



California Open Online Library for Education & Accessibility

COOL4Ed (the California Open Online Library for Education) was created so that faculty can easily find, adopt, utilize, review and/or modify free and open etextbooks for little or no cost. The COOL4Ed accessibility open textbook evaluations can inform faculty, staff, and students how the free and open etextbooks meet 15 accessibility “checkpoints” that could impact the learning of learners with a range of disabilities.

SUMMARY OF ACCESSIBILITY EVALUATION:

Textbook: Gender & Sexuality (Boundless)

Format of Textbook: HTML

Assistive Technology (AT) Evaluation Score: Overall	7.6 (Maximum score = 10)
<p>Assistive Technologies (AT) Evaluations applies specialized tools and software in the accessibility evaluation process. These specialized assistive technologies, see list below, are typically not used or available by the general public into the accessibility evaluation process.</p> <ul style="list-style-type: none"> • Accessibility features of desktop operating systems (e.g. high-contrast display themes, settings from the Keyboard and Mouse control panels) • Accessibility-related software included with desktop operating systems (e.g. VoiceOver, Microsoft Narrator) • Third-party accessibility software and hardware: • Screen readers (e.g. JAWS, Window Eyes) • Magnification software (e.g. ZoomText Magnifier/Reader, MAGIC Pro with Speech) • Reading software for users with learning disabilities (e.g. Read and Write Gold, Kurzweil 3000) • Refreshable Braille displays 	
Non- Assistive Technology (NAT) Evaluation Score: Overall	6.0 (Maximum score =10)
<p>Non-Assistive Technologies (NAT) Evaluations applies only native or basic tools and software such as the keyboard and Narrator in the accessibility evaluation process. These non-assistive technologies are readily available and used by the general public.</p>	



COOL4Ed Accessibility Evaluation Methods:

The California State University [Accessible Technology Initiative](#) and [MERLOT](#) (Multimedia Educational Resources for Learning and Online Teaching) developed the rubric or “checkpoints” for the accessibility evaluation. [CAST](#), a nationally recognized organization with expertise in accessibility and UDL, reviewed and affirmed the appropriateness and value of the accessibility evaluation rubric and contributed the references and support resources to help people learn how best to design, evaluate, and remediate the learning materials to maximize the accessibility of the learning resources for all. The “checkpoints” have been built upon the Section 508 technical standards and has been organized and tailored to the typical characteristics of digital resources used in higher education courses.

The accessibility evaluations were performed by the [Center for Usability in Design and Accessibility](#) at California State University, Long Beach; faculty and graduate students with expertise in human factors, usability, and accessibility performed the evaluations of over 150 free and open etextbooks. COOL4ed.org has published the accessibility evaluation rubric and provides a detailed description of the methodology used to evaluate the accessibility of the etextbooks in COOL4ed.

LOOKING FOR DETAILED ACCESSIBILITY REPORTS?

[See Detailed Accessibility Evaluation Report using Assistive Technologies](#)

[See Detailed Accessibility Evaluation Report using Non-Assistive Technologies](#)



DETAILED ACCESSIBILITY EVALUATION REPORT using Assistive Technologies

Assistive Technologies (AT) Evaluations applies specialized tools and software in the accessibility evaluation process. These specialized assistive technologies, such as Kurzweil and NVDA, are typically not used or available by the general public into the accessibility evaluation process.

1. Accessibility Documentation

A. The organization providing the online materials has a formal accessibility policy.	Fail
Additional Information:	Did not find any information about Boundless's formal accessibility policy.
B. The organization providing the online materials has an accessibility statement.	Fail
Additional Information:	Did not find any information about Boundless's accessibility statement.
C. An Accessibility Evaluation Report is available from an external organization.	Fail
Additional Information:	Did not find any information about Boundless's accessibility evaluation report.

2. Text Access

A. The text of the digital resource is available to assistive technology that allows the user to enable text-to-speech (TTS) functionality.	Pass
Additional Information:	1/1 chapter had proper text to speech functions while using the NVDA reader (Section 1). No content was skipped and everything was read in logical order.

3. Text Adjustment

A. Text is compatible with assistive technology.	Pass
Additional Information:	1/1 chapter was able to properly adjust font size without cutting off any of the content and without having to horizontally scroll (Section 1).



<p>B. The resource allows the user to adjust the font size and font/background color (or is rendered by an application such as a browser, media player, or reader) that offers this functionality).</p>	<p>Pass</p>
<p>Additional Information:</p>	<p>1/1 chapter was able to properly adjust font color using the Care Your Eyes program (Section 1).</p>

4. Reading Layout

<p>A. Text of the digital resource is compatible with assistive technology that allows the user to reflow the text by specifying the margins and line spacing (or is rendered by an application such as a browser, media player, or reader that offers this functionality).</p>	<p>Pass</p>
<p>Additional Information:</p>	<p>Only 10 webpages were available for the textbook. 10/10 webpages had proper reflow of text without horizontal scrolling (Section 1, 2(3), 3(3), 4(2), 5(1)).</p>
<p>B. If the digital resource is an electronic alternative to printed materials, the page numbers correspond to the printed material.</p>	<p>N/A</p>
<p>Additional Information:</p>	<p>No printed material.</p>

5. Reading Order

<p>A. The reading order for digital resource content logically corresponds to the visual layout of the page when rendered by assistive technology.</p>	<p>Pass</p>
<p>Additional Information:</p>	<p>5/5 pages had proper reading order (Section 2(3), 3(2)). The content was read in a logical order and no information was skipped.</p>

6. Structural Markup/Navigation

<p>A. The text of the digital resource includes markup (e.g. tags or styles) that allows for</p>	<p>Pass</p>
--	--------------------



<p>navigation by key structural elements (chapters, headings, pages) using assistive technology (or is rendered by an application such as a browser, media player, or reader that offers this functionality).</p>	
<p>Additional Information:</p>	<p>1/1 chapter had proper navigation of text using the NVDA hotkeys (Section 1). The headers, links, and lists were found with no problems.</p>
<p>B. The text of the digital resource includes markup for bullets and numbered lists that is compatible with assistive technology (or is rendered by an application such as a browser, media player, or reader that offers this functionality).</p>	<p>Pass</p>
<p>Additional Information:</p>	<p>1/1 chapter had proper navigation of lists while using the NVDA hotkeys (Section 1(2), 2(4), 3(4)).</p>
<p>C. If the text of the digital resource is delivered within an ebook reader application, a method is provided that allows users to bypass the reader interface and move directly to the text content that is compatible with assistive technology.</p>	<p>N/A</p>
<p>Additional Information:</p>	<p>Not using eReader application.</p>

7. Tables

<p>A. Data tables include markup (e.g. tags or styles) that identifies row and column headers in a manner that is compatible with assistive technology (or are rendered by an application such as a browser, media player, or reader that offers this functionality).</p>	<p>N/A</p>
<p>Additional Information:</p>	<p>No tables found.</p>

8. Hyperlinks

<p>A. In-book links take you to a location within the textbook. For example, the table of contents</p>	<p>N/A</p>
--	-------------------



would be considered in-book links and embedded links take you to the correct location in the book.	
Additional Information:	All hyperlinks are live.
B. Live hyperlinks take you to any website or webpages external to the book.	Pass
Additional Information:	50/50 hyperlinks functioned properly (Section 1(29), 2(31)). 50/50 hyperlinks were labeled properly (Section 1(29), 2(31)). The links told where they would take the reader on the internet.
C. Live links take you to the correct webpage that is functioning properly.	Pass
Additional Information:	50/50 hyperlinks functioned properly (Section 1(29), 2(31)).
D. Live links are descriptive enough for the users to know where it should take them.	Pass
Additional Information:	50/50 hyperlinks were labeled properly (Section 1(29), 2(31)). The links told where they would take the reader on the internet.

9. Color and Contrast

A. All information within the material that is conveyed using color is also available in a manner that is compatible with those that do not perceive color, and information conveyed by color is also conveyed in other ways.	Pass
Additional Information:	1/1 chapter had consistent color redundancy (Section 2). The headers and normal text were consistently black against a white background. The links were consistently black against a white background with a blue underline underneath it.
B. Information is conveyed from the sub-categories for contrast.	Pass
Additional Information:	The headers that were outside of the summary box at the beginning of each section passed the color



	<p>contrast evaluation because the font was black against a white background. However, the headers that were within the summary boxes did not pass because the text was gray against a light blue background. The normal text outside of the summary box at the beginning of each section passed the color contrast evaluation because the text was black against a white background. However, the text that was inside of the summary boxes did not pass because the color of the text was dark gray against a light blue background. The simplest image was found in Section 1, and this passed the color contrast evaluation because it was black against a white background.</p>
<p>C. Contrast for headers passed WCAG AA standards for large texts (contrast ratio 3:1).</p>	<p>Pass</p>
<p>Additional Information:</p>	<p>The headers that were outside of the summary box at the beginning of each section passed the color contrast evaluation because the font was black against a white background. However, the headers that were within the summary boxes did not pass because the text was gray against a light blue background.</p>
<p>D. Contrast for text passed WCAG AA standards for normal texts (contrast ratio of 4.5:1).</p>	<p>Pass</p>
<p>Additional Information:</p>	<p>The normal text outside of the summary box at the beginning of each section passed the color contrast evaluation because the text was black against a white background. However, the text that was inside of the summary boxes did not pass because the color of the text was dark gray against a light blue background.</p>
<p>E. Contrast for simple images (for example, images of atoms) passed WCAG AA standards (contrast ratio of 4.5:1).</p>	<p>Pass</p>
<p>Additional Information:</p>	<p>The simplest image was found in Section 1, and this passed the color contrast evaluation because it was black against a white background.</p>



10. Language

<p>A. The text of the digital resource includes markup that declares the language of the content in a manner that is compatible with assistive technology.</p>	<p>Fail</p>
<p>Additional Information:</p>	<p>No language markup found.</p>
<p>B. If the digital resource includes passages in a foreign language, these passages include markup that declares the language in a manner that is compatible with assistive technology.</p>	<p>N/A</p>
<p>Additional Information:</p>	<p>No passage markup.</p>

11. Images

<p>A. Non-decorative images have alternative text that is compatible with assistive technology (or is rendered by an application such as a browser, media player, or reader that offers this functionality).</p>	<p>Fail</p>
<p>Additional Information:</p>	<p>0/1 chapters had non-decorative images that were described in more detail than what was written in the captions (Section 3). The images were not labeled as figures, instead they were just titled as what was written in the caption. While the NVDA reader was reading it, it described the image as a link and read the caption rather than describing what was in the image.</p>
<p>B. Decorative images are marked with null alternate text or contain markup that allows them to be ignored by assistive technology.</p>	<p>N/A</p>
<p>Additional Information:</p>	<p>No decorative images found.</p>
<p>C. Complex images, charts, and graphs have longer text descriptions that are compatible with assistive technology (or are rendered by an application such as a browser, media</p>	<p>Fail</p>



player, or reader) that offers this functionality).	
Additional Information:	0/1 chapters had complex images that were described in more detail than just what was written in the captions (Section 2). The images were not labeled as figures, instead they were just titled as what was written in the caption. While the NVDA reader was reading it, it described the image as a link and read the caption rather than describing what was in the image.

12.Multimedia

A. A synchronized text track (e.g. open or closed captions) is provided with all video content.	N/A
Additional Information:	No multimedia content found.
B. A transcript is provided with all audio content.	N/A
Additional Information:	No multimedia content found.
C. Audio/video content is delivered via a media player that is compatible with assistive technology. This includes support for all criteria listed in Section 15 below.	N/A
Additional Information:	No multimedia content found.

13.Flickering

A. The digital resource content does not contain anything that flashes more than three times in any one-second period.	Pass
Additional Information:	No flickering content.

14.Science, Technology, Engineering, and Math (STEM)

A. STEM figures have appropriate markup that indicates that the image is a figure.	Fail
--	-------------



Additional Information:	0/2 figures were marked up as figures (Sect.2). The figures were only titled by the captions.
B. STEM graphs have appropriate markup that indicates that the image is a graph.	Fail
Additional Information:	0/2 graphs were marked up as graphs (Sect. 4, 5). The graphs were only titled by what was written in the captions.
C. STEM equations have appropriate markup that indicates that the image is an equation.	N/A
Additional Information:	No equations found.
D. STEM tables have appropriate markup that indicates the image is a table.	N/A
Additional Information:	No tables found.
E. STEM figures have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	Fail
Additional Information:	Only 2 STEM figures were found. 0/2 figures were described in more detail than what was written in the caption. However, the caption had sufficient information that told what was in the figures but it was not enough for someone to actually visualize what was in the picture.
F. STEM graphs have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	Fail
Additional Information:	0/2 graphs were described in more detail besides what was written in the captions (Sect. 4, 5). The NVDA reader only read what was written in the captions and it was not enough information to understand what was in the graph/visualize it.
G. STEM equations have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	N/A



Additional Information:	No equations found.
H. Assistive technology used can access the content from the STEM tables.	N/A
Additional Information:	No tables found.

15. Interactive Elements

A. Each interactive element (e.g. menu, hyperlink, button) and function (e.g. annotations) allows keyboard-only operation both with and without assistive technology.	N/A
Additional Information:	No interactive elements found.
B. Each interactive element conveys information to assistive technology regarding the element's name, type, and status (e.g. "Play, button, selected").	N/A
Additional Information:	No interactive elements found.
C. All instructions, prompts, and error messages necessary to complete forms are conveyed as text to assistive technology (or are rendered by an application such as a browser, media player, or reader that offers this functionality).	N/A
Additional Information:	No interactive elements found.



DETAILED ACCESSIBILITY EVALUATION REPORT using Non-Assistive Technologies

Non-Assistive Technologies (NAT) Evaluations applies only native or basic tools and software such as the keyboard and Narrator in the accessibility evaluation process. These non-assistive technologies are readily available and used by the general public.

1. Accessibility Documentation

A. The organization providing the online materials has a formal accessibility policy.	Fail
Additional Information:	No content found.
B. The organization providing the online materials has an accessibility statement.	Fail
Additional Information:	No content found.
C. An Accessibility Evaluation Report is available from an external organization.	Fail
Additional Information:	No content found.

2. Text Access

A. The text of the digital resource is available to assistive technology that allows the user to enable text-to-speech (TTS) functionality.	Pass
Additional Information:	Selected text is read. Section 1 checked and passed. Google Select and Speak free version used.

3. Text Adjustment

A. Text is compatible with assistive technology.	Pass
Additional Information:	Horizontal scroll bar is an option but not needed even after 200%+ zoom. Section 1 checked.
B. The resource allows the user to adjust the font size and font/background color (or is rendered by an application such as a browser,	Pass



media player, or reader) that offers this functionality).	
Additional Information:	Text is readable. Some images are inverted. Section 1 checked. Google "care your eyes" used.

4. Reading Layout

A. Text of the digital resource is compatible with assistive technology that allows the user to reflow the text by specifying the margins and line spacing (or is rendered by an application such as a browser, media player, or reader that offers this functionality).	N/A
Additional Information:	No printed material or PDF to compare.
B. If the digital resource is an electronic alternative to printed materials, the page numbers correspond to the printed material.	N/A
Additional Information:	No printed material or PDF to compare.

5. Reading Order

A. The reading order for digital resource content logically corresponds to the visual layout of the page when rendered by assistive technology.	N/A
Additional Information:	Needs assistive technologies.

6. Structural Markup/Navigation

A. The text of the digital resource includes markup (e.g. tags or styles) that allows for navigation by key structural elements (chapters, headings, pages) using assistive technology (or is rendered by an application such as a browser, media player, or reader that offers this functionality).	N/A
Additional Information:	Needs assistive technologies.



B. The text of the digital resource includes markup for bullets and numbered lists that is compatible with assistive technology (or is rendered by an application such as a browser, media player, or reader that offers this functionality).	N/A
Additional Information:	Needs assistive technologies.
C. If the text of the digital resource is delivered within an ebook reader application, a method is provided that allows users to bypass the reader interface and move directly to the text content that is compatible with assistive technology.	N/A
Additional Information:	Needs assistive technologies.

7. Tables

A. Data tables include markup (e.g. tags or styles) that identifies row and column headers in a manner that is compatible with assistive technology (or are rendered by an application such as a browser, media player, or reader that offers this functionality).	N/A
Additional Information:	Needs assistive technologies.

8. Hyperlinks

A. In-book links take you to a location within the textbook. For example, the table of contents would be considered in-book links and embedded links take you to the correct location in the book.	
Additional Information:	Table of contents works.
B. Live hyperlinks take you to any website or webpages external to the book.	Pass



Additional Information:	Only links found were terms that were linked within the website, not the book itself. Sections 2.1-2.2 used.
C. Live links take you to the correct webpage that is functioning properly.	Pass
Additional Information:	20/20 worked in Sections 2.1 and 2.2.
D. Live links are descriptive enough for the users to know where it should take them.	Pass
Additional Information:	20/20 used terms and not URLs as descriptions. Sections 2.1 and 2.2

9. Color and Contrast

A. All information within the material that is conveyed using color is also available in a manner that is compatible with those that do not perceive color, and information conveyed by color is also conveyed in other ways.	Pass
Additional Information:	Underline is used for links. Bigger font size and bold are used for headers. Bold and italics are used for important terms and figure descriptions.
B. Information is conveyed from the sub-categories for contrast.	Fail
Additional Information:	Sections 4 and 5 checked.
C. Contrast for headers passed WCAG AA standards for large texts (contrast ratio 3:1).	Pass
Additional Information:	Dark grey headers pass. Sections 4 and 5 checked.
D. Contrast for text passed WCAG AA standards for normal texts (contrast ratio of 4.5:1).	Fail
Additional Information:	Figure description text fails. Grey text passes for the most part (depends what part of certain letters are tested). Sections 4 and 5 checked.
E. Contrast for simple images (for example, images of atoms) passed WCAG AA standards (contrast ratio of 4.5:1).	N/A



Additional Information:	No simple images found. Sections 4 and 5 checked.
-------------------------	--

10. Language

A. The text of the digital resource includes markup that declares the language of the content in a manner that is compatible with assistive technology.	Fail
Additional Information:	lang="en" not found in coding.
B. If the digital resource includes passages in a foreign language, these passages include markup that declares the language in a manner that is compatible with assistive technology.	N/A
Additional Information:	No passages found in foreign language.

11. Images

A. Non-decorative images have alternative text that is compatible with assistive technology (or is rendered by an application such as a browser, media player, or reader that offers this functionality).	Fail
Additional Information:	0/2 in Section 3.1 contained alt attribute. Descriptions in text were good. W3C validator website used.
B. Decorative images are marked with null alternate text or contain markup that allows them to be ignored by assistive technology.	Pass
Additional Information:	3 consistent ads shown on each page. Null alt text in coding, thus ignored. W3C validator website used.
C. Complex images, charts, and graphs have longer text descriptions that are compatible with assistive technology (or are rendered by an application such as a browser, media player, or reader) that offers this functionality).	Fail



Additional Information:	0/2 in Section 2.2 not descriptive enough. W3C validator website used. No alt attributes in code.
-------------------------	--

12. Multimedia

A. A synchronized text track (e.g. open or closed captions) is provided with all video content.	N/A
Additional Information:	No multimedia content found.
B. A transcript is provided with all audio content.	N/A
Additional Information:	No multimedia content found.
C. Audio/video content is delivered via a media player that is compatible with assistive technology. This includes support for all criteria listed in Section 15 below.	N/A
Additional Information:	No multimedia content found.

13. Flickering

A. The digital resource content does not contain anything that flashes more than three times in any one-second period.	Pass
Additional Information:	All sections passed.

14. Science, Technology, Engineering, and Math (STEM)

A. STEM figures have appropriate markup that indicates that the image is a figure.	Fail
Additional Information:	0/10 None are marked as figures but have titles. Section 2.2-4.1 checked.
B. STEM graphs have appropriate markup that indicates that the image is a graph.	Fail
Additional Information:	0/2 Section 4.2 and 5.1 each have a graph that is not marked as graph.
C. STEM equations have appropriate markup that indicates that the image is an equation.	N/A



Additional Information:	No STEM content found.
D. STEM tables have appropriate markup that indicates the image is a table.	N/A
Additional Information:	No STEM content found.
E. STEM figures have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	Pass
Additional Information:	10/10 descriptions are meaningful. Section 2.2-4.1 checked.
F. STEM graphs have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	Pass
Additional Information:	2/2 Descriptions are meaningful; section; sections 4.2 and 5.1.
G. STEM equations have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	N/A
Additional Information:	No STEM content found.
H. Assistive technology used can access the content from the STEM tables.	N/A
Additional Information:	No STEM content found.

15. Interactive Elements

A. Each interactive element (e.g. menu, hyperlink, button) and function (e.g. annotations) allows keyboard-only operation both with and without assistive technology.	Fail
Additional Information:	Tab key stops at Subjects tab in navigation bar.
B. Each interactive element conveys information to assistive technology regarding the	N/A



element's name, type, and status (e.g. "Play, button, selected").	
Additional Information:	No interactive elements found.
C. All instructions, prompts, and error messages necessary to complete forms are conveyed as text to assistive technology (or are rendered by an application such as a browser, media player, or reader that offers this functionality).	N/A
Additional Information:	No interactive elements found.

© 2016 California State University (Version 1.0)



This work licensed under a Creative Commons Attribution 4.0 International License:
<https://creativecommons.org/licenses/by/4.0/>. Please attribute the California State University when using this work.