

# Making PDFs Accessible

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## How did this research begin?

- Shelley Blundell, Assistant Professor, Communication at Youngstown State University, and I collaborated to provide more accessible online materials
  - Created a rubric based on the Web Content Accessibility Guidelines (WCAG), Section 508 of the Rehabilitation Act of 1973, and Web Design Best Practices
  - [A wikispace containing the “living” rubric and other best practice material](#)
  - An article, [Evaluating the accessibility of online library guides at an academic library](#)

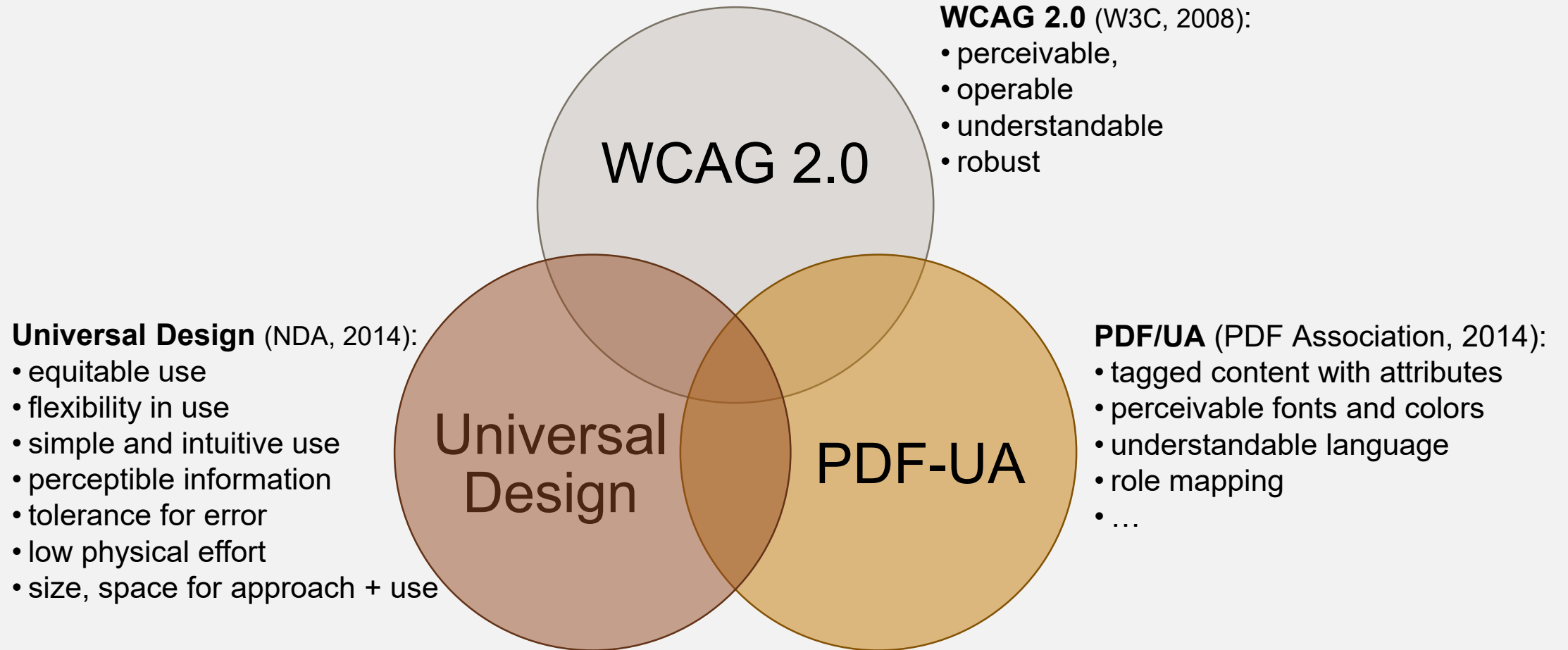
## Why make PDFs accessible?

- Individuals that read PDFs have different abilities
  - Not everyone can see well
  - Not everyone can use a mouse
  - Not everyone reads English and knows what you mean instantly
  - Not everyone can remain focused easily when they read
  - Not everyone uses assistive technology
  - ...
- PDF creators might never know all the characteristics their readers

## What standards pertain to accessible PDFs?

- WCAG 2.0
  - World Wide Web Consortium (W3C) in 2008
  - Testing: Some automated testing tools and some manual inspection
- PDF/UA
  - ISO 14289-1. Document management applications Electronic document file format enhancement for accessibility Part 1: Use of ISO 32000-1
  - Testing: PDF Accessibility Checker (PAC 2.0)

# WCAG 2.0, Universal Design, and PDF/UA



## What do standards mean to PDF creators?

- Everyone should be able to perceive and understand PDF content
  - perceivable color and fonts
  - understandable language (e.g. acronyms, definitions, language attributes)
- PDF content should be designed for different physical, linguistic, and intellectual capabilities
  - intuitive keyboard tab order
- PDF should be designed to work with different accessibility software and different devices
  - appropriate reading order

## What are attributes of accessible PDFs?

- Have accurate text layer in the PDF (Adobe, 2018)
  - Scan using Optical Character Recognition (OCR)
  - Examples using screen reader
    - [PDF, OCR only with Read Out Loud in Acrobat](#)
    - [PDF, OCR only with JAWS](#)
  - OCR only would fail PDF/UA, as well as not functional well with text readers

## What are attributes of accessible PDFs?

- Use PDF Tags (Adobe, 2018)
  - Adobe Acrobat can correct tags
    - Acrobat can tag, but tags will need corrected
    - Some attributes will likely need changed (content dependent)
  - Tags provide document structure and reading order
- Reading Order (Adobe, 2018)
  - Extremely important for
    - Screen readers
    - Mobile devices
  - Adobe Acrobat can correct reading order
    - Might need to correct tags separately
    - Test: Reflow via Adobe



## Testing a la Adobe Acrobat

- Automatic testing can detect some of the attributes that need corrected (Full Check)
  - Many tag structure issues (WCAG 1.3.1)
  - No document language (WCAG 3.1.1)
  - No alternate text for images (WCAG 1.1.1)
    - Images for decoration are marked as artifacts
    - Headers and footers are marked as artifacts (PDF/UA)

## Testing a la Adobe Acrobat

- Full Check reminds you that some items require human intervention
  - Color contrast (Colour Contrast Analyzer)
  - Reading order (Adobe Acrobat)
  - Navigation tab order (Adobe Acrobat)
    - Might need to edit links

## Testing a la Adobe Acrobat

- Full Check will not find or remind you that
  - Alternative text is not adequate for the image
  - Images degrade in quality when zoom is 200% or greater
  - Important text is in an image and cannot be read by those with low vision
  - Excerpts of text are in another language
  - Acronyms are not expanded in the text when first used
  - Ambiguous acronyms do not use the expanded text attribute (Doctor vs. Drive)

## Testing a la Adobe Acrobat

- Full Check will not find or remind you that (cont.)
  - Hyperlink text does not describe its purpose
  - Alternative text for the hyperlink, if needed, does not provide additional information (i.e. same as hyperlink text)
  - Some hyperlink text is ambiguous
  - Adjacent URLs go to the same place (e.g. URL on multiple lines)
  - Hyperlink text is different when the URL is in multiple locations

## Testing a la Adobe Acrobat

- Full Check will not find or remind you that (cont.)
  - Headings do not describe the contents of the section
  - Document title does not describe its purpose
  - Content contains sensory-based instructions
  - Color only is used to distinguish content
  - Multipage document does not have page numbers or running headings and does not have bookmarks
  - Screen reader users and non-users do not know when a form field is required (e.g. use the tool tip in the text field property)

## A few necessary fixed for PDF/UA

- Preflight tool in Adobe Professional
  - Embed fonts
    - Readers need font information to convert the font to Unicode
  - Set PDF/UA entry
    - Specifies the PDF follows the standard

## A few necessary fixed for PDF/UA

- Set the root tag to Document
  - Only particular tags can be the root and many tools to create PDFs use part or section, etc.
- Alternate attribute for hyperlinks
- Test using PDF Accessibility Checker (PAC 2.0)

Questions?





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