



## 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:** Introduction to Psychology (University of Minnesota)  
**Format of Textbook:** HTML

<b>Assistive Technology (AT) Evaluation Score: Overall</b>	<b>8.3 (Maximum score = 10)</b>
<p><b>Assistive Technologies (AT) Evaluations</b> 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"> <li>• Accessibility features of desktop operating systems (e.g. high-contrast display themes, settings from the Keyboard and Mouse control panels)</li> <li>• Accessibility-related software included with desktop operating systems (e.g. VoiceOver, Microsoft Narrator)</li> <li>• Third-party accessibility software and hardware:</li> <li>• Screen readers (e.g. JAWS, Window Eyes)</li> <li>• Magnification software (e.g. ZoomText Magnifier/Reader, MAGIC Pro with Speech)</li> <li>• Reading software for users with learning disabilities (e.g. Read and Write Gold, Kurzweil 3000)</li> <li>• Refreshable Braille displays</li> </ul>	
<b>Non- Assistive Technology (NAT) Evaluation Score: Overall</b>	<b>7.7 (Maximum score =10)</b>
<p><b>Non-Assistive Technologies (NAT) Evaluations</b> 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.

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## **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.	<b>Fail</b>
Additional Information:	<b>Did not find any information about Merlot's formal accessibility policy.</b>
B. The organization providing the online materials has an accessibility statement.	<b>Fail</b>
Additional Information:	<b>Did not find any information about Merlot's accessibility statement.</b>
C. An Accessibility Evaluation Report is available from an external organization.	<b>Fail</b>
Additional Information:	<b>Did not find any information about Merlot's accessibility evaluation report.</b>

### 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.	<b>Pass</b>
Additional Information:	<b>2/2 chapters had proper text to speech capabilities (Ch. 1, 12). However, it was difficult trying to figure out how to use the NVDA hotkeys in order to read the textbook. There were times when the headers, lists, and tables couldn't be found and you could not go to different content using the directional keys, but once you got the hang of how to do it, the NVDA hotkeys worked fine. There was no content that was skipped while reading and everything was read in a logical order.</b>



### 3. Text Adjustment

A. Text is compatible with assistive technology.	<b>Pass</b>
Additional Information:	<b>2/2 chapters are capable of adjusting the size of the text without horizontal scrolling (Ch. 1, 12).</b>
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).	<b>Pass</b>
Additional Information:	<b>2/2 chapters are able to properly adjust font colors using the Care Your Eyes program (Ch. 1, 12).</b>

### 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).	<b>Pass</b>
Additional Information:	<b>30/30 webpages had proper reflow of text (Ch. 1(3), 2(4), 3(5), 4(6), 5(4), 8(4), 10(4)).</b>
B. If the digital resource is an electronic alternative to printed materials, the page numbers correspond to the printed material.	<b>N/A</b>
Additional Information:	<b>No printed material available.</b>

### 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.	<b>Pass</b>
Additional Information:	<b>5/5 pages had proper reading order (Ch. 1.1, 1.2, 12.1, 12.2, 12.3). However, it was difficult trying to figure out how to use the NVDA hotkeys in order to read the textbook. There were times when the</b>



	<p>headers, lists, and tables couldn't be found and you could not go to different content using the directional keys, but once you got the hang of how to do it, the NVDA hotkeys worked fine. There was no content that was skipped while reading and everything was read in a logical order. Graphs and figures were also difficult to understand without more information. The NVDA reader only read the captions that were available without reading additional information to describe the graphs and figures.</p>
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## 6. Structural Markup/Navigation

<p>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).</p>	<p><b>Pass</b></p>
<p>Additional Information:</p>	<p><b>2/2 chapters had proper navigation of text (Ch.1, 12). However, it was difficult to figure out how to navigate using the NVDA hotkeys. The reader has to know that they have to search for links using the TAB key before they navigate to the headers and the rest of the content.</b></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><b>Pass</b></p>
<p>Additional Information:</p>	<p><b>10/10 lists were properly navigable using the NVDA hotkeys (Ch. 1(6),12(4)).</b></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</p>	<p><b>N/A</b></p>



content that is compatible with assistive technology.	
Additional Information:	<b>Not using eReader application.</b>

## 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).	<b>Pass</b>
Additional Information:	<b>10/10 tables were navigable using the NVDA hotkeys (Ch. 1(2), 12(10)). The cells of each table were navigable and the NVDA reader read the tables aloud cell by cell. However, you could not go in different directions using the directional keys, you were only able to go left to right through the cells.</b>

## 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.	<b>N/A</b>
Additional Information:	<b>All hyperlinks are live.</b>
B. Live hyperlinks take you to any website or webpages external to the book.	<b>Pass</b>
Additional Information:	<b>35/50 hyperlinks had proper functionality (Ch. 1(22), 12(13)). The remaining hyperlinks were unclickable, some did not take the user anywhere, and others were links that were not found (Ch. 1(7), 12(8)). 49/50 hyperlinks had proper description (Ch. 1(29), 12(20)). The remaining link was described as a URL.</b>
C. Live links take you to the correct webpage that is functioning properly.	<b>Pass</b>



Additional Information:	<b>35/50 hyperlinks had proper functionality (Ch. 1(22), 12(13)). The remaining hyperlinks were unclickable, some did not take the user anywhere, and others were links that were not found (Ch. 1(7), 12(8)).</b>
D. Live links are descriptive enough for the users to know where it should take them.	<b>Pass</b>
Additional Information:	<b>49/50 hyperlinks had proper description (Ch. 1(29), 12(20)). The remaining link was described as a URL.</b>

### 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.	<b>Pass</b>
Additional Information:	<b>2/2 chapters had consistent color redundancy among headers, links, and normal text (Ch. 1, 12). Headers were consistently black against white background. Links were consistently red against a white background. Normal text was consistently black against a white background.</b>
B. Information is conveyed from the sub-categories for contrast.	<b>Pass</b>
Additional Information:	<b>Headers were black against a white background. Normal text was black against a white background and links were red against a white background.</b>
C. Contrast for headers passed WCAG AA standards for large texts (contrast ratio 3:1).	<b>Pass</b>
Additional Information:	<b>Headers were black against a white background</b>
D. Contrast for text passed WCAG AA standards for normal texts (contrast ratio of 4.5:1).	<b>Pass</b>
Additional Information:	<b>Normal text was black against a white background and links were red against a white background.</b>



E. Contrast for simple images (for example, images of atoms) passed WCAG AA standards (contrast ratio of 4.5:1).	N/A
Additional Information:	<b>No simple images found.</b>

### 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.	<b>Pass</b>
Additional Information:	<b>Language markup is English</b>
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:	<b>No passage markup</b>

### 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).	<b>Fail</b>
Additional Information:	<b>0/2 chapters had non-decorative images that were described in more detail other than what was written in the caption (Ch. 1, 12). The images were not labeled as figures and were described by the NVDA reader as just "images." There was not enough information used in the caption to describe the images. There were also figures that looked like tables but were not described as tables (Fig. 1.3, 1.5).</b>
B. Decorative images are marked with null alternate text or contain markup that allows them to be ignored by assistive technology.	N/A



Additional Information:	<b>No decorative images found</b>
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).	<b>Fail</b>
Additional Information:	<b>0/2 chapters had complex images that were described in more detail other than what was written in the caption (Ch. 1, 12). The images were not labeled as figures and were described by the NVDA reader as just "images." There was not enough information used in the caption to describe the images.</b>

### **12. Multimedia**

A. A synchronized text track (e.g. open or closed captions) is provided with all video content.	<b>N/A</b>
Additional Information:	<b>No multimedia content.</b>
B. A transcript is provided with all audio content.	<b>N/A</b>
Additional Information:	<b>No multimedia content.</b>
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.	<b>N/A</b>
Additional Information:	<b>No multimedia content.</b>

### **13. Flickering**

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



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

A. STEM figures have appropriate markup that indicates that the image is a figure.	N/A
Additional Information:	No STEM content.
B. STEM graphs have appropriate markup that indicates that the image is a graph.	N/A
Additional Information:	No STEM content.
C. STEM equations have appropriate markup that indicates that the image is an equation.	N/A
Additional Information:	No STEM content.
D. STEM tables have appropriate markup that indicates the image is a table.	N/A
Additional Information:	No STEM content.
E. STEM figures have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	N/A
Additional Information:	No STEM content.
F. STEM graphs have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	N/A
Additional Information:	No STEM content.
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.
H. Assistive technology used can access the content from the STEM tables.	N/A
Additional Information:	No STEM content.



### 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.
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.
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

## 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.	<b>Fail</b>
Additional Information:	<b>No content found.</b>

## 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.	<b>Fail</b>
Additional Information:	<b>"Please log into saved materials" is read instead of selected text. Chapter 1 and 2 checked. Google Select and Speak free version used.</b>

## 3. Text Adjustment

A. Text is compatible with assistive technology.	<b>Pass</b>
Additional Information:	<b>No horizontal scroll bar needed even after 200% but there are two side scroll bars (inner most bar is for the text). Chapter 1 and 2 checked.</b>
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).	<b>Pass</b>
Additional Information:	<b>Text is readable, images are not inverted. Works on blacklist mode BUT not on enabled white list mode. Chapter 1 and 2 checked. Google "care your eyes" used.</b>

## 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).	<b>N/A</b>
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Additional Information:	<b>PDF available but no page numbers online to compare.</b>
B. If the digital resource is an electronic alternative to printed materials, the page numbers correspond to the printed material.	<b>N/A</b>
Additional Information:	<b>PDF available but no page numbers online to compare.</b>

### 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.	<b>N/A</b>
Additional Information:	<b>Needs assistive technologies.</b>

### 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).	<b>N/A</b>
Additional Information:	<b>Needs assistive technologies.</b>
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).	<b>N/A</b>
Additional Information:	<b>Needs assistive technologies.</b>
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	<b>N/A</b>



content that is compatible with assistive technology.	
Additional Information:	<b>Needs assistive technologies.</b>

### 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).	<b>N/A</b>
Additional Information:	<b>Needs assistive technologies.</b>

### 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:	<b>Table of contents links work well.</b>
B. Live hyperlinks take you to any website or webpages external to the book.	<b>Pass</b>
Additional Information:	<b>Chapters 4.1-5.3 were checked. All active, but some were URLs.</b>
C. Live links take you to the correct webpage that is functioning properly.	<b>Pass</b>
Additional Information:	<b>20/20 were active in chapters 4.1-5.3.</b>
D. Live links are descriptive enough for the users to know where it should take them.	<b>Pass</b>
Additional Information:	<b>16/20 were not URLs in chapters 4.1-5.3. Those that were URLs were in Ch 4.1, 4.2, and 5.1</b>



## 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.	<b>Pass</b>
Additional Information:	<b>Headers are bigger font and darker. Some text is italicized for emphasis. Some information is centered, such as figures. Chapters 9-10 checked.</b>
B. Information is conveyed from the sub-categories for contrast.	<b>Pass</b>
Additional Information:	<b>Text and headers meet ratio. No simple images were found.</b>
C. Contrast for headers passed WCAG AA standards for large texts (contrast ratio 3:1).	<b>Pass</b>
Additional Information:	<b>Black headers pass. Chapters 8-9 checked.</b>
D. Contrast for text passed WCAG AA standards for normal texts (contrast ratio of 4.5:1).	<b>Pass</b>
Additional Information:	<b>Dark grey, red, and italicized text pass. Chapters 3-4 checked.</b>
E. Contrast for simple images (for example, images of atoms) passed WCAG AA standards (contrast ratio of 4.5:1).	<b>N/A</b>
Additional Information:	<b>No simple images found. Chapters 10-11 checked.</b>

## 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.	<b>Pass</b>
Additional Information:	<b>Coding found: lang="en" and lang="en-US."</b>
B. If the digital resource includes passages in a foreign language, these passages include markup that declares the language in a	<b>N/A</b>



manner that is compatible with assistive technology.	
Additional Information:	<b>No passages found in foreign language.</b>

### 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).	<b>Pass</b>
Additional Information:	<b>20/20 Chapters 4 and 5 checked W3C website used.</b>
B. Decorative images are marked with null alternate text or contain markup that allows them to be ignored by assistive technology.	<b>N/A</b>
Additional Information:	<b>No decorative images found. Chapters 4 and 5 checked W3C website used.</b>
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).	<b>Pass</b>
Additional Information:	<b>8/8 Chapters 4 and 5 checked W3C website used.</b>

### 12.Multimedia

A. A synchronized text track (e.g. open or closed captions) is provided with all video content.	<b>Fail</b>
Additional Information:	<b>0/3 are helpful and in english. Chapter 4 Intro: YouTube Video "Chasers APEC Motorcade Stunt FULL"*unavailable*"; Ch 4.5 "McGurk Effect (with explanation)" *not accurate*"; Ch 4.5 "selective attention test" *not available in chinese.*</b>
B. A transcript is provided with all audio content.	<b>Fail</b>



Additional Information:	<b>0/3 are helpful and in english. Chapter 4 Intro: YouTube Video "Chasers APEC Motorcade Stunt FULL" *unavailable*; Ch 4.5 "McGurk Effect (with explanation)" *not accurate*; Ch 4.5 "selective attention test" *not available in chinese.*</b>
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.	<b>Pass</b>
Additional Information:	<b>3/3 play with no issues. Chapter 4 Intro: YouTube Video "Chasers APEC Motorcade Stunt FULL"; Ch4.5 "McGurk Effect (with explanation)"; Ch 4.5 "selective attention test."</b>

### 13. Flickering

A. The digital resource content does not contain anything that flashes more than three times in any one-second period.	<b>Pass</b>
Additional Information:	<b>Chapters 1-2 checked and pass.</b>

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

A. STEM figures have appropriate markup that indicates that the image is a figure.	<b>Pass</b>
Additional Information:	<b>10/10 marked as figures. Ch 4.</b>
B. STEM graphs have appropriate markup that indicates that the image is a graph.	<b>Fail</b>
Additional Information:	<b>0/5 marked as graphs (marked as figures instead): Figures 4.5, 4.32, 5.2, 5.13, 5.4.</b>
C. STEM equations have appropriate markup that indicates that the image is an equation.	<b>N/A</b>
Additional Information:	<b>No STEM content found.</b>
D. STEM tables have appropriate markup that indicates the image is a table.	<b>Pass</b>
Additional Information:	<b>4/4 marked as tables: Ch 4.2 and 5.2.</b>



E. STEM figures have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	<b>Pass</b>
Additional Information:	<b>Ch 4 meaningful descriptions.</b>
F. STEM graphs have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	<b>Pass</b>
Additional Information:	<b>Marked as figures but good descriptions Figures 4.5, 4.32, 5.2, 5.13, 5.4.</b>
G. STEM equations have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	<b>N/A</b>
Additional Information:	<b>No STEM content found.</b>
H. Assistive technology used can access the content from the STEM tables.	<b>Fail</b>
Additional Information:	<b>0/4 were noted with meaningful descriptions, possibly due to sufficient amount of information in the tables (CH 4.2 and 5.2).</b>

### ***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.	<b>Pass</b>
Additional Information:	<b>Tab and enter key combination works with navigation bar and text. Ch 4 checked.</b>
B. Each interactive element conveys information to assistive technology regarding the element's name, type, and status (e.g. "Play, button, selected").	<b>N/A</b>
Additional Information:	<b>No interactive elements found.</b>



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).	<b>N/A</b>
Additional Information:	<b>No interactive elements found.</b>

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