSTEM

<http://www.washington.edu/doit/Stem/>

A website where K-12 teachers, postsecondary educators, and employers learn to make classroom and employment opportunities in science, technology, engineering, and mathematics accessible to individuals with disabilities.

ADA—A Guide to Disability Rights Laws

U.S. Department of Justice

Civil Rights Division

950 Pennsylvania Ave. N.W.

Disability Rights Section - NYA

Washington, DC 20530

800-514-0301 (toll free voice)

800-514-0383 (toll free TTY)

202-307-1198 (fax)

<http://www.ada.gov/cguide.htm>

Overview of disability rights and legislation in the U.S.



Alexander Graham Bell Association for the Deaf and Hard of Hearing

3417 Volta Pl. N.W.
Washington, DC 20007
202-337-5220 (voice)
202-337-5221 (TTY)
202-337-8314 (fax)
<http://www.agbell.org/>

Resources for people who are deaf and/or hard of hearing.

American Academy of Audiology

11730 Plaza America Dr., Ste. 300
Reston, VA 20190
800-222-2336 (toll free voice)
703-790-8631 (fax)
<http://www.audiology.org/>

Audiology resources.

American Association of the Deaf-Blind (AADB)

8630 Fenton St., Ste. 121
Silver Spring, MD 20910-3803
301-495-4403 (voice)
301-495-4402 (TTY or Video Phone)
301-495-4404 (fax)
aadb-info@aadb.org
<http://www.aadb.org/>

A national consumer advocacy organization for people who have combined hearing and visual impairments.

American Council of the Blind (ACB)

2200 Wilson Blvd., Ste. 650
Arlington, VA 22201
800-424-8666 (toll free voice)
202-467-5081 (voice)
703-465-5085 (fax)
info@acb.org
<http://www.acb.org/>

An information referral and advocacy agency for people who are blind and visually impaired.

American Deafness and Rehabilitation Association (ADARA)

P.O. Box 480
Myersville, MD 21773
adaraorg@comcast.net
<http://www.adara.org/>

A network of professionals who serve people who are deaf or hard of hearing.

American Diabetes Association

1701 N Beauregard St.
Alexandria, VA 22311
800-342-2383 (toll free voice)
AskADA@diabetes.org
<http://www.diabetes.org/>

General information on diabetes.

American Foundation for the Blind (AFB)

2 Penn Plaza, Ste. 1102
New York, NY 10001
800-232-5463 (toll free voice)
212-502-7600(voice)
212-502-7662 (TTY)
212-502-7777 (fax)
afbinfo@afb.net
<http://www.afb.org/>

A national information and referral resource for people who are blind or visually impaired.



American Printing House for the Blind (APH)

1839 Frankfort Ave.
 P.O. Box 6085
 Louisville, KY 40206-0085
 800-223-1839 (toll free voice)
 502-895-2405 (voice)
 502-899-2274 (fax)
info@aph.org
<http://www.aph.org/>

An organization that creates educational, workplace, and lifestyle products and services for people with visual impairments.

American Psychiatric Association

1000 Wilson Blvd., Ste. 1825
 Arlington, VA 22209
 888-357-7924 (toll free voice)
apa@psych.org
<http://www.psych.org/>

Information on the diagnosis and treatment of mental and emotional illness and disorders.

American Psychological Association (APA)

750 1st St. N.E.
 Washington, DC 20002-4242
 800-374-2721 (toll free voice)
 202-336-5500 (voice)
 202-336-6123 (TTY)
<http://www.apa.org/>

Information and resources for educators, parents, and students.

American Speech-Language-Hearing Association (ASHA)

2200 Research Blvd.
 Rockville, MD 20850-3289
 800-638-8255 (Non-Member toll free voice)
 800-638-8255 (Public toll free voice)
 301-296-8580 (fax)
actioncenter@asha.org
<http://www.asha.org/>

Information and resources on speech, language, and hearing disorders.

Americans with Disabilities Act (ADA)

U.S. Department of Justice
 Civil Rights Division
 Disability Rights Section—NYA
 950 Pennsylvania Ave. N.W.
 Washington, DC 20530-0001
 800-514-0301 (toll free voice)
 800-514-0383 (toll free TTY)
 202-307-1198 (fax)
<http://www.ada.gov/>

Information and technical assistance on the Americans with Disabilities Act (ADA).

Anxiety Disorders Association of America (ADAA)

8730 Georgia Ave., Ste. 600
 Silver Spring, MD 20910
 240-485-1001 (voice)
 240-485-1035 (fax)
information@adaa.org
<http://www.adaa.org/>

Information on the prevention and treatment of anxiety disorders.

Applied Science and Engineering Labs

P.O. Box 269
 Wilmington, DE 19899
 302-651-6830 (voice)
 302-651-6834 (TTY)
 302-651-6895 (fax)
<http://www.asel.udel.edu/>

New technologies for people with disabilities.

The Arthritis Foundation

P.O. Box 7669
 Atlanta, GA 30357-0669
 800-283-7800 (toll free voice)
<http://www.arthritis.org/>

Information and resources on arthritis.



Association for the Education and Rehabilitation of the Blind and Visually Impaired (AER)

1703 N. Beauregard St., Ste. 440
Alexandria, VA 22311
877-492-2708 (toll free voice)
703-671-4500 (voice)
703-671-6391 (fax)
<http://www.aerbvi.org/>
Support and assistance to professionals working with individuals who have visual impairments.

Association on Higher Education and Disability (AHEAD)

107 Commerce Center Dr., Ste. 204
Huntersville, NC 28078
704-947-7779 (voice)
617-287-3882 (TTY)
704-948-7779 (fax)
<http://www.ahead.org/>
An organization of higher education disability service providers that share information about research, accommodations, and legislation.

Attention Deficit Disorder Association (ADDA)

P.O. Box 7557
Wilmington, DE 19803-9997
800-939-1019 (toll free voice / fax)
adda@jmoadmin.com
<http://www.add.org/>
Nonprofit organization dedicated to providing information, resources, and networking opportunities to people with AD/HD and those that work with them.

Autism Society of America

4340 East-West Hwy., Ste. 350
Bethesda, MD 20814-3067
800-328-8476 (toll free voice)
301-657-0881 (voice)
<http://www.autism-society.org/>
Information on Autism and how to promote self-determination strategies for those who are affected by it.

Beach Center on Disability

The University of Kansas
Haworth Hall, Rm. 3136
1200 Sunnyside Ave.
Lawrence, KS 66045
785-864-7600 (voice)
786-864-7605 (fax)
beachcenter@ku.edu
<http://www.beachcenter.org/>
Provides resources for families of people with disabilities along with an electronic newsletter subscription.

Better Hearing Institute

1444 I St. N.W., Ste. 700
Washington, DC 20005
202-449-1100 (voice)
mail@betterhearing.org
<http://www.betterhearing.org/>
Information on hearing loss and hearing health care.

Blindness Resource Center

New York Institute of Special Education (NYISE)
Office of Development
999 Pelham Pkwy.
Bronx, NY 10469
718-519-7000, Ext. 315 (voice)
718-231-9314 (fax)
kbenisatto@nyise.com
<http://www.nyise.org/blind.htm>
Information on universal access and online resources for those who are visually impaired.

**Brain Injury Association of America**

1608 Spring Hill Rd., Ste. 110

Vienna, VA 22182

703-761-0750 (voice)

703-761-0755 (fax)

info@biausa.org

<http://www.biausa.org/>

Information and resources on brain injury prevention, research, education, and advocacy.

Center for Applied Special Technology (CAST)

40 Harvard Mills Square, Ste. 3

Wakefield, MA 01880-3233

781-245-2212 (voice)

cast@cast.org

<http://www.cast.org/>

A nonprofit organization expanding opportunities for individuals with disabilities through universal design for learning.

Center for Hearing and Communication

50 Broadway, 6th Floor

New York, NY 10004

917-305-7700 (voice)

917-305-7999 (TTY)

917-305-7888 (fax)

appointments@chchearing.org

<http://www.lhh.org/>

A wide range of services and resources for people with hearing loss and other communication impairments.

Center for Independent Living (CIL)

2539 Telegraph Ave.

Berkeley, CA 94704

510-841-4776 (voice)

510-848-3101 (TTY)

510-841-6168 (fax)

<http://www.cilberkeley.org/>

info@cilberkeley.org

A national leader in helping people with disabilities live independently and become productive, fully participating members of society.

Center for Psychiatric Rehabilitation

940 Commonwealth Ave. W.

Boston, MA 02215

617-353-3549 (voice)

617-353-7700 (fax)

psyrehab@bu.edu

<http://www.bu.edu/cpr/>

An online resource for employers and educators on reasonable accommodations for people with psychiatric disabilities.

Center for Universal Design (CUD)

North Carolina State University

College of Design

Campus Box 8613

Raleigh, NC 27695-8613

800-647-6777 (toll free voice info line)

919-515-3082 (voice / TTY)

919-515-8951 (fax)

cud@ncsu.edu

<http://www.design.ncsu.edu/cud/>

Information and technical assistance for universal design in facilities and products.



Center for Universal Design in Education (CUDE)

University of Washington
Box 354842
Seattle, WA 98195-4842
doit@uw.edu

<http://www.washington.edu/doit/CUDE/>
Research and applications related to universal design of instruction, services, physical spaces, and technology in educational settings.

Center on Human Policy

Syracuse University
805 S. Crouse Ave.
Syracuse, NY 13244-2280
800-894-0826 (toll free voice)
315-443-3851 (voice)
315-443-4355 (TTY)
315-443-4338 (fax)
thechp@syr.edu

<http://thechp.syr.edu/>

A policy, research, and advocacy organization involved in the national movement to ensure the rights of people with disabilities.

Children and Adults with Attention-Deficit/Hyperactivity Disorder (CHADD)

8181 Professional Pl., Ste. 150
Landover, MD 20785
800-233-4050 (toll free voice)
301-306-7070 (voice)
301-306-7090 (fax)

<http://www.chadd.org/>

Advocacy organization for those with AD/HD.

Closed Captioning Web

<http://www.captions.org/>

Closed-captioned tools for people with disabilities and links to information on jobs, movies, resources, hardware, software, and more.

Closing the Gap

526 Main St.
P.O. Box 68
Henderson, MN 56044
507-248-3294 (voice)
507-248-3810 (fax)

<http://www.closingthegap.com/>

Information on assistive technology for people with disabilities.

Community Services for the Blind and Partially Sighted (CSBPS)

9709 Third Ave. N.E., Ste. 100
Seattle, WA 98115-2027
800-458-4888 (toll free voice/TDD)
206-525-5556 (voice/TDD)
206-525-0422 (fax)

csbps@csbps.com

<http://www.csbps.com/>

Promotes independence and general well being for people with impaired vision. Offers resources for individuals, families, and communities.

**Council for Exceptional Children**

1110 N. Glebe Rd., Ste. 300
Arlington, VA 22201
888-232-7733 (toll free voice)
866-915-5000 (toll free TTY)
703-264-9494 (fax)
service@cec.sped.org
http://www.cec.sped.org/
An international professional organization dedicated to improving educational outcomes for individuals with exceptionalities. Resources include publications, a clearinghouse on disabilities and the gifted, education resources, and discussion lists.

CSUN

Center on Disabilities
California State University, Northridge
18111 Nordhoff St., Bayramian Hall 110
Northridge, CA 91330-8340
818-677-2684 (voice)
818-677-4929 (fax)
codss@csun.edu
http://www.csun.edu/cod/
Sponsors annual conferences, workshops and seminars related to computer use by people with disabilities.

Deaf Resource Library

http://www.deaflibrary.org/
Online collection of reference material and links to educate and inform people about Deaf culture.

Depression and Related Affective Disorder Association (DRADA)

Meyer 3-181, 600 N. Wolfe St.
Baltimore, MD 21287-7381
410-955-4647 (Baltimore voice)
202-955-5800 (Washington DC voice)
www.drada.org (German)
Information on depressive and manic-depressive illnesses.

Depression and Bipolar Support Alliance

730 N Franklin St., Ste. 501
Chicago, IL 60654-7225
800-826-3632 (toll free voice)
312-642-7243 (fax)
info@dbsalliance.org
http://www.ndmda.org/
Serves to educate, foster self-help, and eliminate discrimination.

Described and Captioned Media Program

National Association of the Deaf
1447 E. Main St.
Spartanburg, SC 29307
800-237-6213 (toll free voice)
800-237-6819 (toll free TTY)
800-538-5636 (fax)
info@dcmp.org
http://www.dcmp.org/
Information on captioning films and videos for people who are deaf.

Descriptive Video Service/WGBH

Media Access Group at WGBH
One Guest St.
Boston, MA 02135
617-300-3600 (voice/TTY)
617-300-1020 (fax)
access@wgbh.org
http://main.wgbh.org/wgbh/pages/mag/description.html
Information on media access for people who are blind or have low vision.



Disabilities, Opportunities, Internetworking, and Technology (DO-IT)

University of Washington
Box 354842
Seattle, WA 98195-4842
888-972-3648 (toll free voice / TTY)
206-685-3648 (voice / TTY) Seattle office
509-328-9331 (voice / TTY) Spokane office
206-221-4171 (fax)

doit@uw.edu

<http://www.washington.edu/doit/>

Free and low cost educational publications and video presentations that help educators, students, and employers learn about access issues and solutions for people with disabilities; strategies and programs to help people with disabilities achieve success in college and careers.

Disabilities, Teaching Strategies, and Resources

<http://www.as.wvu.edu/~scidis/sitemap.html>
Accommodation and inclusion strategies for students with disabilities in science education.

Disability Resources on the Internet

<http://www.disabilityresources.org/>
Links to disability-related websites and other electronic resources.

Disability-Related Resources on the Internet

<http://www.washington.edu/doit/Brochures/DRR/>

Links to resources for people with disabilities.

Distance Education: Access Guidelines for Students with Disabilities

http://www.htctu.net/publications/guidelines/distance_ed/disted.htm

Distance education access guidelines for California Community Colleges.

Easter Seals Disability Services

233 South Wacker Dr., Ste. 2400
Chicago, IL 60606
800-221-6827 (toll free voice)
312-726-6200 (voice)
312-726-4258 (TTY)
312-726-1494 (fax)

<http://www.easterseals.com/>

Provides a wide variety of services for people with disabilities and their families.

Educational Equity Center at The Academy for Educational Development

100 Fifth Ave.
8th Floor
New York, NY 10011
212-243-1110 (voice)
212-627-0407 (fax)

lcolon@aed.org

<http://www.edequity.org/>

Resources for promoting and developing bias-free learning inside and outside of the classroom. Goal-oriented towards eliminating inequalities based on gender, race / ethnicity, disability, and family income.

Epilepsy Foundation of America

8301 Professional Pl.
Landover, MD 20785
800-332-1000 (toll free voice)

<http://www.epilepsyfoundation.org/>

General information, research, and advocacy services for individuals with epilepsy.

**Equal Access to Software and Information (EASI)**

P.O. Box 818
Lake Forest, CA 92609
949-916-2837 (voice)
info@easi.cc
<http://easi.cc/>

Promotes equal access through on-site and online workshops, courses, and presentations; a website, publications, and e-mail discussion lists; and an electronic journal.

Equity and Excellence in Higher Education

Kirsten Behling
Institute on Disability
10 West Edge Dr., Ste. 101
Durham, NH 03824
603-862-4320 (voice / TTY)
603-862-0555 (fax)
k.behling@cisunix.unh.edu
<http://iod.unh.edu/EE/>

Focuses on improving the educational outcomes of postsecondary students with disabilities.

Faculty Room

<http://www.washington.edu/doit/Faculty/>
Professional development resources for postsecondary faculty and administrators.

Family Village—A Global Community of Disability-Related Resources

Waisman Center
University of Wisconsin, Madison
1500 Highland Ave.
Madison, WI 53705-2280
familyvillage@waisman.wisc.edu
<http://www.familyvillage.wisc.edu/>

Information on diagnoses, communications, adaptive technology and products, and education for individuals with disabilities, families, and professionals.

Hearing Loss Association of America

7910 Woodmont Ave., Ste. 1200
Bethesda, MD 20814
301-657-2248 (voice)
<http://www.hearingloss.org/>

Provides information, education, advocacy, and support for individuals with hearing loss.

HEATH (Higher Education and Adult Training for People with Handicaps)

Resource Center
George Washington University
2134 G St. N.W.
Washington, DC 20052-0001
202-994-3365 (fax)
AskHEATH@gwu.edu
<http://www.heath.gwu.edu/>

A clearinghouse on postsecondary education for individuals with disabilities.

Humanser

An organization of professionals who are blind and working, or aspiring to work, in the fields of social work, psychology, rehabilitation, and counseling. To subscribe, send a message with a blank subject line to *listserv@nfbnet.org*. In the body of the message type "subscribe humanser."

Independent Living Aids

P.O. Box 9022
Hicksville, NY 11802
800-537-2118 (toll free voice)
516-937-3906 (fax)
<http://www.independentliving.com/>

A catalog of products to help people with disabilities live independently.



Institute for Human Centered Design— Adaptive Environments

200 Portland St., Ste. 1
Boston, MA 02114
617-695-1225 (voice/TTY)
617-482-8099 (fax)

info@HumanCenteredDesign.org

<http://www.adaptenv.org/>

Information on civil rights laws and other codes that relate to accessibility and universal design.

Institute on Community Integration (ICI)

University of Minnesota
102 Pattee Hall
150 Pillsbury Dr. S.E.
Minneapolis, MN 55455
612-624-6300 (voice)

ici@umn.edu

<http://ici.umn.edu/>

ICI improves community services and supports for persons with developmental disabilities and their families. ICI offers pre-professional and professional training, provides technical assistance, and publishes materials for a broad audience.

International Dyslexia Association

40 York Rd., 4th Floor
Baltimore, MD 21204
410-296-0232 (voice)
410-321-5096 (fax)

<http://www.interdys.org/>

Promotes effective teaching approaches and related clinical educational intervention strategies for dyslexics.

Job Accommodation Network (JAN)

P.O. Box 6080
Morgantown, WV 26506-6080
800-526-7234 (toll free voice)
877-781-9403 (toll free TTY)
304-293-7186 (voice)
304-293-5407 (fax)

jan@jan.wvu.edu

<http://www.jan.wvu.edu/>

Resource regarding reasonable accommodations for people with disabilities in work settings.

Laurent Clerc National Deaf Education Center

Gallaudet University
202-651-5636 (TTY/VP)
202-651-5031 (voice)
202-651-5646 (fax)

clerc.center@gallaudet.edu

<http://clerccenter.gallaudet.edu/>

Resources for people with hearing impairments.

LD OnLine

WETA Public Television
2775 S. Quincy St.
Arlington, WA 22206
703-998-2600 (voice)
703-998-2060 (fax)

<http://www.ldonline.org/>

Resource for information regarding learning disabilities.

LD Resources: Resources for People with Learning Disabilities

<http://www.ldresources.com/>

Information for people with specific learning disabilities.



Learning Disabilities Association of America

4156 Library Rd.
Pittsburgh, PA 15234-1349
412-341-1515 (voice)
412-344-0224 (fax)
ldanatl@usaor.net
<http://www.ldanatl.org/>
Information and resources about learning disabilities.

Lighthouse International

111 E. 59th St.
New York, NY 10022-1202
800-829-0500 (toll free voice)
212-821-9200 (voice)
212-821-9713 (TTY)
212-821-9707 (fax)
info@lighthouse.org
<http://www.lighthouse.org/>
Text resources for people with vision impairments.

Media Access Group at WGBH

One Guest St.
Boston, MA 02135
617-300-3600 (voice / TTY)
617-300-1020 (fax)
access@wgbh.org
<http://main.wgbh.org/wgbh/pages/mag/>
Develops and delivers accessible media.

Mental Health Association

2000 N. Beauregard St., 6th Floor
Alexandria, VA 22311
800-969-6642 (toll free voice)
800-433-5959 (TTY)
703-684-7722 (voice)
703-684-5968 (fax)
<http://www.nmha.org/>
National advocacy, education, research, and service for improvement of mental health.

Mobility International, USA (MIUSA)

132 E. Broadway, Ste. 343
Eugene, OR 97401
541-343-1284 (voice / TTY)
541-343-6812 (fax)
<http://www.miusa.org/>
Serves to integrate people with disabilities into international educational exchange programs and other travel.

Multiple Sclerosis Foundation, Inc. (MSF)

6350 N. Andrews Ave.
Fort Lauderdale, FL 33309-2130
800-225-6495 (toll free voice)
954-776-6805 (voice)
954-938-8708 (fax)
admin@msfocus.org
<http://www.msfocus.org/>
Information, programming, and support for people with Multiple Sclerosis.

Muscular Dystrophy Association

3300 E. Sunrise Dr.
Tucson, AZ 85718
800-572-1717 (toll free voice)
mda@mdausa.org
<http://www.mda.org/>
Information on Muscular Dystrophy.

National Alliance for Research on Schizophrenia and Depression (NARSAD)

60 Cutter Mill Rd., Ste. 404
Great Neck, NY 11021
800-829-8289 (toll free voice info line)
516-829-0091 (voice)
516-487-6930 (fax)
info@narsad.org
<http://www.narsad.org/>
Researches the causes, cures, treatments, and prevention of brain disorders, primarily schizophrenia, depression, and bipolar disorders.



National Alliance on Mental Illness (NAMI)

3803 N. Fairfax Dr., Ste 100
Arlington, VA 22203
800-950-6264 (toll free voice)
703-524-7600 (voice)
703-524-9094 (fax)
<http://www.nami.org/>
Support, education, advocacy, and research regarding severe mental illnesses.

National Alliance of Blind Students (NABS)

c/o Patricia Castillo
American Council of the Blind
1155 15th St. N.W., Ste. 1004
Washington, DC 20005
800-424-8666 (toll free voice)
202-467-5081 (voice)
202-467-5085 (fax)
info@acb.org
<http://www.blindstudents.org/>
A national voice for students with visual impairments.

National Assistive Technology Technical Assistance Partnership (NATTAP) State Contact List

1700 N. Moore St., Ste. 1540
Arlington, VA 22209-1903
703-524-6686 (voice)
703-524-6639 (TTY)
703-524-6630 (fax)
resnaTA@resna.org
<http://www.resnaprojects.org/nattap/at/statecontacts.html>
Programs to promote the provision of technology-related assistance for people with disabilities.

National Association for Visually Handicapped

22 W. 21st St., 6th Floor
New York, NY 10010
212-889-3141 (voice)
212-727-2931 (fax)
navh@navh.org
<http://www.navh.org/>
Low vision aids and resources for people with visual impairments.

National Association of the Deaf (NAD)

8630 Fenton St., Ste. 820
Silver Spring, MD 20910
301-587-1788 (voice)
301-587-1789 (TTY)
301-587-1791 (fax)
<http://www.nad.org/>
A consumer advocacy organization for people who are deaf or hard of hearing.

National Captioning Institute (NCI)

1900 Gallows Rd., Ste. 3000
Vienna, VA 22182
703-917-7600 (voice / TTY)
703-917-9853 (fax)
mail@ncicap.org
<http://www.ncicap.org/>
Provides captioned programming and technology.

National Center for Stuttering

200 East 33rd St.
New York, NY 10016
800-221-2483 (toll free voice)
<http://www.stuttering.com/>
Information, education, and resources related to stuttering.



National Center for the Dissemination of Disability Research

4700 Mueller Blvd.
Austin, TX 78723
800-266-1832 (toll free voice)
512-476-6861 (voice)
512-476-2286 (fax)
NCDDR@sedl.org
<http://www.ncddr.org/>
Resource for disability-related research.

National Center for Learning Disabilities

381 Park Ave. S., Ste. 1401
New York, NY 10016
888-575-7373 (toll free voice)
212-545-7510 (voice)
212-545-9665 (fax)
nclld@nclld.org
<http://www.nclld.org/>
Information, resources, and services regarding learning disabilities

National Center on Accessible Information Technology in Education (AccessIT)

University of Washington
Box 357920
Seattle, WA 98195-7920
206-685-4181 (voice)
866-866-0162 (toll free TTY)
206-543-4779 (fax)
accessit@u.washington.edu
<http://www.washington.edu/accessit/>

National Center on Secondary Education and Transition (NCSET)

University of Minnesota
6 Pattee Hall
150 Pillsbury Dr. S.E.
Minneapolis, MN 55455
612-624-2097 (voice)
612-624-9344 (fax)
ncset@umn.edu
<http://www.ncset.org/>
Identifies needs of youth with disabilities to successfully participate in postsecondary education and training, civic engagement, and meaningful employment.

National Clearinghouse of Rehabilitation Training Materials

Utah State University
6524 Old Main Hill
Logan, UT 84322-6524
866-821-5355 (toll free voice)
435-797-7537 (fax)
ncrtm@usu.edu
<http://www.nchrtm.okstate.edu/>
Promotes best practices in rehabilitation and counseling.

National Council on Disability (NCD)

1331 F St. N.W., Ste. 850
Washington, DC 20004
202-272-2004 (voice)
202-272-2074 (TTY)
202-272-2022 (fax)
ncd@ncd.gov
<http://www.ncd.gov/>
An independent federal agency to address, analyze, and make recommendations on issues of public policy which affect people with disabilities.



National Federation of the Blind

200 East Wells Street at Jernigan Place
Baltimore, MD 21230
410-659-9314 (voice)
410-685-5653 (fax)
<http://www.nfb.org/>
Information about blindness, referral services, scholarships, literature and publications, adaptive equipment, advocacy services, job opportunities, and support for people who are blind and their families.

National Institute of Mental Health

6001 Executive Blvd., Rm. 8184, MSC 9663
Bethesda, MD 20892-9663
866-615-6464 (toll-free voice)
866-415-8051 (toll-free TTY)
301-443-4513 (voice)
301-443-8431 (TTY)
301-443-4279 (fax)
nimhinfo@nih.gov
<http://www.nimh.nih.gov/>
Strives to understand, treat, and prevent mental illness.

National Institute on Deafness and Other Communication Disorders (NIDCD)

31 Center Dr., MSC 2320
Bethesda, MD 20892-2320
800-241-1055 (toll free TTY)
800-241-1044 (toll free voice)
301-496-7243 (voice)
301-402-0252 (TTY)
301-402-0018 (fax)
nidcdinfo@nidcd.nih.gov
<http://www.nidcd.nih.gov/>
Facilitates and enhances the dissemination of information on hearing, balance, smell, taste, voice, speech, and language disorders.

National Institute on Disability & Rehabilitation Research (NIDRR)

4400 Maryland Ave. S.W., Mailstop PCP-6038
Washington, DC 20202
202-245-7640 (voice / TTY)
202-245-7323 (fax)
OSERS_NIDRR@ed.gov
<http://www.ed.gov/about/offices/list/osers/nidrr/>
Current research, publications, disability, and rehabilitation resources.

National Library Service for the Blind and Physically Handicapped (NLS)

Library of Congress
1291 Taylor St. N.W.
Washington, DC 20011
888-657-7323 (toll free voice)
202-707-5100 (voice)
202-707-0744 (TTY)
202-707-0712 (fax)
nls@loc.gov
<http://www.loc.gov/nls/>
A free library program of Braille and recorded materials.

National Multiple Sclerosis Society (NMSS)

733 Third Ave., 3rd Floor
New York, NY 10017
800-344-4867 (toll free voice)
<http://www.nationalmssociety.org/>
Information, news, and educational programs related to multiple sclerosis.



National Organization on Disability (NOD)

888 Sixteenth St. N.W., Ste. 800
 Washington, DC 20006
 202-293-5960 (voice)
 202-293-5968 (TTY)
 202-293-7999 (fax)
<http://www.nod.org/>
 Promotes the full participation of Americans with disabilities in all aspects of community life.

National Rehabilitation Information Center (NARIC)

8201 Corporate Dr., Ste. 600
 Landover, MD 20785
 800-346-2742 (toll free voice)
 301-459-5900 (voice)
 301-459-5984 (TTY)
naricinfo@heitechservices.com
<http://www.naric.com/>
 Collects and disseminates the results of Federally funded research projects.

National Spinal Cord Injury Association (NSCIA)

1 Church St., #600
 Rockville, MD 20850
 800-962-9629 (toll free help-line)
 866-387-2196 (toll free fax)
info@spinalcord.org
<http://www.spinalcord.org/>
 Information, research, and resources regarding spinal cord injuries.

NPIN.ORG

<http://npin.org/>
 Educational software and services for middle school, high school, and college students. Creative, innovative, and interactive products that empower students of all ages.

Obsessive-Compulsive Foundation

P.O. Box 961029
 Boston, MA 02109
 617-973-5801 (voice)
 617-973-5803 (fax)
info@ocfoundation.org
<http://www.ocfoundation.org/>
 Providing education, assistance, and support for obsessive compulsive disorder and related disorders.

Office of Special Education and Rehabilitative Services (OSERS)

U.S. Department of Education
 400 Maryland Ave. S.W.
 Washington, DC 20202-7100
 202-245-7468 (voice)
<http://www.ed.gov/about/offices/list/osers/>
 Provides leadership and financial support to states and local districts to improve results for children and youth with disabilities.

PEPnet

California State University, Northridge
 1811 Nordhoff St.
 Northridge, CA 91330-8267
 888-684-4695 (toll free voice / TTY)
 818-677-2099 (voice / TTY)
 818-677-6270 (fax)
<http://www.pepnet.org/>
 Helps postsecondary institutions attract and serve individuals who are deaf and hard of hearing.

Recording for the Blind & Dyslexic

20 Roszel Rd.
 Princeton, NJ 08540
 866-732-3585 (toll free voice)
 800-221-4792 (toll free voice member services)
<http://www.rfb.org/>
 Accessible book library for students with disabilities, providing taped educational books, free on loan.



Regional Alliance for Science, Engineering, & Mathematics—Squared (RASEM2)

New Mexico State University
P.O. Box 30001, Dept. 3CE
Las Cruces, NM 88003
888-646-6051 (toll free voice)
505-646-8020 (TDD)
575-646-3367 (fax)
<http://rasem.nmsu.edu/>
Programs that help students with disabilities overcome barriers to science, math, engineering, and technology careers.

Registry of Interpreters for the Deaf (RID)

333 Commerce St.
Alexandria, VA 22314
703-838-0030 (voice)
703-838-0459 (TTY)
703-838-0454 (fax)
<http://www.rid.org/>
Organization which includes professional interpreters of American Sign Language and translators of English.

Rehabilitation Research and Training Center on Blindness and Low Vision

Mississippi State University
P.O. Drawer 6189
Mississippi State, MS 39762
662-325-2001 (voice)
662-325-8693 (TDD)
BCavenaugh@colled.msstate.edu
<http://www2.blind.msstate.edu/>
Information on research, training, and publications for blindness and low vision.

RESNA (Rehabilitation Engineering and Assistive Technology Society of North America)

1700 N. Moore St., Ste. 1540
Arlington, VA 22209-1903
703-524-6686 (voice)
703-524-6639 (TTY)
703-524-6630 (fax)
<http://www.resna.org/>
Resources regarding technology for people with disabilities.

SciTrain

Center for Assistive Technology and Environmental Access (CATEA)
490 Tenth St.
Atlanta, GA 30332-0156
800-726-9119 (toll free voice)
404-894-4960 (voice / TTY)
404-894-9320 (fax)
catea@coa.gatech.edu
<http://www.catea.gatech.edu/scitrain/>
Resource for training information for high school math and science teachers, so that they can effectively teach students with disabilities.

Science Access Project

Oregon State University
Department of Physics
301 Weniger Hall
Corvallis, OR 97331-6507
541-737-4631 (voice)
541-737-1683 (fax)
<http://dots.physics.orst.edu/>
A project to enhance the ability of people with print disabilities to read, write, and manipulate information, with a focus on math equations, information normally presented in tables and graphs, and information presented in diagrams and figures.

**Section 504 of the Rehabilitation Act**

<http://www.section508.gov/index.cfm?FuseAction=Content&ID=15>

Section 508 of the Rehabilitation Act

<http://www.access-board.gov/sec508.htm>

Spina Bifida Association

4590 MacArthur Blvd. N.W., Ste. 250
Washington, DC 20007
800-621-3141 (toll free voice)
202-944-3285 (voice)
202-944-3295 (fax)
sbaa@sbaa.org
<http://www.spinabifidaassociation.org/>
News and resources on Spina Bifida.

Sun Microsystems' Accessibility Program

<http://www.sun.com/accessibility/>
Develops architectural strategies and solutions to benefit users with disabilities.

Teaching Math to Visually Impaired Students

Texas School for the Blind and Visually Impaired
1100 W. 45th St.
Austin, TX 78756
800-872-5273 (toll free recording)
512-206-9305 (voice)
512-206-9451 (TDD)
512-206-9450 (fax)
susanosterhaus@tsbvi.edu
<http://www.tsbvi.edu/math/>
Strategies for teaching math to students with visual impairments.

Tourette Syndrome Association, Inc.

42-40 Bell Blvd.
Bayside, NY 11361
718-224-2999 (voice)
718-224-9596 (fax)
<http://www.tsa-usa.org/>
Develops and disseminates educational materials, coordinates support services, and funds research.

Trace Research & Development Center

2107 Engineering Centers Bldg.
1550 Engineering Dr.
Madison, WI 53706
608-262-6966 (voice)
608-263-5408 (TTY)
608-262-8848 (fax)
info@trace.wisc.edu
<http://trace.wisc.edu/>
An interdisciplinary research, development, and resource center to advance the ability of people with disabilities to achieve their life objectives through the use of communication, computer, and information technologies.

United Cerebral Palsy

1660 L St. N.W., Ste. 700
Washington, DC 20036
800-872-5827 (toll free voice)
202-776-0406 (voice)
202-776-0414 (fax)
info@ucp.org
<http://www.ucp.org/>
Information and resources regarding Cerebral Palsy.



U.S. Department of Health and Human Services (HHS)

200 Independence Ave. S.W.

Washington, DC 20201

877-696-6775 (toll free voice)

202-619-0257 (voice)

<http://www.hhs.gov/>

The United States government's principal agency for protecting the health of all Americans and providing essential human services.

Web Accessibility Initiative (WAI)

MIT/CSAIL, Building 32-G530

32 Vassar St.

Cambridge, MA 02139

617-253-2613 (voice)

<http://www.w3.org/WAI/>

An initiative of the World Wide Web Consortium that provides accessibility guidelines, tools, education, research & development.

WebAIM

Web Accessibility In Mind

Center for Persons with Disabilities

6800 Old Main Hill

Utah State University

Logan, UT 84322-6800

435-797-7024 (voice)

435-797-1981 (TDD)

435-797-3944 (fax)

<http://www.webaim.org/>

Information about how to make webpages accessible to people with disabilities.



access barriers: Any obstruction that prevents people with disabilities from using standard facilities, equipment, and resources.

accessible: In the case of a facility, readily usable by a particular individual; in the case of a program or activity, presented or provided in such a way that a particular individual can participate, with or without auxiliary aid(s); in the case of electronic resources, usable with or without adaptive computer technology.

accessible web design: Creating webpages according to universal design principles to eliminate or reduce barriers, including those that affect people with disabilities.

accommodation: An adjustment to make a program, facility, or resource accessible to a person with a disability.

adaptive technology: Hardware or software products that provide access to a computer that is otherwise inaccessible to an individual with a disability.

ALT attribute: HTML code that works in combination with graphical tags to provide alternative text for graphical elements.

alternative keyboard: A keyboard that is different from a standard computer keyboard in its size or layout of keys.

Americans with Disabilities Act of 1990 (ADA): A comprehensive federal law that prohibits discrimination on the basis of disability in employment, public services, public accommodations, services operated by private entities, and telecommunications.

American Standard Code for Information Interchange (ASCII): Standard for unformatted plain text that enables transfer of data between platforms and computer systems.

anxiety disorders: Mood disorders in which the individual responds to thoughts, situations, environments, and/or people with fear and anxiety.

applet: Computer program that runs from within another application.

assistive listening devices (ALDs): Devices designed to amplify sound directly from a microphone/transmitter to a receiver/hearing aid. Examples include FM systems, infrared transmissions, and induction loops.

assistive technology: Technology used to assist a person with a disability, e.g., wheelchair, handsplints, computer-based equipment.

attention deficit disorder/attention deficit hyperactive disorder (ADD/ADHD): Disorders that affect the ability to attend and concentrate.

audio description: The addition of audio content to a video product to read titles and speaker names and describe scenery, objects, and other vital information for audience members who cannot see.

auditory processing disorder: A type of learning disability that involves difficulty listening, attending to, discriminating, and/or remembering aural information, not due to a hearing loss.

binary files: Electronic files containing non-ASCII text.



bipolar affective disorder (BAD): A mood disorder with revolving periods of mania and depression.

borderline personality disorder (BPD): A personality disorder that includes both mood disorder and thought disorder symptoms.

Braille: A system of embossed characters formed by using a Braille cell, a combination of six dots consisting of two vertical columns of three dots each. Each simple Braille character is formed by one or more of these dots and occupies a full cell or space. Some Braille may use eight dots.

browser: Software designed to access and display information available on the web. Browsers may be graphical or text-based. Text-only browsers cannot display images, sound clips, video, and plug-in features that graphical browsers can. Talking browsers are also available for use by people who have difficulty reading text due to a learning disability or visual impairment.

captioning/captions: Text that is displayed on video presentations or broadcasts enabling people with hearing impairments to access the audio portion of the material.

cerebral palsy: A condition that results from early, non-progressive damage to the brain, often impacting hand use, mobility, and/or speech.

closed captions: Captions that appear on the screen only when special equipment, called decoders, are used to view the video product.

closed circuit TV magnifier (CCTV): Camera used to magnify and project books or other materials onto a monitor or television screen.

communication device: Hardware that allows a person who has difficulty using his or her voice to use symbols or a synthesized voice for communication. May range in complexity from a simple picture board to complex electronic devices that allow personalized, unique construction of ideas.

compensatory tools: Adaptive computing systems that allow people with disabilities to use computers to complete tasks that they would have difficulty doing without the aid of a computer, e.g., reading, writing, communicating, accessing information.

concept mapping: Software that allows for visual representation of ideas and concepts that are presented spatially and can be connected with arrows to show relationships between ideas.

digital: Computer-formatted data or information.

disability: Physical or mental impairment that substantially limits one or more major life activities; a record of such an impairment; or being regarded as having such an impairment (Americans with Disabilities Act of 1990).

discrimination: Act of making a difference in treatment or favor on a basis other than individual merit.

diversity: Refers to all races, ethnicities, disabilities, genders, ages, and cultures.



dyscalculia: A learning disability that makes it difficult for a person to understand and use math concepts and symbols.

dysgraphia: A learning disability that makes it difficult for a person to perform physical tasks of forming letters and words using a pen and paper and producing legible handwriting.

dyslexia: A learning disability that may cause an individual to mix up letters within words and words within sentences while reading. He or she may also have difficulty spelling words correctly while writing; letter reversals are common. Some individuals with dyslexia also have a difficult time using relative or cardinal directions.

dyspraxia: A learning disability in which a person's language comprehension does not match language production. He or she may mix up words and sentences while talking.

electronic information: Any digital data for use with computers or computer networks, including disks, CD-ROMs, and web resources.

facility: All or any portion of a physical complex, including buildings, structures, equipment, grounds, roads, and parking lots.

fingerspelling: Method of sign language interpretation that uses a manual alphabet to spell a spoken word.

FM sound amplification system: Electronic amplification system consisting of three components: a microphone or transmitter, monaural FM receiver, and a combination charger and carrying case. It provides wireless FM broadcast from a speaker to a listener who has a hearing impairment.

graphical user interface (GUI): Program interface that presents digital information and software programs in an image-based format, as compared to a character-based format.

hardware: Physical equipment related to computers.

hearing impairment: Complete or partial loss of ability to hear caused by a variety of injuries or diseases, including congenital defects.

hidden disability: Also known as an invisible disability, any disability that is not readily observable to others.

host: Any computer that holds Internet resources for access by others, or the computer that provides Internet access and houses email accounts.

HTML validation: Process that analyzes HTML documents and identifies HTML errors and non-standard code.

hyperlink, hypertext: Highlighted word or graphic on a webpage that, when selected, allows the user to jump to another part of the document or to another webpage.

hypertext markup language (HTML): Markup language used to create webpages.

hypertext transfer protocol (HTTP): Communication protocol used by the web to transfer text, graphics, audio, and video.

image map: Picture or graphic on a webpage in which hyperlinks are embedded.

inclusion: *See mainstreaming.*



input: Any method by which information is entered into a computer.

Internet: Computer network connecting government, education, commercial, other organizational and individual computer systems.

interpreter: Professional person who assists a deaf person in communicating with hearing people.

invisible disability: Also known as a hidden disability. Any disability that is not readily observable to others.

Java: Computer programming language used to create programs or applets that work with some web browsers to include features with animation or other characteristics not available through standard HTML.

joystick: A device consisting of a lever that allows a pointer to move up, right, left, or down and serves as an alternative to a mouse. It usually includes buttons to enable mouse clicks.

keyboard emulation: A method of having an alternative device or software, such as a switch-based system, serve the role of a keyboard.

keyguard: A plastic or metal shield that covers a keyboard with holes over the keys. It allows use of a keyboard without undesired activation of surrounding keys.

large print books: Most ordinary print books use 10-12 point font for body text. Large print books generally use 16 to 18 point font. The size of a large print book is also proportionately larger (usually 8.5 x 11 inches).

LD (learning disabled): Difficulties with intake, processing, or output of information resulting in a large discrepancy between intelligence and achievement.

learning styles: Preferences toward processing and integrating information using different sensory abilities (e.g., auditory, visual, kinesthetic).

Lynx: Text-based web browser.

mainstreaming: The inclusion of people with disabilities, with or without special accommodations, in programs, activities, and facilities with their non-disabled peers.

major life activities: Functions such as caring for oneself, performing manual tasks, walking, seeing, hearing, speaking, breathing, learning, working, and participating in community activities (Americans with Disabilities Act of 1990).

mental illness: A term that refers collectively to all diagnosable mental disorders causing severe disturbances in thinking, feeling, relating, and functional behaviors. These disorders result in substantially diminished capacity for coping with the ordinary demands of life.

mobility impairment: Disability that affects movement ranging from gross motor skills, such as walking, to fine motor movement involving manipulation of objects by hand.



mouse emulation: A method of having an alternative device or software, such as a switch-based system, to serve the role of a mouse.

multimedia: In terms of electronic information, any data that is presented through several formats including text, graphics, moving pictures, and sound.

multi-tasking: Attending to, performing, and managing two or more tasks concurrently.

non-verbal learning disorder: A learning disorder demonstrated by below-average motor coordination, visual-spatial organization, and social skills.

off-line captioning: Captions that are developed after the video product has been created.

onscreen keyboard: *See virtual keyboard.*

open captioning: Captions that always appear on the screen when the video product is presented.

optical character recognition (OCR): Technology system that scans and converts printed materials into electronic text.

oral interpreter: A professional who uses lip movements to make spoken language more accessible to individuals with hearing impairments who lipread.

output: Any method of displaying or presenting electronic information to the user through a computer monitor or other device.

peripheral neuropathy: A condition caused by damage to the nerves in the peripheral nervous system, which includes nerves that run from the brain and spinal cord to the rest of the body.

physical or mental impairment: Any physiological disorder or condition, cosmetic disfigurement, or anatomical loss affecting one or more of the following body systems: neurological; musculoskeletal; special sense organs; respiratory, including speech organs; cardiovascular; reproductive; digestive; genito-urinary; hemic and lymphatic; skin; and endocrine; or any mental or psychological disorder, such as mental retardation, organic brain syndrome, emotional or mental illness, and specific learning disabilities (Americans with Disabilities Act of 1990).

plug-in: A separate program written to be launched by a specific web browser to display or run special elements in webpages, such as animation, video, or audio.

psychiatric disability: A diagnosable mental illness causing severe disturbances in thinking, feeling, relating, and/or functional behaviors that results in a substantially diminished capacity to cope with daily life demands.



qualified individual with a disability:

An individual with a disability who, with or without reasonable modification to rules, policies, or practices, the removal of architectural, communication, or transportation barriers, or the provision of auxiliary aids and services, meets the essential eligibility requirements for the receipt of services or the participation in programs or activities provided by a public entity (Americans with Disabilities Act of 1990).

reader: A volunteer or employee of an individual with a disability (e.g., visual impairment, learning disability) who reads printed material in person or for an audio recording.

reading system: Hardware and software designed to provide access to printed text for people with visual impairments, mobility impairments, or learning disabilities. Character recognition software controls a scanner that takes an image of a printed page, converts it to computer text using recognition software, and then reads the text using a synthesized voice.

real-time captions: Captions that are simultaneously created during a video program or meeting.

reasonable accommodations: The removal of a barrier, alteration of an assignment, or the provision of auxiliary aids to allow the full access and participation of an individual with a disability, in learning, employment, or other activities.

refreshable Braille display: Hardware connected to a computer that translates text selected on a computer monitor to Braille characters.

repetitive stress injury (RSI): This disability may be chronic or acute and usually is described as pain caused by overuse of extremities, usually hands and wrists.

reverse interpreting: A method of communication used when a sign language interpreter voices what is expressed by a person who is deaf or hard of hearing who cannot speak.

scanning input: A switch-based method of controlling a computer. Activations of a switch will bring up a control panel that, upon subsequent switch activations, allow a user to focus in on a desired control or keystroke. Custom scanning layouts can be created for a variety of purposes and programs and may also be used in a communication device.

schizophrenia: A thought disorder that may cause a person to experience delusions, hallucinations and paranoia that can result in difficulty with activities of daily living.

screen enlargement: Hardware or software that increases the size of characters and text on a computer screen.

screen reader: Software used to read text on a computer screen, often used by people who are blind, with visual impairments, or with learning disabilities.

screen resolution: Refers to the clarity or sharpness of an image. For computer monitors, this term indicates the number of pixels (or dots) on the screen used to display text and graphics. A higher screen resolution indicates increased display clarity.



Section 508 of the Rehabilitation Act: Legislation that requires federal agencies to develop, procure, and use accessible electronic and information technology.

Section 713 of the Telecommunication Act of 1996: Legislation that resulted in many changes in the broadcast and cable television industries. Among other things it charged the Federal Communications Commission (FCC) to create mandates to increase the percentage of television programming that is captioned. It has published rules and set guidelines for gradually increasing the number of captioned programs.

sensory impairment: A disability that affects touch, sight, or hearing, or any combination of the three.

server: Any computer that stores information that is available to other users, often over the Internet.

side effects: The effects of medications that can interfere with functional performance.

sign language: Manual communication commonly used by people who are deaf. The gestures or symbols in sign language are organized in a linguistic way. Each individual gesture is called a sign. Each sign has three distinct parts: the handshape, the position of the hands, and the movement of the hands. American Sign Language (ASL) is the most commonly used sign language in the United States. Deaf people from different countries speak different sign languages.

specific learning disability: A disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which may manifest itself in difficulties listening, thinking, speaking, reading, writing, spelling, or doing mathematical calculations. Frequent limitations include hyperactivity, distractibility, emotional instability, visual and/or auditory perception difficulties, and/or motor limitations, depending on the type(s) of learning disability.

speech impairment: Problems in communication and related areas, such as oral motor function, ranging from simple sound substitutions to the inability to understand or use language or use the oral-motor mechanism for functional speech.

speech input or speech recognition: A method of controlling a computer and creating text by dictation. Speech input software is combined with a microphone.

standard HTML: Version of HTML accessible by all browsers.

strategy: System or plan to meet objectives or problem solve.

streaming media: A method of transferring audio and video via a network from a server to an end user's computer. During the transmission, the material is displayed or played on the end user's computer.



switch input: A method of controlling a computer or communication device. It is most often used with Morse code or scanning methods, but may also be used for controlling household appliances and related controls. Switches are available in a nearly endless array of sizes, shapes, and activation methods.

tag: (1) HTML code that prescribes the structure and formatting of webpages. (2) a keyword assigned to a piece of digital information, such as an image, document, or computer file.

telecommunications device for the Deaf (TDD) or teletypewriter (TTY): A device that enables someone who has a speech or hearing impairment to use a telephone when communicating with someone else who has a TDD/TTY. It can be used with any telephone, and one needs only a basic typing ability to use them.

Television Decoder Circuitry Act of 1990: Legislation that requires that television sets with screens thirteen inches or larger manufactured for sale in the United States must have built-in closed caption decoders.

test anxiety: The experience of severe distress such that an individual is rendered emotionally and physically unable to take an exam.

trackball: A mouse alternative that is basically an upside-down mouse. Useful for some people with mobility impairments because it isolates pointer movement from button clicking.

traumatic brain injury (TBI): Open and closed head injuries resulting in impairments in one or more areas, including cognition; language; memory; attention; reasoning; abstract thinking; judgment; problem-solving; sensory, perceptual, and motor abilities; psychosocial behavior; physical functions; information processing; and speech. The term does not apply to brain injuries that are congenital, degenerative, or induced by birth trauma.

uniform resource locator (URL): An address used to locate a specific resource on the Internet. DO-IT's URL is <http://www.washington.edu/doi/>.

universal design (UD): Designing programs, services, tools, and facilities so that they are usable, without modification, by the widest range of users possible, taking into account a variety of abilities and disabilities.

universal design of instruction (UDI): The design of instructional materials and activities that make learning achievable by students with a wide variety of abilities and disabilities.

virtual keyboard: Software used to emulate a keyboard. A picture of a keyboard is displayed on a computer screen and the user points and clicks on the pictures of keys to enter text.

vision impairments: Complete or partial loss of ability to see, caused by a variety of injuries or diseases, including congenital defects. Legal blindness is defined as visual acuity of 20/200 or less in the better eye with correcting lenses, or widest diameter of visual field subtending an angular distance no greater than 20 degrees.

**Vocational Rehabilitation Act of 1973:**

Legislation that prohibits discrimination on the basis of disability and applies to any program that receives federal financial support. Section 504 of the Act is aimed at making educational programs and facilities accessible to all students. Section 508 of the Act requires that electronic office equipment purchased through federal procurement meets disability access guidelines.

word prediction: Software that reduces the number of keystrokes needed to type words and sentences. As characters are entered on either a standard, alternative, or virtual keyboard, suggested completions of the word that has been started are provided to the user.

web (WWW or World Wide Web):

Hypertext and multimedia gateway to the Internet.



Building the Team

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Overview of Students with Disabilities and Postsecondary Education

Purpose of Presentation

- Summarize rights, responsibilities, potential contributions, and needs of students with disabilities.
- Describe campus and departmental rights and responsibilities for ensuring equal educational opportunities.
- List strategies for working with students who have disabilities, emphasizing the faculty—student relationship.
- Describe campus resources available to assist in the provision of appropriate academic accommodations to students with disabilities.

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Slide # 1



Resources

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Slide # 2



Visit The Faculty Room website at
www.washington.edu/doi/Faculty/



Slide # 3



Accommodation Strategies



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Accommodation Strategies Objectives

- Discuss the rights, responsibilities, contributions, and needs of students with disabilities.
- Summarize campus and departmental rights and responsibilities for ensuring equal educational opportunities.
- List strategies for working with students who have disabilities.
- Describe actions that individuals and departments can take to ensure that students with disabilities have education opportunities that are equal to those of their non-disabled peers.
- Describe campus resources.

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Factors Influencing the Increased Participation of Students with Disabilities in Postsecondary Education:

- survival rate
- technology
- K-12 special education
- awareness

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Visit the CUDE at
www.washington.edu/doit/CUDE/

The Center for Universal Design in Education

The Center for Universal Design in Education (CUDE) develops and collects Web-based resources to help educators apply universal design to all aspects of the educational experience:

- instruction;
- student services;
- information technology; and
- physical spaces.

The Center is directed by DD-IT at the University of Washington and funded by the U.S. Department of Education (grant #P333A050064) and the National Science Foundation (awards #HRD-0227936 and HRD-0331004). Consult the following resources for an introduction to and applications of UDE.

Introduction to Universal Design
Definition, principles, and processes of universal design and examples of applications in educational settings.

Postsecondary Education
Specific ways that universal design can enhance the postsecondary experience for all students.

Elementary/Secondary Education
How universal design can increase the inclusion and success of all students, including those with disabilities, at the precollege level.

Projects, Exhibits, Conferences
How projects, exhibits, and presentations can assure access to all participants, including those with disabilities.

Resources and Training
Materials for learning more about and delivering training on applications of universal design in education.

Search the Knowledge Base
Search for questions and answers, case studies, and promising practices about universal design.

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Section 504 of the Rehabilitation Act of 1973

“No otherwise qualified individual with a disability shall, solely by reason of his/her disability, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity of a public entity.”



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“Otherwise qualified”

meets the academic and technical standards requisite to admission or participation with or without

- reasonable modifications to rules, policies, or practices;
- removal of architectural,
- communication or
- transportation barriers; or
- provision of auxiliary aids
- and services.

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“Person with a disability” is any person who:

- has a physical or mental impairment which substantially limits one or more major life activities including walking, seeing, hearing, speaking, breathing, learning, and working;
- has a record of such an impairment; or
- is regarded as having such an impairment.

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Examples of Disabilities

Low Vision

Blindness

Hearing Impairments

Mobility Impairments

Mental Health/Psychiatric Impairments

Health Impairments

Learning Disabilities

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Accommodations for Low Vision

- Seating near front of class
- Good lighting
- Large print books, handouts, signs, and equipment labels
- TV monitor connected to microscope to enlarge images
- Assignments in electronic format
- Software to enlarge screen images
- Software to adjust screen colors

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Accommodations for Blindness

- Printed materials in electronic format
- Describe visual aids
- Audio, Braille, or electronic notes and text
- Raised-line drawings and tactile models of graphic materials
- Braille lab signs, equipment labels; auditory lab warning signals
- Adaptive equipment (e.g., talking thermometers and calculators; tactile timers)
- Computer with optical character reader, voice output, Braille screen display printer output
- Increased time on tests

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Accommodations for Specific Learning Disabilities

- Notetaker and/or audio recorded class sessions
- Captioned videos
- Textbooks on tape
- Visual, aural, and tactile instructional demonstrations

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Accommodations for Specific Learning Disabilities, continued

- Course and lecture outlines
- Assignments given in advance
- Computer with speech output, spell checker, and grammar checker
- Extra exam time, quiet testing arrangements

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Accommodations for Hearing Impairments

- Interpreter, real-time captioning, FM system, Notetaker
- Captioned videos
- Email
- Visual aids, visual warning system for lab emergencies
- Written assignments, lab instructions, demonstration summaries
- Repeat questions and statements from other students during class

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Accommodations for Mobility Impairments

- Notetaker/lab assistant; group lab assignments
- Classrooms, labs, and field trips in accessible locations
- Adjustable table, equipment located within reach
- Extra exam time, alternative testing arrangements
- Access to online research resources
- Class assignments and materials in electronic format
- Computer with special input device (e.g., speech input, Morse code, alternative keyboards)

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Accommodations for Health Impairments

- Flexible attendance requirements
- Extra exam time, alternate testing arrangements
- Notetakers and/or taped class sessions
- Assignments in electronic format
- Email
- Internet accessible services and/or resources

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Accommodations for Speech Impairments

- Listen carefully to what the person is saying; if you don't understand, ask student to repeat
- Relax and take as much time as necessary to communicate
- Ask questions that require short answers or a nod of the head when appropriate
- Written communication
- Email

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Accommodations for Psychiatric Disabilities

- Tape recorder, notetaker
- Preferential seating near door
- Tests, assignments in alternate formats
- Extended time for taking tests
- Separate, quiet room for testing
- Review academic and behavioral expectations in regular meetings with student

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General Suggestions for Making Classes Accessible

- Add a statement to the syllabus inviting students who have disabilities to discuss their accommodation needs
- Select materials early
- Talk with the student about accommodation needs
- Have policies and procedures in place
- Make sure facility is accessible
- Provide materials in electronic formats
- Provide clear signage in large print
- Use alternative methods of administering tests and testing comprehension of a subject
- Use campus disabled student services as a resource

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Four-Step Model

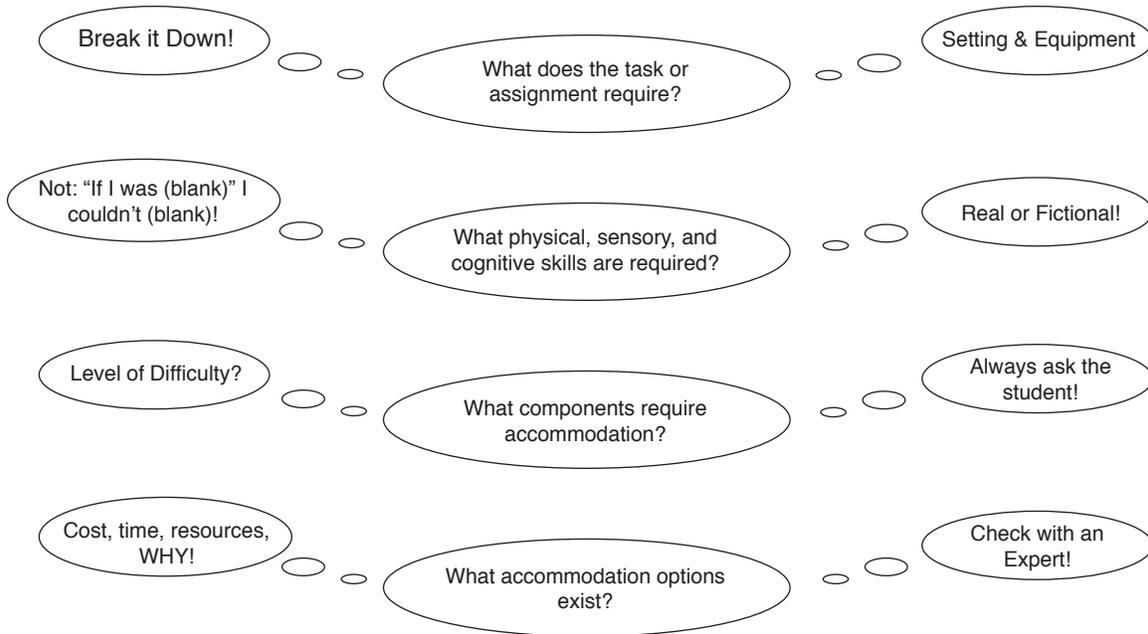
1. What does the task/assignment require?
2. What physical, sensory, and cognitive skills are needed?
3. What components of the task require accommodation?
4. What accommodation options exist?

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Four-Step Accommodation Model



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Physical, Sensory, & Cognitive Issues and Challenges



Physical Issues Think of the required physical aspects of the task. What will make the environment accessible, keep the student safe, and allow him/her to be an active participant? What equipment must be manipulated?	Sensory Issues Think of room temperature, noise, fumes, dust, odors, and allergies. Also consider the ability to speak and/or communicate, and the visual aspects of the task or assignment.	Cognitive Issues What memory and communication skills are needed? What is the level of complexity of the task.
Physical Challenges	Sensory Challenges	Cognitive Challenges
<ol style="list-style-type: none"> 1. lift/carry 2. stamina/endurance 3. push/pull 4. knee/squat 5. reach 6. repetitive tasks 7. fine motor: pinch/grasp 8. fine motor: manipulate/maneuver 9. gross motor 10. sit in chair 11. walk/stand 12. balance 13. bend/twist 14. stoop/crouch 15. other 	<ol style="list-style-type: none"> 1. vision 2. hearing 3. touch 4. smell 5. taste 6. oral communication 7. temperature 8. fumes 9. external stimuli 10. lighting 11. other 	<ol style="list-style-type: none"> 1. short-term memory 2. long-term memory 3. task complexity 4. reading 5. writing 6. spelling 7. string of numbers (math) 8. paying attention 9. visual, auditory, or kinesthetic learner. 10. self-esteem/advocacy issues 11. behavior issues/acting out 12. other



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STUDENT ABILITIES PROFILE		
Narrative Regarding Student and Accommodation Issues:	Equipment: (Lab equipment, computer, manipulatives)	
	Environment: (fumes, odors, dust, temperature, noise, group work)	
Task / Assignment:		
Physical Challenges	Accommodations Needed	Options and Resources
Sensory Challenges	Accommodations Needed	Options and Resources
Cognitive Challenges	Accommodations Needed	Options and Resources

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Universal Design of Instruction

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Universal Design of Instruction Objectives

1. Discuss the principles of universal design.
2. Apply principles of universal design of instruction to meet a wide range of student learning needs.
3. Explain the difference between employing universal design principles to maximize access and providing academic accommodations for students with disabilities.

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Diversity in Postsecondary Institutions

- Ethnic/racial minorities
- English as a second language
- Different learning styles
- People with disabilities

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Universal Design =

“The design of products and environments to be usable by all people, without the need for adaptation or specialized design.”

Center for Universal Design at North Carolina State University

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Principles of Universal Design

- Equitable use
- Flexibility in use
- Simple and intuitive use
- Perceptible information
- Tolerance for error
- Low physical effort
- Size and shape for approach use

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Universal Design of Instruction Examples

- Create an environment that respects and values diversity. Put a statement on your syllabus inviting students to meet with you to discuss disability-related accommodations and other learning needs.
- Ensure that all classrooms labs and fieldwork are in locations accessible to individuals with a wide range of physical abilities and disabilities.
- Use multiple modes to deliver content (including lecture, discussion, hands-on activities, Internet-based interaction, and fieldwork).
- Provide printed or Web-based materials which summarize content that is delivered orally.
- Face the class and speak clearly.
- Use captioned videotapes.

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Universal Design of Instruction Examples, continued

- Provide printed materials in electronic format.
- Use accessible webpages (text descriptions of graphics).
- Provide printed materials early so that students can prepare to access the materials in alternate formats.
- Create printed and web-based materials in simple, consistent formats.
- Provide effective prompting during an activity and feedback after the assignment is completed.
- Provide multiple ways for students to demonstrate knowledge.
- Make sure equipment and activities minimize sustained physical effort.

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UDI Can Apply To:

- Class climate
- Physical environments/products
- Delivery methods
- Information resources/technology
- Interaction
- Feedback
- Assessment
- Accommodation

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Procedures and Outcomes

Instructional Procedures:

1. Students will use...
to acquire the course content.
2. I will use...
to present course content.

Instructional Content:

1. Students will describe...
2. Students will be able to list...
3. Students will demonstrate...

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Measuring Instructional Content Versus Procedures

1. Evaluation Content:
Students will demonstrate their understanding of...
2. Testing Procedure:
Students will demonstrate their understanding by...

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Effective Communication with Students Who Have Communication Disorders

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Effective Communication Objectives

1. Describe the rights and responsibilities, potential contributions, and needs of students with disabilities.
2. Summarize campus departmental and rights and responsibilities for ensuring equal educational opportunities for all students.
3. Describe disabling conditions that can affect communication in courses.
4. Discuss strategies for communicating with students who have communication disorders.
5. Describe campus resources available to assist in the provision of academic accommodations.

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Topics on Effective Communication

- Legal issues
- Hearing impairments
- Auditory processing disabilities
- Speech impairments
- Other disabilities

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Students Who Have Difficulty Communicating Include Those Who:

- are deaf or hard of hearing;
- have speech impairments;
- have difficulty processing auditory information because of a learning disability;
- require extensive time or effort to communicate; and
- use technical aids (augmentative communication or an assistant).

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Hearing Impairments FAQs

- What do the terms “hearing impaired,” “hearing impairments,” “deaf,” and “hard of hearing” mean?
- What are some of the communication challenges and strategies of students with hearing impairments?
- Why is the letter “D” in “deaf” sometimes capitalized?

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Auditory Processing Disabilities FAQs

- Why might a student who can hear well still not understand a class lecture?
- Which activities in class might be difficult for a student who does not process spoken language well?

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Speech Impairments FAQs

- What are some examples of speech impairments?
- When a student cannot speak well, what does that mean about his or her ability to understand?
- What academic situations might create challenges for someone who has difficulty speaking?

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Speech Impairments FAQs, continued

- If speech, hearing and auditory processing are normal, why else might a student have problems communicating in class?
- What situations could be difficult for a student with communication difficulty?

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Accommodations

- Visual support
- Printed handouts
- Alternative to verbal participation
- Select materials early
- Multiple evaluation methods

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Accommodations, continued

- Sign language and oral interpreters
- Captioned media
- Real-time captioning
- Amplification, headphones, and assistive listening devices
- Note-takers and copies of notes

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Accommodations, continued

- Visual aids, visual reinforcements, and visual warning systems
- Written assignments, written exams, written/alternative lab work
- Email and written communication
- Communication assistance, peer support, and extended time
- Seating, pacing, and alternative arrangements

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Information Access

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Information Access Objectives

1. Describe ways that information is presented in postsecondary institutions.
2. Discuss the challenges each mode of information delivery creates for people with different types of disabilities.
3. List solutions to the barriers students with disabilities typically face when obtaining information in academic settings.

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Academic Context of Information Access

- Classroom work
- Labs
- Homework
- Library
- Web resources
- Distance learning

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Information Access Can Be a Challenge For People with:

- Visual impairments
- Hearing impairments
- Mobility Impairments
- Speech impairments
- Health impairments
- English as a second language
- Alternative learning styles

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Access Challenges

- Spoken word
- Printed word
- Video/televised information
- Audio recorded information
- Computer-based information

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Access Issues and Solutions

Problem

access to computers



Solution

adaptive technology

access to
electronic resources



universal design
principles

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Access to Computers for Students with Disabilities

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Access to Computers Objectives

1. Describe the legal rights of students with disabilities as they relate to computer access.
2. Summarize the issues, needs and concerns of people with disabilities in accessing electronic resources.
3. Describe common types of adaptive technology for students with disabilities.
4. Discuss strategies to plan and implement adaptive technology capabilities for campus computer labs/workstations.

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Success Stories

- **Nhi**—low vision
- **Justin**—blind
- **Katie**—hearing impairment
- **Crystal**—learning disability
- **Jeffrey**—mobility & speech impairment
- **Oscar**—mobility impairment

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Computers Assist People with:

- low vision
- blindness
- hearing impairments
- speech impairments
- specific learning disabilities
- mobility impairments
- health impairments

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Adaptive Technology

- Hardware/software
- Easy/difficult to use
- Inexpensive/expensive
- Generic/unique
- Stand alone/networked

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Access Challenges

- Facility
- Computer
- Electronic resources

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Making Computing Labs Accessible to Everyone

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Making Computer Labs Accessible to Everyone Objectives

1. Describe the legal rights of students with disabilities as they relate to computer access.
2. Tell how universal design principles can be used to develop computer services that are accessible to all students.
3. Discuss steps to be taken to ensure that students with disabilities have access to campus computer labs.

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Make Sure Computer Lab Users Can:

- get to the facility and maneuver within it;
- access materials and electronic resources; and
- make use of equipment and software.



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Adaptive Technology Considerations

- Adjustable tables
- Large print key labels
- Screen enlargement software
- Large monitors
- Speech output
- Braille conversion
- Trackballs, wrist rests, & keyguards
- Ergonomic keyboards



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Universal Design of Webpages

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Universal Design of Webpages Objectives

1. List potential barriers to accessing information on web pages for students with disabilities.
2. Describe the institution's legal responsibility to ensure access to information presented on webpages.
3. Describe universal design guidelines for developing accessible webpages.

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Some Internet Visitors:

- cannot see graphics.
- cannot hear audio.
- have difficulty with unorganized sites.
- use older equipment with slow connections.



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ADA and the Internet

“Covered entities that use the Internet for communications regarding their programs, goods, or services, must be prepared to offer those communications through accessible means as well.”

—United States Department of Justice (ADA Accessibility, 1997)



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Provide Multiple Means of:

- representation
- expression
- engagement

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“The power of the Web is in its universality. Access by everyone regardless of disability is an essential aspect.”

— Tim Berners-Lee, World Wide Web Consortium

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Webpage Development Accessibility Options:

1. Avoid inaccessible data types and features.
2. Create alternative methods/formats.



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Example of a Web Accessibility Statement

“The DO-IT pages form a living document and are regularly updated. We strive to make them universally accessible. You will notice that we minimize the use of graphics and photos, and provide descriptions of them when they are included. Video clips are open captioned, providing access to users who can’t hear the audio. Suggestions for increasing accessibility of these pages are welcome.”



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Test Your Webpages:

- with different operating systems and monitors.
- with different browsers and with audio and graphics-loading features turned off.
- with a text browser.
- with an accessibility testing program (e.g., Bobby).
- by accessing the keyboard alone.

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Policy Guidelines

- Disseminate information
- Train
- Support
- Enforce or reward
- Evaluate and revise

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Universal Design of Distance Learning

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Universal Design of Distance Learning Objectives

1. List potential barriers to distance learning courses for students with disabilities.
2. Describe faculty, staff, and institutional roles and responsibilities for ensuring equal access to distance learning courses.
3. Discuss universal design guidelines for developing accessible distance learning courses.

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Distance Learning in Postsecondary Education

What policy, administrative, and technical challenges exist for assuring that our distance learning courses are accessible to people who have disabilities?

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Accommodation

Versus

Universal Design

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Distance Learning Tools

- Email
- Real-time “Chat”
- Webpages
- Teleconferencing
- Printed Materials
- Videos

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Science, Technology, Engineering, & Mathematics Access

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Science, Technology, Engineering, & Mathematics Access Objectives

1. Discuss the challenges students with disabilities face in gaining and demonstrating knowledge in science, mathematics and engineering classes.
2. List examples of accommodations for students with various types of disabilities in science, engineering, and mathematics courses.
3. Describe a process for selecting appropriate accommodations.

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Challenges for Students with Disabilities:

- gaining knowledge
- demonstrating knowledge

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Accommodating Students with Learning Disabilities

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Accommodating Students with Learning Disabilities Objectives

1. Name different types of learning disabilities and how they impact learning, participation, and demonstration of knowledge in class.
2. Describe typical accommodation strategies for students with learning disabilities.
3. Discuss how technology can be used to help students with learning disabilities achieve academic and career success.

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Criteria for Being Diagnosed with a Learning Disability:

- have average or above average intelligence;
- show lack of achievement at age and ability level; and
- show a severe discrepancy between achievement and intelligence.

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Types of Learning Disabilities

- Dysgraphia
- Dyscalculia
- Dyspraxia
- Dyslexia
- Nonverbal learning disabilities

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Accommodating Students with Psychiatric Disabilities

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Accommodating Students with Psychiatric Disabilities Objectives

1. List types of psychiatric disabilities postsecondary students may have.
2. Describe how mental health issues impact learning.
3. Discuss typical accommodations for students who have psychiatric disabilities.

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Mental Illness

A diagnosable mental disorder causing severe disturbances in thinking, feeling, relating, functional behaviors, and substantially diminished capacity for coping with the ordinary demands of life.

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Psychiatric Disabilities

- Depression
- Bipolar Affective Disorder (previously called Manic Depression)
- Borderline Personality Disorder
- Schizophrenia
- Anxiety Disorders

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Functional Limitations May Affect Academic Performance When Students Have Difficulty:

- with medication side effects.
- screening out environmental stimuli.
- sustaining concentration.
- maintaining stamina.
- handling time pressures and multiple tasks.
- interacting with others.
- responding to constructive feedback.
- responding to change.
- being calm under stressful situations.



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Instructional Strategies

- Address a variety of learning styles (e.g., auditory, visual, kinesthetic, experiential, or combination of styles).
- Incorporate experiential learning activities.
- Be prepared to set behavioral expectations for all students in your class.
- Embrace diversity to include people with psychiatric disabilities.



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Accommodation = the removal of barriers to participation

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Possible Classroom Accommodations

- Preferential seating (e.g., near the door to allow leaving class for breaks).
- Prearranged or frequent breaks.
- Permit beverages in class.
- Use of tape recorder.
- Assign a classmate to be a volunteer assistant.
- Notetaker or photocopy of student's notes.
- Syllabus and text books available early.
- Textbooks and other course materials available in alternative formats.
- Personal and private feedback on academic performance.

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Possible Examination Accommodations

- Written exams changed to oral, dictated, scripted or typed; exams in alternative format: (e.g., portfolio, demonstration, presentation, role-play); multiple choice to essay.
- Permit use of computer software programs.
- Extended time for test taking.
- Exams individually proctored, including in the hospital.
- Exam in a separate, quiet, and non-distracting room.
- Increased frequency of exams.

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Possible Assignment Accommodations

- Substitute assignments in specific circumstances.
- Advance notice of assignments.
- Allow assignments to be handwritten rather than typed (if possible).
- Written assignments in lieu of oral presentations, or vice versa.
- Assignments completed in dramatic formats (e.g., demonstration, role-play, sculpture).
- Assignment assistance during hospitalization.
- Extended time on assignments.

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An accommodation for an individual is NOT “reasonable” if providing it would:

- pose a direct threat to the health or safety of others.
- result in a substantial change in an essential element of the curriculum.
- require a substantial alteration in (education opportunities) service provision.
- impose an undue financial or administrative action.



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Visit AccessDL at www.washington.edu/doit/Resources/accessdl.html

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AccessDL

The Center on Accessible Distance Learning (AccessDL) is funded by the U.S. Department of Education (grants # GPE P333A020044 and P333A50064) to share guidance and resources on making distance learning sources accessible to students and instructors with disabilities. It is directed by DO-IT. Listed below are directions for joining a discussion list as well as publications, videos, webinars, resource centers, promising practices, and research.

Discussion Lists

- **AccessDL Discussion List** - is in discuss issues related to creating accessible distance learning courses. This list fosters ongoing discussions about accessible design, policy, practice, training, and support. It is supported by DO-IT (Disabilities, Opportunities, Internetworking and Technology) at the University of Washington. For more information about this list contact: accessdl@u.washington.edu or main@doit.washington.edu

Distance Learning Program Accessibility Indicators

- **The Indicators of Distance Learning Program Accessibility** - an opportunity to apply and to provide formative feedback on indicators of an accessible distance learning program.

Resources on Accessible Distance Learning

Overview Publications and Streaming Video Presentations

- **Real Connections: Making Distance Learning Accessible to Teachers** - DO-IT video and publication with strategies for designing distance learning courses that are accessible to students with disabilities.
- **Total Access: Universal Design of Distance Learning** - a checklist to assure access and promote the learning of all students.
- **World Wide Access: Accessible Web Design** - DO-IT video and publication on how to make WWW pages accessible to people with disabilities.
- **Web Site Accessibility** - a self-paced, five class teaching the basics of web accessibility, developed through Iowa State and University of Arizona.
- **Distance Learning: Universal Design, Universal Access** - a 2002 article by Sherry Bercusler in *Educational Technology Review* that includes steps that can be taken to make distance learning programs accessible to students with disabilities.
- **Source Courseware Accessibility** - overview of technical issues in making distance learning courses accessible to people with disabilities.
- **IMS Guidelines for Web-based Accessibility Learning Applications** - a framework for a distributed learning community, highlighting existing solutions, opportunities and strategies for their implementation.
- **A Survey of Online Instruction Issues and Strategies for Postsecondary Students with Learning Disabilities** - a 2002 article by Robin Cook and Marsha Gladhart in *International Technology and Disabilities* that explores strategies for overcoming accessibility obstacles such as websites with poor navigation, crowded hyperlinks, and flashing graphics.
- **The Design of Accessible Distance Education Environments that use Collaborative Learning** - a 2002 article by Karina Schenker and Lawrence Scadden in *International Technology and Disabilities* that discusses accessibility issues that arise when collaboration and dialogue are central to success in an online course.
- **Instructional Design and Accessibility: Cognitive Climb Cuts** - a 2003 overview of accessibility and instructional design, including issues related to cognitive disabilities and to graphics, by Stephanie Roberts of the National Center on Low-Incidence Disabilities.
- **Creating Video and Multimedia Products that are Accessible to People with Sensory Impairments** - a publication by Sherry Bercusler on how to design video presentations that are accessible to individuals with disabilities.



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