MARYLAND OPEN SOURCE TEXTBOOK *Initiative*

# OER Accessibility

**MOST Regional OER Forum: Central Maryland**

**Friday, September 20, 2019**

# Presenters

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# Accessibility

HARFORD COMMUNITY COLLEGE

## Making OER Content Accessible

BALTIMORE CITY COMMUNITY COLLEGE

## Five Irrefutable Accessibility Facts

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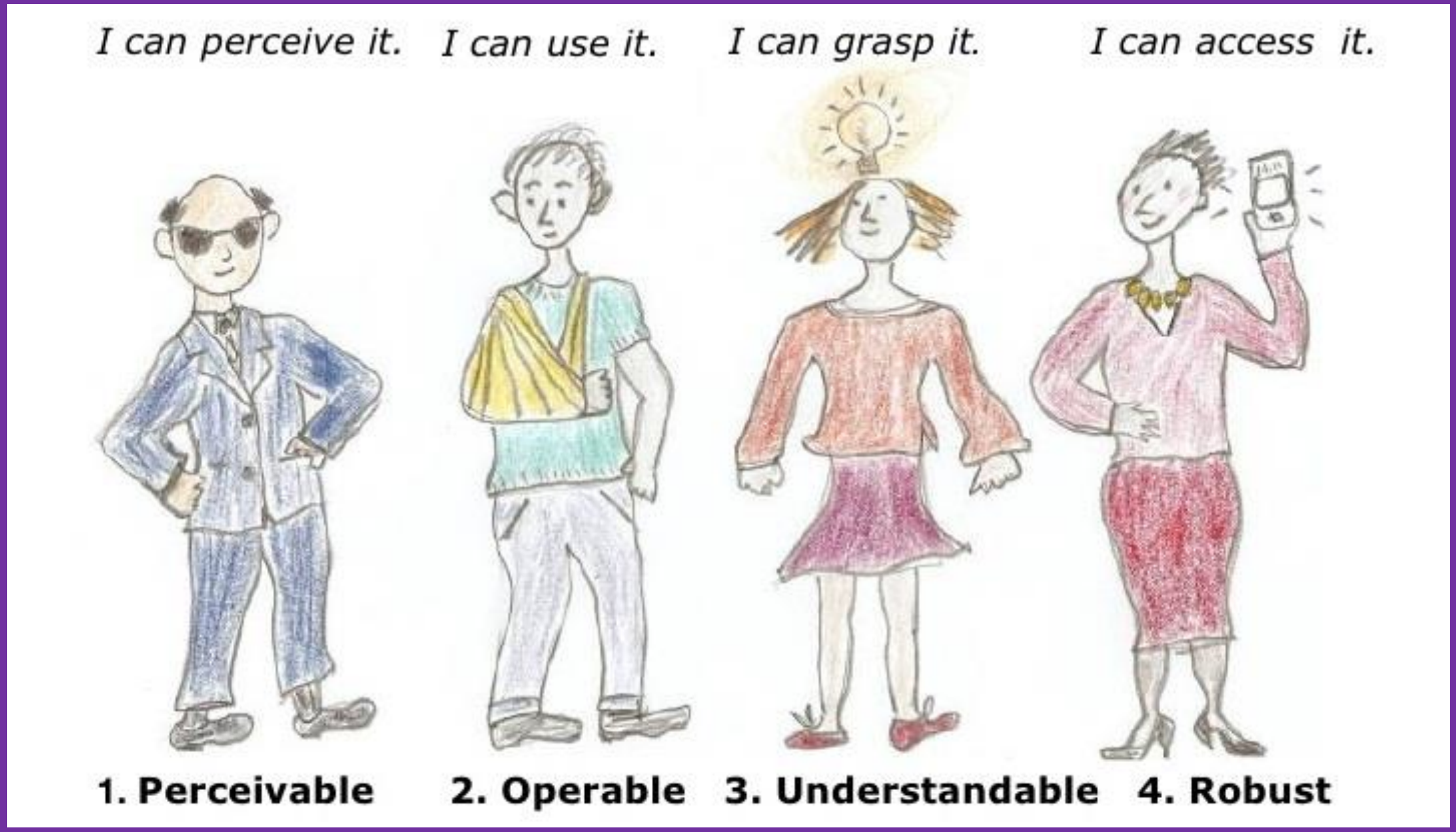
# WCAG 2.1

Technical standards

for web content

https://pixabay.com/images/id-3213920/




https://images.app.goo.gl/rVJpbx1Tq8FPqV4S8

# “60 to 80 percent of higher education students with a disability never disclose it to their teachers or administrators.”

Abell, Michael M., et al. “Students’ perceptions of classroom instructional environments in the context of ‘Universal Design for Learning’.” *Learning Environments Research*, vol. 14, no. 2, 2011, pp. 171–185., doi:10.1007/s10984-011-9090-2.

# Perceivable

Web content can be visited by people with very different types of perceptive preferences and needs, but also by robots.

Alternatives are given if a user cannot use one of their senses.

(Olga Revilla for One Guide a Day)

https://images.app.goo.gl/PA9ogspYADPXbjhe6

# Operable

Users should be able to interact with the interface components and navigation elements.

https://images.app.goo.gl/AbNKNpWmGFZoivN18

# Understandable

Content must be easy to follow and understand for many users.

For most content, this means simply avoiding overly complex sentences and jargon.

**This one is tricky in a learning environment…..ever read Shakespeare?**

https://images.app.goo.gl/UQ3Bnx2gAWm5hin39

# Robust

Content is flexible enough to be interpreted by a wide range of user agents.

https://images.app.goo.gl/4xVBqHQ8dZEq8jYbA

# Time-Based Media

https://images.app.goo.gl/9h5q123cC9ZZ6LXR8

- All video is captioned
- All audio is transcribed
- TRANSCRIPT
  - correctly sequenced text descriptions of time-based visual and auditory information
  - a means for achieving the outcomes of any time-based interaction

# “98.6% of students find closed captions helpful.”

Enamorado, Sofia. “5 Stats to Get Administrative Buy-in for Captioning.” *3playmedia.* 14 April 2017.

# Images

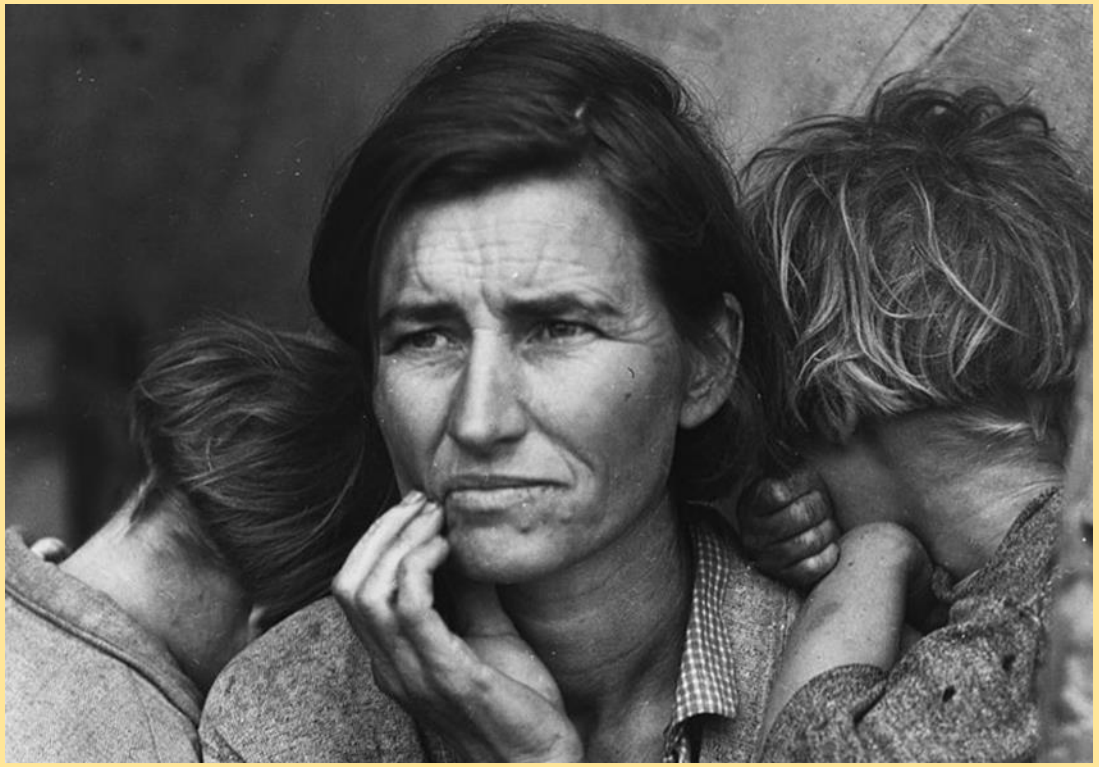


**Figure 5.** Web image of migrant woman with two children. *Migrant Mother*. Digital image. *Library of Congress*. Web. 28 Sept. 2017.

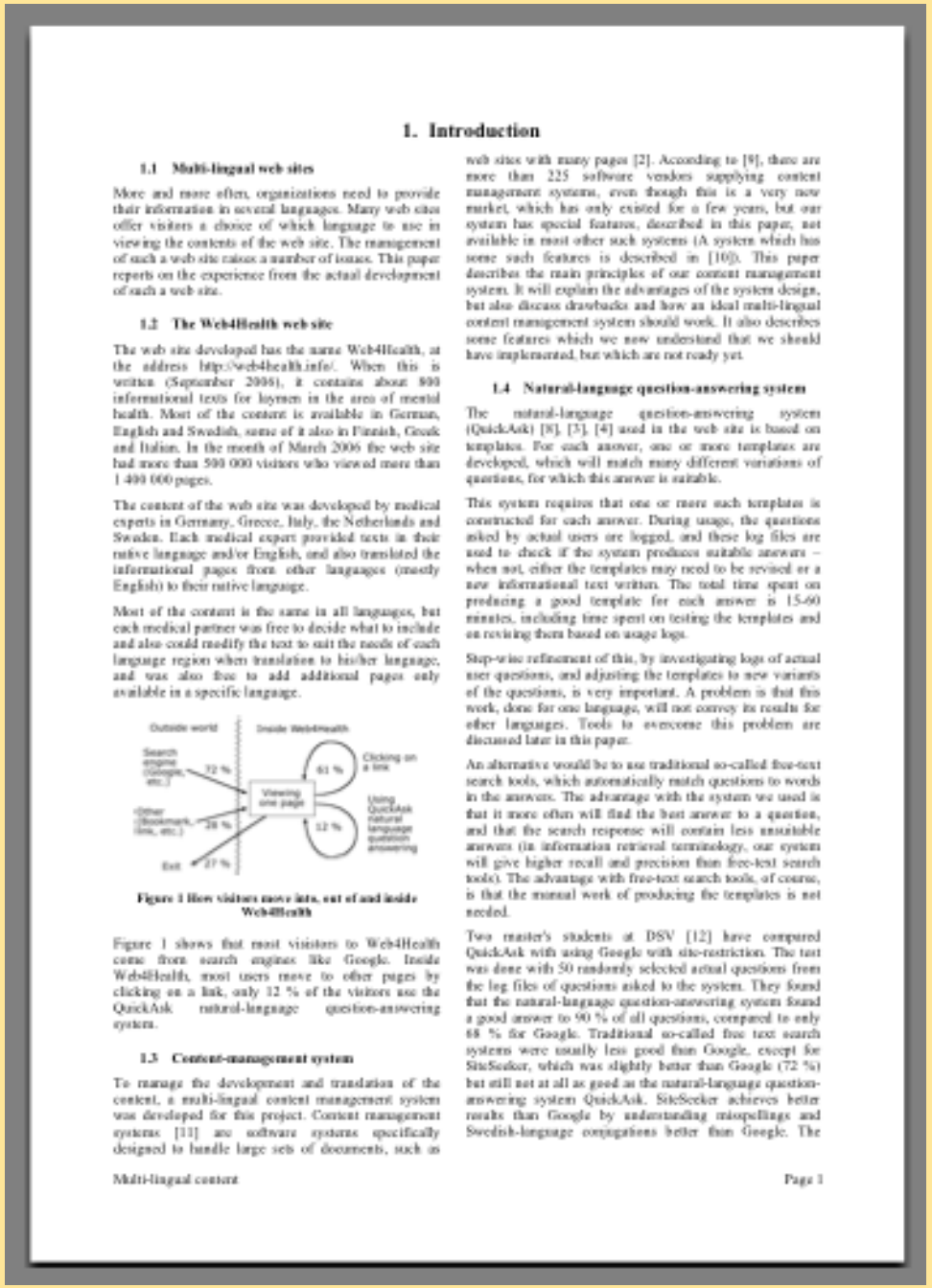
- Make text more engaging and relevant.
- **Can successfully convey complex information, enhance understanding, and improve retention.**

"UDL On Campus". Universal Design for Learning in Higher Education. Web. 28 September 2017.

# Adaptable & Distinguishable

*When scholarly works go bad*

- Font size & space
- Sequence
- Alternative text
- Orientation ?



1. Introduction

1.1 Multi-lingual web sites

More and more often, organizations need to provide their information in several languages. Many web sites offer visitors a choice of which language to use in viewing the contents of the web site. The management of such a web site raises a number of issues. This paper reports on the experience from the actual development of such a web site.

1.2 The Web4Health web site

The web site developed has the name Web4Health, at the address http://web4health.info/. When this is written (September 2006), it contains about 800 informational texts for laymen in the area of mental health. Most of the content is available in German, English and Swedish, some of it also in Finnish, Greek and Italian. In the month of March 2006 the web site had more than 500 000 visitors who viewed more than 1 400 000 pages.

The content of the web site was developed by medical experts in Germany, Greece, Italy, the Netherlands and Sweden. Each medical expert provided texts in their native language and/or English, and also translated the informational pages from other languages (mostly English) to their native language.

Most of the content is the same in all languages, but each medical partner was free to decide what to include and also could modify the text to suit the needs of each language region when translation to his/her language, and was also free to add additional pages only available in a specific language.




Figure 1 How visitors move into, out of and inside Web4Health

Figure 1 shows that most visitors to Web4Health come from search engines like Google. Inside Web4Health, most users move to other pages by clicking on a link, only 12 % of the visitors use the QuickAsk natural-language question-answering system.

1.3 Content-management system

To manage the development and translation of the content, a multi-lingual content management system was developed for this project. Content management systems [11] are software systems specifically designed to handle large sets of documents, such as web sites with many pages [2]. According to [9], there are more than 225 software vendors supplying content management systems, even though this is a very new market, which has only existed for a few years, but our system has special features, described in this paper, not available in most other such systems (A system which has some such features is described in [10]). This paper describes the main principles of our content management system. It will explain the advantages of the system design, but also discuss drawbacks and how an ideal multi-lingual content management system should work. It also describes some features which we now understand that we should have implemented, but which are not ready yet.

1.4 Natural-language question-answering system

The natural-language question-answering system (QuickAsk) [8], [3], [4] used in the web site is based on templates. For each answer, one or more templates are developed, which will match many different variations of questions, for which this answer is suitable.

This system requires that one or more such templates is constructed for each answer. During usage, the questions asked by actual users are logged, and these log files are used to check if the system produces suitable answers – when not, either the templates may need to be revised or a new informational text written. The total time spent on producing a good template for each answer is 15-60 minutes, including time spent on testing the templates and on revising them based on usage logs.

Step-wise refinement of this, by investigating logs of actual user questions, and adjusting the templates to new variants of the questions, is very important. A problem is that this work, done for one language, will not convey its results for other languages. Tools to overcome this problem are discussed later in this paper.

An alternative would be to use traditional so-called free-text search tools, which automatically match questions to words in the answers. The advantage with the system we used is that it more often will find the best answer to a question, and that the search response will contain less unsuitable answers (in information retrieval terminology, our system will give higher recall and precision than free-text search tools). The advantage with free-text search tools, of course, is that the manual work of producing the templates is not needed.

Two master's students at DSV [12] have compared QuickAsk with using Google with site-restriction. The test was done with 50 randomly selected actual questions from the log files of questions asked to the system. They found that the natural-language question-answering system found a good answer to 90 % of all questions, compared to only 68 % for Google. Traditional so-called free text search systems were usually less good than Google, except for SiteSeeker, which was slightly better than Google (72 %) but still not at all as good as the natural-language question-answering system QuickAsk. SiteSeeker achieves better results than Google by understanding misspellings and Swedish-language conjugations better than Google. The



https://images.app.goo.gl/eKXho7mA8hq3hDvq7

# Ask me questions!

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Helpful Resources (https://tinyurl.com/MOSTWCAG)

**M.O.S.T. Regional OER Forum**

# Accessibility and Usability of OER Content

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# Why Should OER Content Be Accessible?

- Most OER content is online.
- Ensuring ACCESS to instructional content is part of OER's purpose.
- Access includes ALL learners.
- Accessible content serves all students, including those who are fully abled.

# Challenges Some Learners Experience with Online Content

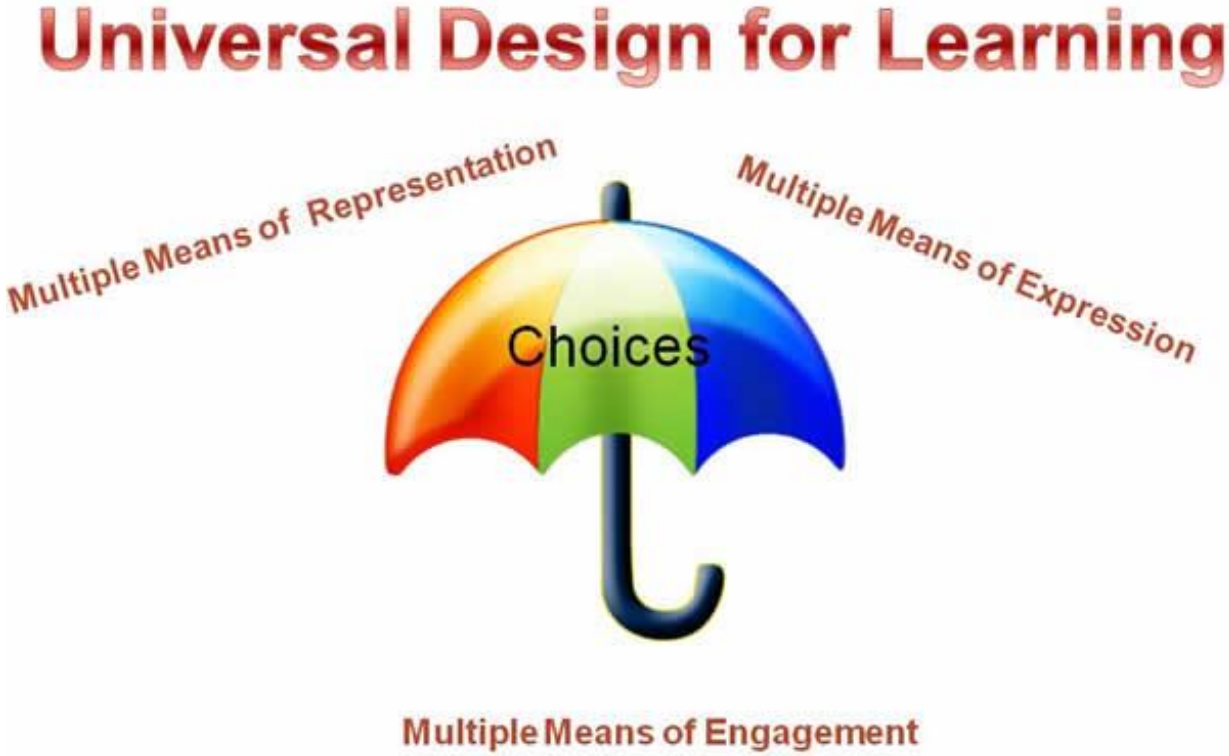
**People with…**

- Vision impairments/blindness
- Auditory impairments/deafness
- Mobility impairments
- Cognitive or learning disabilities

**… do not have (easy) access to online content.**

# What Is Universal Design?

"Design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design."




Natural Science Teaching Association. Retrieved from the Internet at https://www.nsta.org/disabilities/design.aspx on June 21, 2019

# Universal Design Resources

- https://opentextbc.ca/accessibilitytoolkit/

This is an OER resource, which can be downloaded on one's own drive. Chapters include key concepts and best practices.

- http://udlguidelines.cast.org/

A non-profit organization with focus on providing universal design guidelines for learning.

- http://www.w3.org

The World Wide Web Consortium (W3C) includes information, tools, and guidelines for web accessibility.

- https://webaim.org/

A non-profit organization based at Utah State University. The site includes principles and tools for ensuring universal access.

- *To Care and Comply*

Portland Community College's video on accessibility.

# How to ensure that **visually impaired** students can use Word documents?

- Apply Heading Styles
- Insert a Table of Contents for lengthy documents
- Use numbers instead of bullets
- Use Sans Serif fonts
- Add Alt Text to Images
- Save document as a tagged PDF or HTML
  PDF Accessibility

# Color Blindness:

## Do not use color-coded content

# How to ensure that **hearing impaired** students can use all our instructional materials?

- Any audio and video files need to have **captions**.
- Captions are of two kinds:
  - open (cannot be turned off)
  - closed (can be turned off)

- **NOTE: Students whose first language is NOT English benefit also from having closed captions.**

# How to ensure that **mobility impaired and or cognitive/learning disabled** students can use all our instructional materials?

- Provide consistent and user-friendly content and course navigation.
- Include multiple means of representation and expression.

Thank you!
Thanks to YOU, we can reach
ALL STUDENTS!

# Five Irrefutable Accessibility Facts

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1. ADA and Section 508 compliance is mandatory.
2. It costs money to make content accessible.
3. OERs seldom come “classroom-ready.”
4. Accessibility vs. Accommodation / Proactive vs. Reactive
5. Accessibility is *everyone’s* responsibility.

# Questions?


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