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One Size Does Not Fit All: Making Open Textbooks More Accessible

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One Size Does Not Fit All: Making Open Textbooks More Accessible

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MARCH 3-5, 2021

UMSL Libraries

About me



Judy Schmitt (J.Schmitt@umsl.edu)

- ◆ 20+ years in publishing industry
- ◆ Former textbook designer and layout professional
- ◆ Began incorporating accessibility requirements in 2009

Poll question

Do you make your documents accessible?

- A. No, I haven't really given it a thought
- B. No, I don't know how
- C. No, I don't have time
- D. No, it's not a priority
- E. Yes, a little accessible
- F. Yes, very accessible



Our agenda

- ◆ Why accessibility matters
- ◆ Standards
- ◆ Four principles of accessibility
- ◆ Options for publication and dissemination
- ◆ Design considerations and resources

Why you should care about accessibility

- ◆ **Ultimate goal:** Textbooks that are fully accessible, readable, and navigable by all
- ◆ People without disabilities can benefit, too
- ◆ Makes you more aware and empathetic

Who needs accessible documents

People who

- ◆ Use assistive technology (AT)
- ◆ Are colorblind or have other visual/cognitive disabilities
- ◆ Read textbooks on tablets or smartphones



Accessibility standards

- ◆ WCAG 2.1
 - ◆ Levels A, AA, and AAA
 - ◆ WCAG 2.2 coming soon
- ◆ PDF standards
 - ◆ ISO 32000-1
 - ◆ PDF/UA (ISO 14289-1)

WCAG and how to comply

- ◆ Useful for multiple pub types, not just Web
- ◆ WCAG quick reference
 - ◆ Levels + techniques and failures
- ◆ Much wordier version

Accessible PDFs

- ◆ No way to completely automate the process
- ◆ Key accessibility requirements
 - ◆ Tagging: [What Is a Tagged PDF?](#)
 - ◆ [Logical reading order and reflow order](#)
 - ◆ Color contrast, hyperlinks, tables, lists, bookmarks/TOC

How to test a document's accessibility

- ◆ Acrobat's Accessibility Checker
- ◆ Microsoft's Check Accessibility feature
- ◆ Screen reader (e.g., NVDA, JAWS, VoiceOver)
- ◆ Lynda.com + [CommonLook training webinars](#)



The four principles of accessibility

To be accessible, a document or website must be

Perceivable

Operable

Understandable

Robust

Source: Bureau of Internet Accessibility (2019)

Addressing the Perceivable component

- ◆ Text alternatives
 - ◆ Images, time-based media
 - ◆ Decorative elements
- ◆ Adaptable content
- ◆ Distinguishable content

Source: Bureau of Internet Accessibility (2019)

How to handle math/chemical equations

- ◆ Image file: $2(4y + 1) = 3y$
- ◆ Alt text: “2 open paren 4 y plus 1 close paren equals 3 y”
 - ◆ Factors, radicals, fractions, exponents, etc.
- ◆ MathML code to prepare equation for the Web
 - ◆ HTML is not sufficient for math

How to handle charts and graphs

- ◆ Colors, lines, shapes, patterns
 - ◆ [Guide to accessible data visualization](#)
- ◆ Alt text + description in text or figure legend
 - ◆ Alt text: “**Chart type of type of data showing reason for including chart.**” (Data from **link to data source**)

Addressing the Operable component

- ◆ Keyboard accessible
- ◆ Enough time
- ◆ Seizures and physical reactions
- ◆ Navigable
- ◆ Input modalities

Source: Bureau of Internet Accessibility (2019)

Addressing the Understandable component

- ◆ Readable
- ◆ Predictable
- ◆ Input assistance

Source: Bureau of Internet Accessibility (2019)

Addressing the Robust component

- ◆ Reliable interpretation
 - ◆ Screen readers don't always read what's on the screen!
- ◆ Future compatible

Source: Bureau of Internet Accessibility (2019)

Publication & dissemination options

- ◆ Creation tools
 - ◆ [Creating Open Educational Resources: Tips for New Creators \(1:37 in video\)](#)
- ◆ Consider type of content, subject, end users
- ◆ Periodic updates
- ◆ See my [OER Design](#) session

Publication (format) options

- ◆ Simple Word doc
- ◆ PDF
- ◆ HTML
- ◆ Webbook or e-book
- ◆ See my [OER Design](#) session

Dissemination options

- ◆ Go beyond your LMS!
- ◆ Institutional repository
- ◆ OER websites and global repositories
- ◆ See Lena Marvin's presentation on OER sharing

Design considerations and resources

- ◆ Colors and contrast
 - ◆ Charts, infographics
- ◆ Text size and column width
 - ◆ Eye tracking
- ◆ Headings
 - ◆ Fonts, colors, hierarchy, styles
- ◆ See my [OER Design](#) session

Choosing a color palette

- ◆ Learn UI Design: [Data Color Picker](#)
- ◆ PatternFly: [Color Palette](#)
- ◆ B. Jenny & N. V. Kelso: [Color Oracle](#)

Contrast analyzing tools

- ◆ The Paciello Group: [Colour Contrast Analyser](#)
- ◆ Learn UI Design: [Accessible Color Generator](#)
- ◆ WebAIM: [Contrast Checker](#)
- ◆ University of Sussex: [Accessible Colour Contrast](#)

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Thank you for your attention!

If you have questions, contact me at
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