



# Designing Accessible Online Learning: What an Instructor Needs to Know

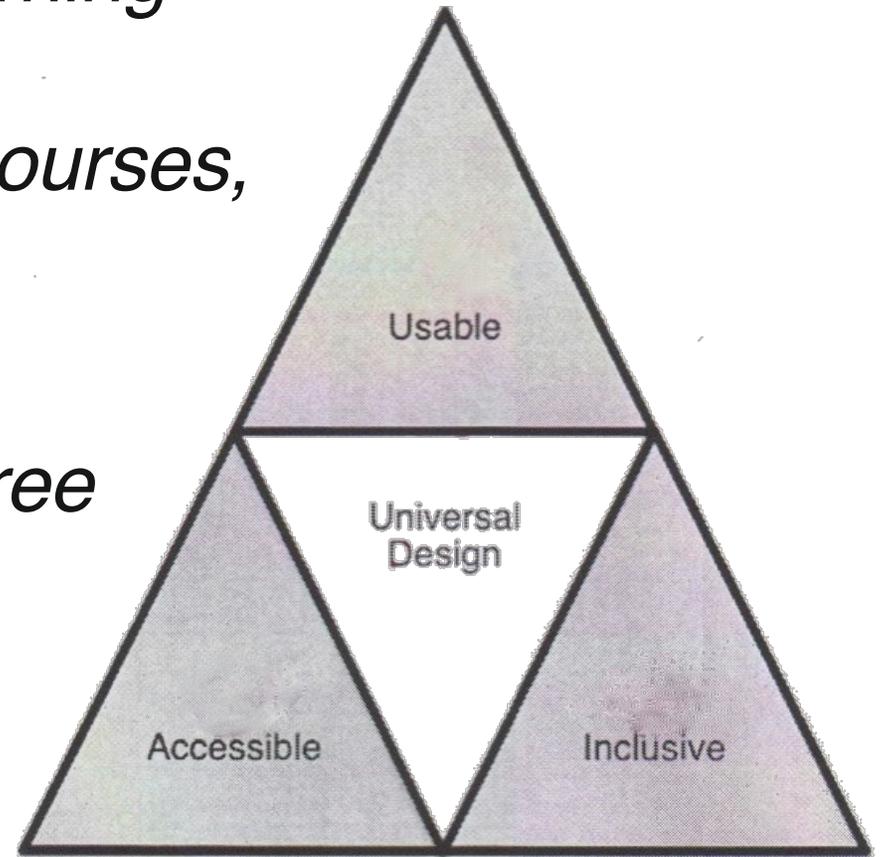
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Director, Accessible Technology Services

# Terminology

*Online learning, digital learning, e-learning, online education, cyberlearning, computer-based learning, distance learning, hybrid courses, flipped classes ...*

*Universal design, barrier-free design, inclusive design, design for all, accessible design, usable design, ...*



## Two UW centers:

### Access Technology Center (ATC)

- *Founded 1984*
- *Funded by UW*

### DO-IT Center

- *Founded 1992*
- *Supported with federal, state, corporate, private funds*
- *Expanded to DO-IT Japan, 2007 & DO-IT Singapore 2016*

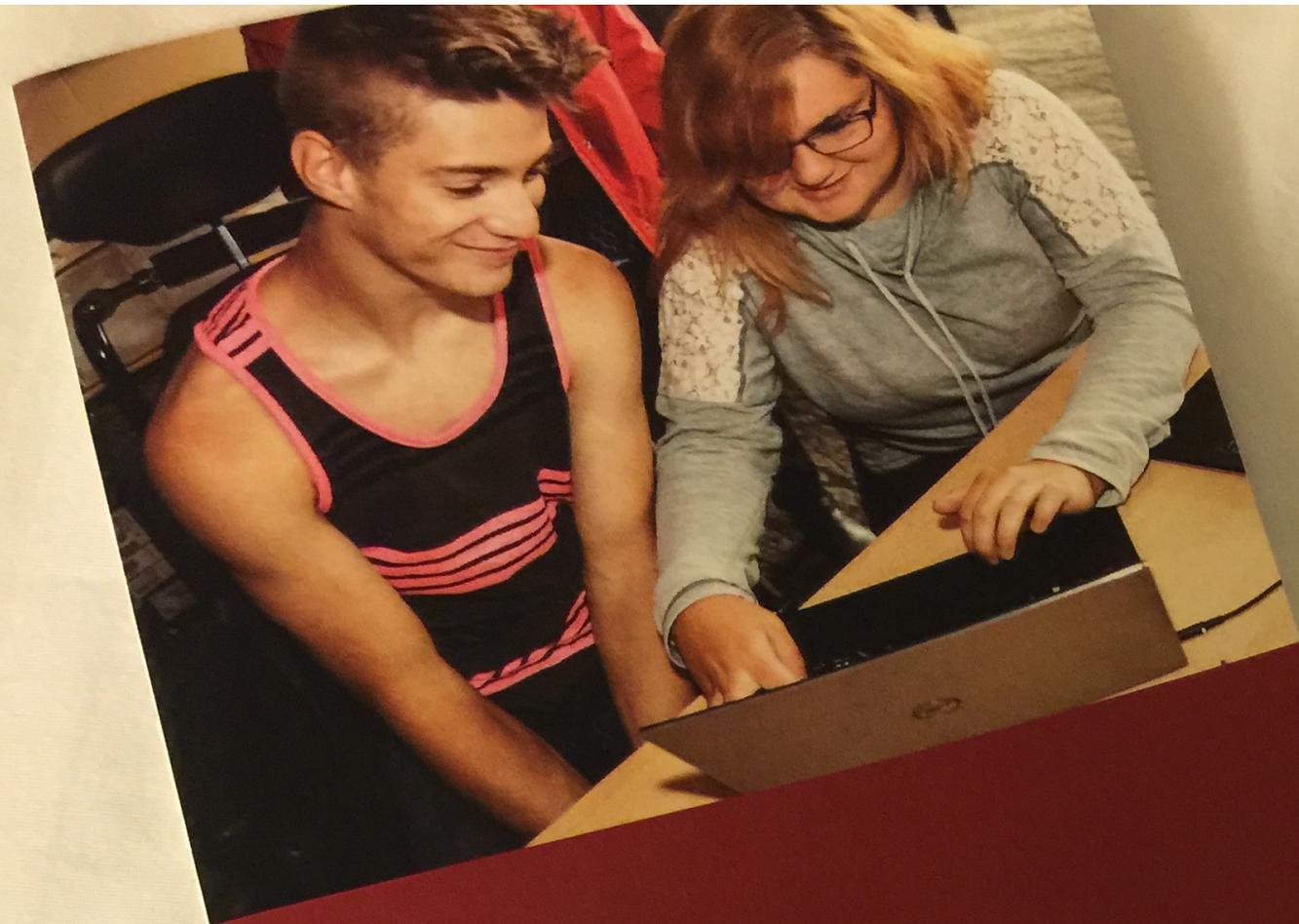


# DO-IT promotes...

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- For students with disabilities:
  - *self-determination*
  - *empowering use of IT*
  - *success in challenging postsecondary studies & careers*
- For institutions:
  - *IT, services, & courses that are welcoming to, accessible to, & usable by all potential students, including those with disabilities*





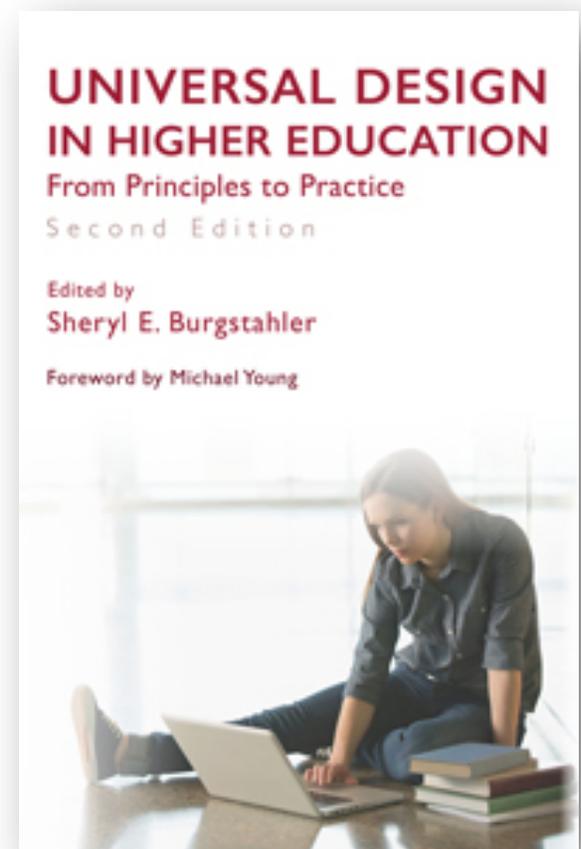
# AccessCyberlearning

Advancing knowledge to improve  
the experiences of learners with  
characteristics, including

## Reference book:

# *Universal Design in Higher Education (UDHE): From Principles to Practice*

- *Second edition, 2015*
- *>40 authors/co-authors*
- *Peer reviewed*
- *Harvard Education Press*
- *Email [doit@uw.edu](mailto:doit@uw.edu) to join our UDHE CoP*



# Presentation content

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- *What does it mean for a course to be “accessible?”*
- *What are some strategies & resources for making an online course*
  - *welcoming to,*
  - *accessible to &*
  - *usable by all potential students?*

# What do they have in common?

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*University of Cincinnati • Youngstown State University • University of Colorado-Boulder • University of Montana-Missoula • UC Berkeley • South Carolina Technical College System • Louisiana Tech University • MIT • Maricopa Community College District • Florida State University • CSU Fullerton • California Community Colleges • Ohio State University • NCSU • University of Kentucky • Harvard...*

# What is the legal basis?

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- *Section 504 of the Rehabilitation Act of 1973*
- *The Americans with Disabilities Act of 1990 & its 2008 Amendments*
- *State & local laws*

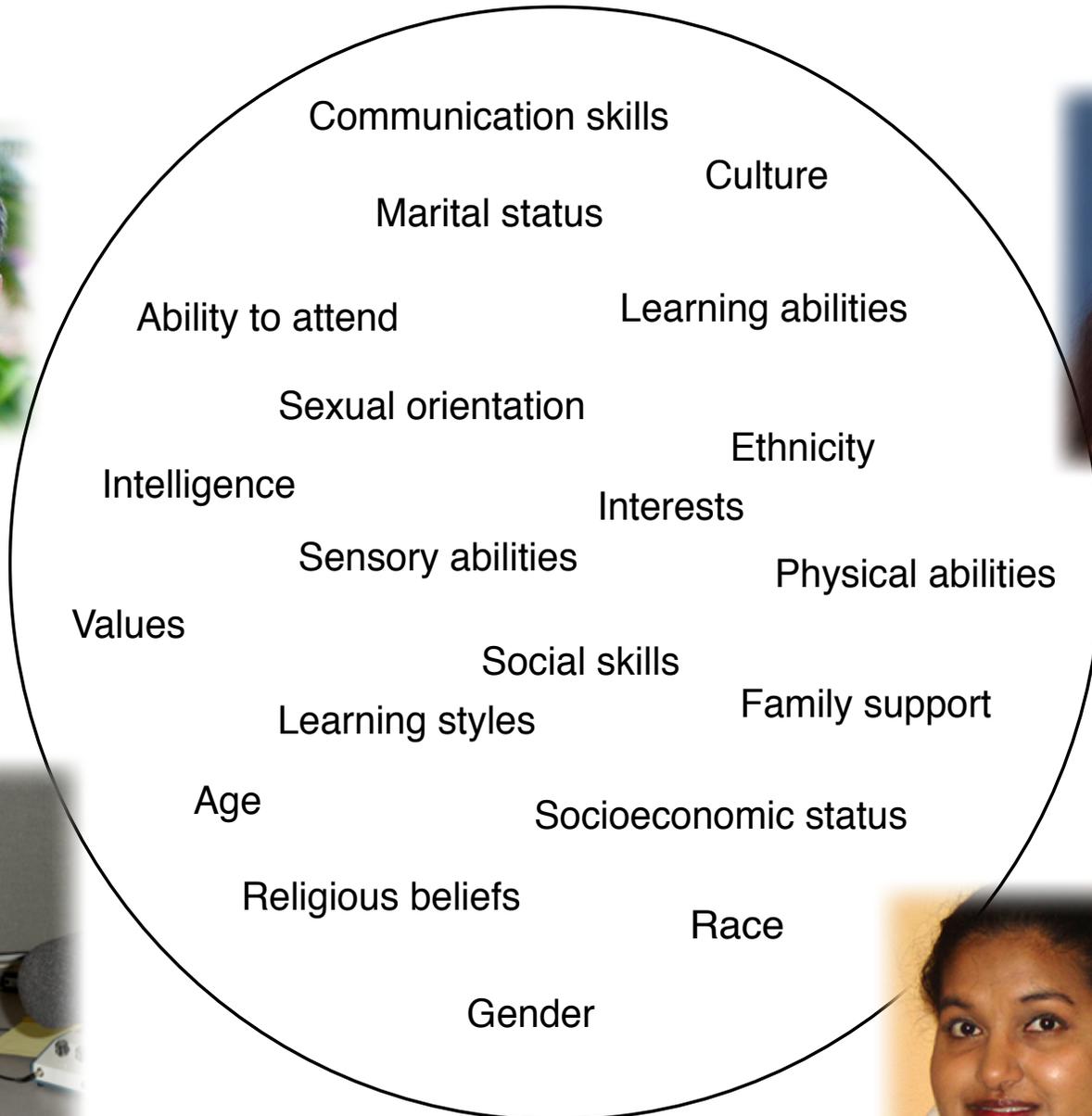


# Definition of “accessible”

*“Accessible” means a person with a disability is afforded the opportunity to acquire the same information, engage in the same interactions, & enjoy the same services as a person without a disability in an equally effective & equally integrated manner, with substantially equivalent ease of use. The person with a disability must be able to obtain the information as fully, equally & independently as a person without a disability.*

*Office of Civil Rights, U.S. Department of Education*

# Student characteristics:



# Consider **ability** on a continuum



*see*

*hear*

*walk*

*read print*

*write*

*communicate verbally*

*tune out distraction*

*learn*

*manage physical/mental health*

# Approaches to access:

1. *Universal design*
2. *Accommodations*

Both are  
important!



# Most common accommodations

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## for online courses at UW:

- *Creating accessible documents, mainly reformatting PDF files*
  - *26,000 pages each quarter*
- *Captioning videos*
  - *55 hours costing > \$10,000 each quarter*

# Rather than relying on accommodations alone...

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*consider designing the course to  
be more welcoming to,  
accessible to, & usable by a  
broad audience.*

*“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*



# 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](http://www.design.ncsu.edu/cud)





## UD on a continuum

Uncaptioned  
video



Interpreter  
for deaf  
student



Captioned  
video



Captioned  
& audio  
described  
video

# The first online course at UW

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- 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*

# Two issues are the same now

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- *Students with disabilities need access to assistive technology (AT)*
- *Online courses need to be universally designed with respect to:*
  - *The learning management system (LMS)*
  - *Instructional materials*
  - *Instructional strategies*

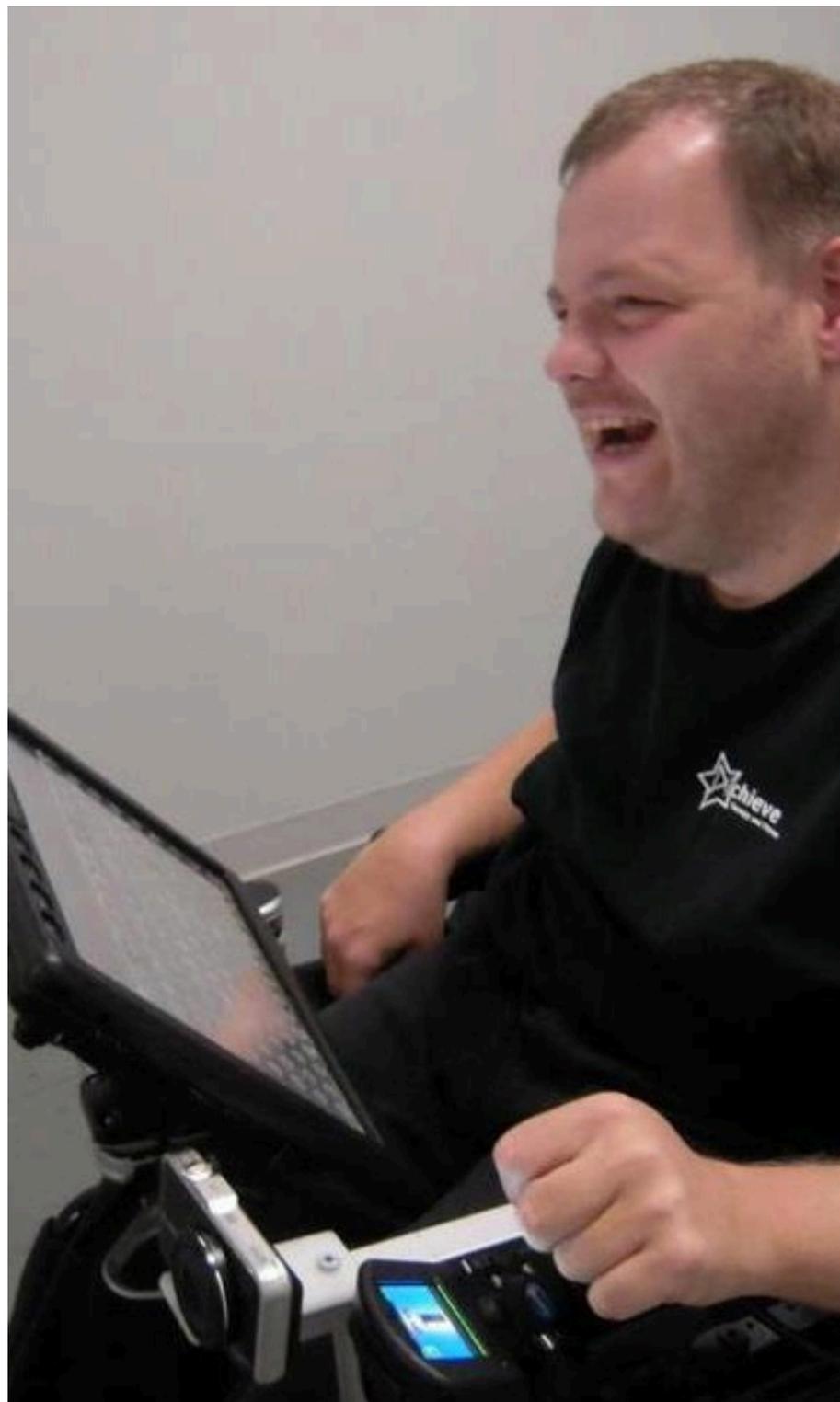
Imagine these  
people are in your  
course...would it be  
**accessible**  
to them?

# Anthony

AT Specialist

Prentke Romich

- *grammar/spell checkers*
- *synthesized voice on communication device*
- *touch screen*
- *computer-based environmental control, phone access*





## **Imke, Ph.D.**

Climatologist

National Weather Service

- *speech output*
- *Braille translation software*
- *Braille display & printer*
- *speech input*
- *Morse code foot switch*

## Jessie

BA, Informatics

Business Analyst

Amazon.com

- *speech output*
- *speech input*
- *grammar/spell checkers*



# In applying UD to online learning:

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- *Provide multiple means for:*
  - *representation*
  - *engagement*
  - *action & expression (Center for Applied Special Technology, CAST)*
- *Provide multiple ways to:*
  - *gain knowledge*
  - *interact*
  - *demonstrate knowledge (DO-IT)*

## Assistive Technology:

*Emulates the keyboard, but may not emulate the mouse*

*Cannot read content presented in images*

*Can tab from link to link*

*Can skip from heading to heading*

*Cannot accurately transcribe audio*

## Therefore:

*Design web, software to operate with keyboard alone*

*Provide alternative text*

*Make links descriptive*

*Structure with hierarchical headings*

*Caption video, transcribe audio*

# 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.



- *[uw.edu/doit/20-tips-teaching-accessible-online-course](http://uw.edu/doit/20-tips-teaching-accessible-online-course)*
- *9 tips for web pages, documents, images, videos*
- *11 tips for instructional methods*
- *with references*

## For web pages, documents, images, videos:

1. *Use clear, consistent layouts & organization schemes for presenting content.*
2. *Structure headings (using heading style features built into the Learning Management System, Word, PowerPoint, PDFs, etc.) & use built-in designs/layouts (e.g., for PPT slides).*
3. *Use descriptive wording for hyperlink text (e.g., “DO-IT Center” rather than “click here”).*
4. *Avoid PDFs presented as images (e.g., make sure the text is accessible, that you can copy & paste it); if used, create a text-based alternative.*

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5. *Provide concise text descriptions of content presented within images.*
  6. *Use large, bold fonts on uncluttered pages with plain backgrounds.*
  7. *Use color combinations that are high contrast & can be read by those who are colorblind.*
  8. *Make sure all content & navigation is accessible using the keyboard alone.*
  9. *Caption or transcribe video & audio content.*

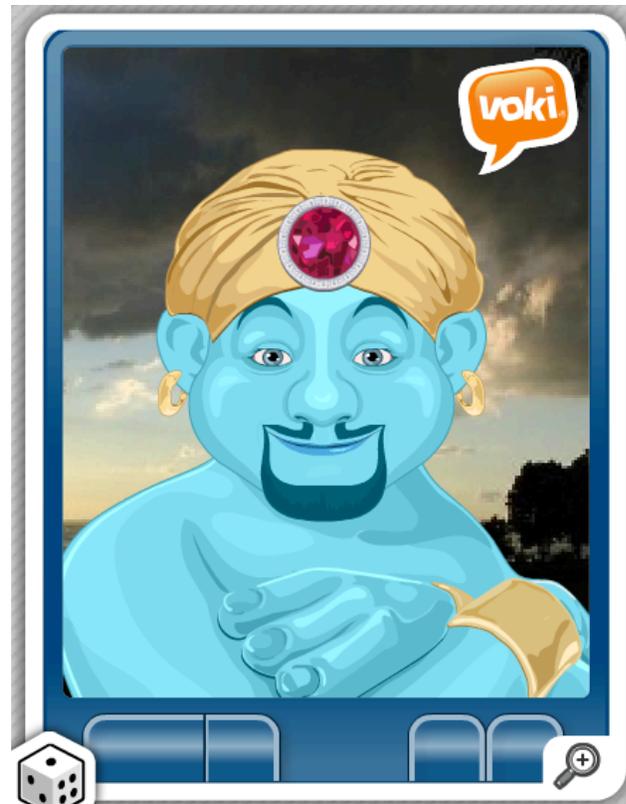
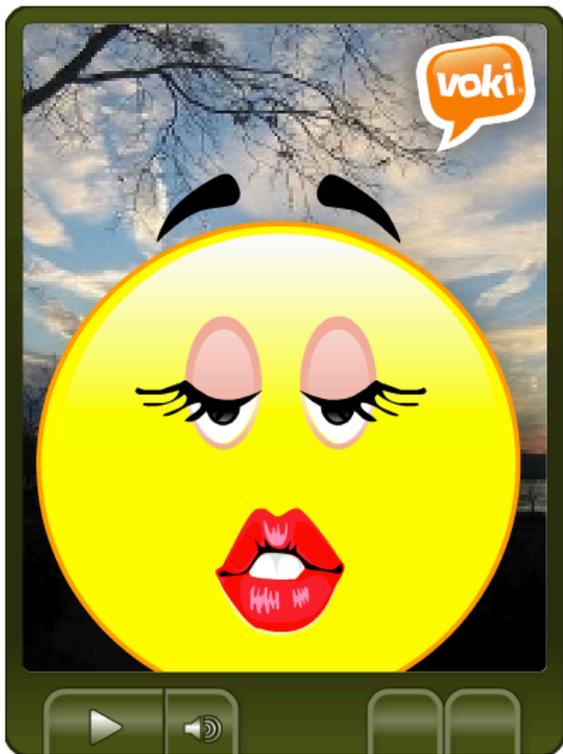
## **With respect to instructional methods:**

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- 10. Assume a wide range of technology skills; provide options for gaining needed skills.*
- 11. Present content in multiple ways (e.g., in a combination of text, video, image).*
- 12. Address a wide range of language skills (e.g., spell acronyms, avoid or define jargon).*
- 13. Make instructions & expectations clear for activities, projects, & assigned reading.*
- 14. Make examples & assignments relevant to wide variety of interests & backgrounds.*

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15. *Offer outlines & other scaffolding tools.*
  16. *Provide adequate opportunities to practice.*
  17. *Allow adequate time for activities, projects, tests.*
  18. *Provide feedback on project parts & offer corrective opportunities.*
  19. *Provide options for communicating & collaborating that are accessible to individuals with a variety of disabilities.*
  20. *Provide options for demonstrating learning.*

# Example: @ Voki.com, Create & animate your avatar...



*How could  
you make it  
accessible?*



# UD: an attitude, a goal, a process

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

## Resources

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**Sheryl Burgstahler**  
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- ***AccessCyberlearning***  
*www.uw.edu/doit/programs/accesscyberlearning/overview*
- ***Center for UD in Education***  
*www.uw.edu/doit/cude*
- ***CIRCL Accessibility Resources***  
*circlcenter.org/resources/accessibility/*