Tips for promoting accessible IT campus-wide within the context of a universal design framework

Sheryl Burgstahler, Director
Accessible Technology Services, UW-IT
Two ATS Centers at UW

Access Technology Center

- 1984–
- To ensure IT procured, developed & used at UW is accessible

DO-IT Center

- 1992–
- Supported with grants
- 2007– DO-IT Japan
Basic approaches

- When we are working with faculty, staff, institutions, technology companies, we promote
  UNIVERSAL DESIGN (UD)

- When we are working with students, we promote
  SELF DETERMINATION
Book: *Universal Design in Higher Education (UDHE): From Principles to Practice*

- > 40 authors/co-authors
- Harvard Education Press
- Email doit@uw.edu to join the UDHE online community of practice
- Coming soon: *Creating Inclusive Learning Opportunities in Higher Education: A Universal Design Toolkit*
In an “inclusive” environment everyone

- who meets requirements, with or without accommodations, is encouraged to participate
- feels welcome
- is fully engaged in accessible & inclusive activities
Why exclude groups of people

My quest to become a patrol boy
Consider ability on a continuum

understand English, social norms
see
hear
walk
read print
write with pen or pencil
communicate verbally
tune out distraction
learn
manage physical/mental health
Most disabilities are “invisible”

Fewer than 1/3 of students with disabilities may be reporting them to the disability services office
What is the legal basis for access?

- Section 504 of the Rehabilitation Act of 1973
- The Americans with Disabilities Act of 1990 & its 2008 Amendments
- State & local laws
Most common accommodations for online courses at UW:

- Creating accessible documents, mainly reformatting PDF files
- Captioning videos
An Inclusive Campus Model

- **Vision:** Inclusive campus
- **Values:** Diversity, Equity, Inclusion, Compliance
- **Framework:** UDHE (scope, definition, principles, guidelines, practices, processes)
- **Current Practices:** Stakeholder roles, Funding, Policies, Guidelines, Procedures, Training, Support
- **New Practices:** Stakeholder roles, Funding, Policies, Guidelines, Procedures, Training, Support
- **Outputs & Outcomes:** Measures, Benchmarks, Data, Analysis, Reports
- **Impacts:** Diversity, Equity, Inclusion, Compliance

Revise new practices
Theoretical & conceptual foundations include:

- Social justice view of disability instead of medical/deficit model
- Disability as a diversity issue
- Instead of an accommodations approach, apply a Universal Design (UD) Framework (which includes accommodations)
UDHE Framework

- Scope
- Definition
- Principles
- Guidelines
- Practices
- Process
Universal design =

“the design of products & environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design.”

The Center for Universal Design
www.design.ncsu.edu/cud
A paradigm shift—from accommodation-focused to UDHE-focused campus
Proactive design terminology

- Accessible design
- Usable design
- Inclusive design
- Universal design
- Barrier-free design
- Design for all
Applications of UD

Instruction
- Class climate
- Interaction
- Physical environments/products
- Delivery methods
- Information resources/technology
- Feedback
- Assessment
- Accommodation

Services
- Planning, policies, and evaluation
- Physical environments/products
- Staff
- Information resources/technology
- Events

Information Technology
- Procurement/development policies
- Physical environments/products
- Information
- Input/control
- Output
- Manipulations
- Safety
- Compatibility with assistive technology

Physical Spaces
- Planning, policies, and evaluation
- Appearance
- Entrances/routes of travel
- Fixtures/furniture
- Information resources/technology
- Safety
- Accommodation

Text version at: https://tinyurl.com/y5t799yp
(1) Principles of UD

- Equitable use
- Flexibility in use
- Simple & intuitive use
- Perceptible information
- Tolerance for error
- Low physical effort
- Size & space for approach & use

- Center for Universal Design
Ramp The Curbs

“The Daily”
UW
1970

Forging a stream of humanity, this silent protester carries his campaign on his back. His goal: to end high-rise sidewalks.

(photo by grant haller)
UD provides inclusive access
(2) Principles for UD for Learning (UDL)

Offer:

- Multiple means of representation
- Multiple means of engagement
- Multiple means of action & expression

- Center for Applied Special Technology (CAST)
“When you plant lettuce,

if it does not grow well, you don't blame the lettuce. You look for reasons it is not doing well.

It may need fertilizer, or more water, or less sun...”

- Thích Nhất Hạnh, Vietnamese Buddhist Monk
(3) Principles for UD of IT

Underpinning of Web Content Accessibility Guidelines to ensure that digital tools/content is

- Perceivable
- Operable
- Understandable
- Robust

- Web Accessibility Initiative (W3C)
Rodney & the Apple II

- 6 years old, 1980
- No use of hands & legs
- Used mouth wand

- Issue: Could not press 2 keys at once
- Solution: Switch box to lock shift, control, repeat keys
Anthony
AT Specialist
Prentke Romich Co.

- grammar/spell checkers
- synthesized voice on communication device
- touch screen
- computer-based environmental control, phone access
Nicole
BA, Computer Science
Stanford
Google

- speech output
- Braille translation software
- Braille display & printer
Jessie
BA, Informatics, UW
Manager Web Services
Amazon.com

- speech output
- speech input
- grammar/spell checkers
<table>
<thead>
<tr>
<th>Assistive Technology:</th>
<th>Therefore:</th>
</tr>
</thead>
<tbody>
<tr>
<td>May emulate the keyboard, but not the mouse</td>
<td>Design web, software to operate with keyboard alone</td>
</tr>
<tr>
<td>Cannot read content presented in images</td>
<td>Provide alternative text</td>
</tr>
<tr>
<td>Can tab from link to link</td>
<td>Make links descriptive</td>
</tr>
<tr>
<td>Can skip from heading to heading</td>
<td>Structure with hierarchical headings</td>
</tr>
<tr>
<td>Cannot accurately transcribe audio</td>
<td>Caption video, transcribe audio</td>
</tr>
</tbody>
</table>
UD of IT

- builds in accessibility features
- ensures compatibility with assistive technology
The first online course at UW

- **Year:** 1995
- **Instructors:** Me & Dr. Norm Coombs
- **Title:** Adaptive Tech. for People with Disabilities
- **Technology:** Email, discussion list, Gopher server, telnet, file transfer protocol
- **Online materials:** In text format
- **Postal mailed materials:** Publications, captioned & audio described VHS videos
Access Cyberlearning

20 Tips for Teaching an Accessible Online Course

By Sheryl Burgstahler, Ph.D.

I taught the first online learning course at the University of Washington in 1995. My co-instructor was Dr. Norm Coombs, who was, at the time, a professor at the Rochester Institute of Technology. We designed the course to be accessible to anyone, including students who were blind, deaf, or had physical disabilities.
Websites, documents, images, videos:

- Structured headings
- Descriptive wording for hyperlinks
- PDFs avoided; no scanned images
- Text descriptions of content in images
- Large, bold fonts, uncluttered pages, plain backgrounds
- Content & navigation accessible using keyboard alone
- Videos captioned; audio transcribed
Instructional methods:

- Address wide range of tech skills
- Content presented in multiple ways
- Acronyms/jargon spelled out/defined
- Instructions & expectations clear
- Feedback on parts & corrective opportunities provided
- Options for communicating/collaborating
- Options for demonstrating learning
Examples of UD

**In Instruction**
- A statement on a syllabus that invites students to meet with the instructor to discuss learning needs.
- Multiple delivery methods that motivate and engage all learners.
- Flexible curriculum that is accessible to all learners.
- Examples that appeal to students with a variety of characteristics with respect to race, ethnicity, gender, age, and interest.
- Regular, accessible, and effective interactions between students and the instructor.
- Allowing students to turn in parts of a large project for feedback before the final project is due.
- Class outlines and notes that are on an accessible Web site.
- Assessing student learning using multiple methods.
- Faculty awareness of process and resources for disability-related accommodations.

**In Services**
- Part of a service counter that is at a height accessible from a seated position.
- Staff that are aware of resources and procedures for providing disability-related accommodations.
- Pictures in publications and on Web sites that include people with diverse characteristics with respect to race, age, gender, and disability.
- A statement in publications that states how to request special assistance, such as a disability-related accommodation.
- A student service Web site that adheres to accessibility standards of the U.S. federal government (see http://www.section508.gov/).
- Printed materials that are easy to reach from a variety of heights and without furniture blocking access.
- Printed publications that are available in alternate formats (e.g., electronic, large print, braille).

**In Information Technology**
- Captioned videos.
- Alternative text for graphic images on Web pages so that individuals who are blind and using text-to-speech technology can access the content.
- Procurement policies and procedures that promote the purchase of accessible products.
- Standards for the universal design of Web sites.
- Comfortable access to computers for both left- and right-handed students.
- Software and Web sites that are compatible with assistive technology.
- Computers that are on adjustable-height tables.

**In Physical Spaces**
- Clear directional signs that have large, high-contrast print.
- Restrooms, classrooms, and other facilities that are physically accessible to individuals who use wheelchairs or have other mobility challenges.
- Furniture and fixtures in classrooms that are adjustable in height and allow arrangements for different learning activities and student groupings.
- Emergency instructions that are clear and visible and address the needs of individuals with sensory and mobility impairments.
- Nonslip walking surfaces.

**Accessible version of this chart**
UD is an attitude, a framework, a goal, & a process—UD:

- values diversity, equity, & inclusion
- promotes best practices & does not lower standards
- is proactive & can be implemented incrementally
- benefits everyone
- minimizes the need for accommodations
The Inclusive Campus Model

- **Vision:** Inclusive campus
- **Values:** Diversity, Equity, Inclusion, Compliance
- **Framework:**
  - UDHE (scope, definition, principles, guidelines, practices, processes)
- **Current Practices:**
  - Stakeholder roles
  - Funding Policies
  - Guidelines Procedures Training Support
- **New Practices:**
  - Stakeholder roles
  - Funding Policies
  - Guidelines Procedures Training Support
- **Outputs & Outcomes:**
  - Measures
  - Benchmarks
  - Data Analysis Reports
- **Impacts:** Diversity, Equity, Inclusion, Compliance

Revise new practices
Apply the Model to accessible IT

- **Vision**: IT procured, developed, used is accessible
- **Values**: Diversity, equity, inclusion, compliance
- **Framework**: UDHE’s scope, definition, principles, guidelines, practices, processes
- **Current & new practices**: Stakeholder roles, funding, policies, guidelines, procedures, training, support
- **Outputs & outcomes**: Measures, benchmarks, data, analysis, reports
- **Impacts**: Increased alignment with vision & values
UW leadership

• IT Accessibility Coordinator
• IT Accessibility Team (ATS)
• IT Accessibility Task Force
• IT Accessibility Liaisons
Policy, guidelines, checklists…

UW’s IT Accessibility Guidelines:

- Purpose
- Definition
- Scope
- Standards—Web Content Accessibility Guidelines (WCAG) 2.0 Level AA
- Progress & Plan
- Resources
Sample of UW approaches  1/2

- Promote accessibility within context of UD & inclusive campus
- Model IT accessibility compliance after IT security compliance efforts
- Build on existing policies, procedures, & job/unit assignments.
- Undertake efforts that are both
  - reactive & proactive
  - top-down & bottom-up
Sample of UW approaches

- Assign specific roles
- Integrate training/activities within those sponsored by other campus units
- Search for internal funds to:
  - offer incentives (e.g., videos, PDFs)
  - purchase tools (e.g., Site Improve, Ally, SensusAccess)
- Benefit from external funding
- Post resources, engage online
**Accessible Technology at the UW**

**Experiencing inaccessible IT? Please let us know.**

The University of Washington (UW) strives to ensure that people with disabilities have access to all services and content, including those delivered using information technology (IT). If you experience a barrier that affects your ability to access UW websites, videos, on-line forms, or other IT, please send a detailed message to help@uw.edu.

For additional issues or needs related to accessibility or accommodations at the UW, please see our [Getting Help](#) page.

**UW Promotes IT Accessibility Guidelines**

The University of Washington values diverse experiences and perspectives and strives to fully include everyone who engages with the UW. Inaccessible information technology (IT) negatively impacts people with a variety of disabilities, including mobility/orthopedic impairments, sensory impairments, specific learning disabilities, attention deficits, autism spectrum disorders, speech impairments, health impairments, and psychiatric conditions.

For many years, UW-IT Accessible Technology Services and other IT leaders have consulted with campus units in making IT accessible to all faculty, students, staff and visitors.

The UW's commitment to equal access to IT has been more formally stated through publication of an IT Accessibility Policy and IT Accessibility Guidelines. The Guidelines state that the UW looks
Issues pre- vs post-pandemic

- For students with disabilities
- For faculty
- For disability services office

What if UD framework was or was not adopted pre-pandemic?
Inclusiveness: What can we learn from my quest to become a patrol boy?
Sheryl Burgstahler • sherylb@uw.edu
- Center for Universal Design in Education
  www.uw.edu/cude
- UDL on Campus udloncampus.cast.org
- IT Accessibility www.uw.edu/accessibility