



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 (OpenStax)

Format of Textbook: HTML

Assistive Technology (AT) Evaluation Score: Overall	8.8 (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	8.9 (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 formal accessibility policy.
B. The organization providing the online materials has an accessibility statement.	Fail
Additional Information:	Did not find any information about accessibility statement.
C. An Accessibility Evaluation Report is available from an external organization.	Fail
Additional Information:	Did not find any information about formal accessibility policy.

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:	2/2 passed. Chapters 1 and 2 were checked. NVDA read content fully and did not skip any content.

3. Text Adjustment

A. Text is compatible with assistive technology.	Pass
Additional Information:	2/2 chapters were easily zoomed in and out without any disruptions up until 200%. Although, up until 300% the page header becomes so large it takes up



	half of the webpage. Chapters 12 and 13 were 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, media player, or reader) that offers this functionality).	Pass
Additional Information:	2/2 chapters passed. Ch. 12 and 13 were checked. Font and background color changed using “care your eyes.”

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).	Pass
Additional Information:	30/30 pages passed. Each paged reflowed up until 300%. Ch. 12, 13, 14, and 15 were checked. Although, up until 300% the header becomes to big and it becomes difficult to read the text.
B. If the digital resource is an electronic alternative to printed materials, the page numbers correspond to the printed material.	Fail
Additional Information:	0/30 web pages passed. No page numbers were included in the html version to compare to the pdf version.

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.	Pass
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Additional Information:	5/5 pages passed. Content was read properly using nvda. There was no content that was skipped. Ch. 4.1, ch. 4.2, ch.4.3, ch.4.5, ch.5.2 were checked.
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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>	Pass
Additional Information:	2/2 chapters passed. chapters passed. Was able to navigate through the text using nvda quick keys. Chapters 5 and 6 were checked.
<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>	Pass
Additional Information:	7/10 lists passed. You are able to navigate to the list using nvda . Nvda also read the list correctly. Ch. 3.1 (1/1), ch.4.6 (0/1), ch.6.4 (0/1), ch.7.3 (1/1), ch.8.1 (2/2), ch.8.3 (0/1), ch.8.4 (1/1), ch.12.3 (1/1) and ch.12.4 (1/1) were checked.
<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>	N/A
Additional Information:	Not using e-reader application.



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>Pass</p>
<p>Additional Information:</p>	<p>9/10 tables passed. Most tables had descriptions and was read by nvda using the ctrl + alt and arrow keys. Ch. 3.2 (1/1), ch. 6.3 (2/3), ch.7.2 (1/1), ch.7.3 (1/1), ch. 7.3 (2/2), ch. 7.4 (1/1), ch. 7.5 (1/1), and ch.8.3 (1/1) were checked.</p>

8. Hyperlinks

<p>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.</p>	<p>N/A</p>
<p>Additional Information:</p>	
<p>B. Live hyperlinks take you to any website or webpages external to the book.</p>	<p>Fail</p>
<p>Additional Information:</p>	<p>Average score between hyperlink functionality and description.</p>
<p>C. Live links take you to the correct webpage that is functioning properly.</p>	<p>Pass</p>
<p>Additional Information:</p>	<p>50/50 links passed. All links functioned properly and led the reader to the correct webpage. ch. 1.1 (2/2), ch. 1.2 (10/10), ch. 1.3 (10/10), ch. 1.4 (4/4), ch. 2.1 (7/7), ch. 2.2 (6/6), ch. 2.3 (11/11) were checked.</p>
<p>D. Live links are descriptive enough for the users to know where it should take them.</p>	<p>Fail</p>
<p>Additional Information:</p>	<p>8/50 links passed. Majority of links were simply titled as "figure." Ch 1.1 (0/2), ch. 1.2 (1/10), ch. 1.3 (1/10), ch. 1.4 (0/4), ch. 2.1 (2/7), ch. 2.2 (1/6), ch. 2.3 (3/11) were checked.</p>



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:	2/2 chapters passed. Headings were indicated by blue and larger font. Also all hyperlinks were underlined. Chapters 3 and 4 were checked.
B. Information is conveyed from the sub-categories for contrast.	Pass
Additional Information:	2/2 chapters passed. Chapters 5 and 6 were checked and passed AA and AAA requirements.
C. Contrast for headers passed WCAG AA standards for large texts (contrast ratio 3:1).	Pass
Additional Information:	2/2 chapters passed. Chapters 5 and 6 were checked and passed AA and AAA requirements.
D. Contrast for text passed WCAG AA standards for normal texts (contrast ratio of 4.5:1).	Pass
Additional Information:	2/2 chapters passed. Chapters 5 and 6 were checked and passed AA and AAA requirements.
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.

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.	Pass
Additional Information:	Did find "lang=en-US" in the code.



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:	Did not find any foreign languages.

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).	Pass
Additional Information:	2/2 chapters passed. NVDA was able to read the text inside the "img alt" and there was enough descriptions to convey what the image was. Ch. 1 and 2 were checked.
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:	No decorative images found.
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).	Pass
Additional Information:	2/2 chapters passed. NVDA was able to read the text inside the "img alt" and there was enough descriptions to convey what the image was. Ch. 3 and 4 were checked.

12.Multimedia

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

13.Flickering

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

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

A. STEM figures have appropriate markup that indicates that the image is a figure.	Pass
Additional Information:	10/10 figures passed. Figures were marked as figures. Ch. 5.2 (5/5) and ch. 5.3 (5/5) were checked.
B. STEM graphs have appropriate markup that indicates that the image is a graph.	Fail
Additional Information:	0/10 graphs passed. Checked 4.1 (0/1), ch. 4.2 (0/1), ch. 4.3 (0/7), ch. 5.3 (0/1). Graphs were identified as graphs by nvda in the img/jpg alt and there were markups found. Although, they were marked as figures not as graphs.
C. STEM equations have appropriate markup that indicates that the image is an equation.	N/A
Additional Information:	No equations found ch. 1-16 were checked.
D. STEM tables have appropriate markup that indicates the image is a table.	Pass



Additional Information:	10/10 tables passed. Ch. 3.2 (0/1), ch. 4.1 (0/1), ch. 6.3 (0/3), ch.7.3 (0.2), ch. 7.4 (0/1), ch. 7.5 (0/1) and ch. 8.3 (0/1) were checked. There were table markups 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 figures passed. Figures were read correctly using nvda ch. 5.2 (5/5) and ch. 5.3 (5/5) were checked. Figure notation markup was found and NVDA was able to read out descriptions.
F. STEM graphs have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	Fail
Additional Information:	0/10 graphs passed. Checked 4.1 (0/1), ch. 4.2 (0/1), ch. 4.3 (0/7), ch. 5.3 (0/1). Graphs had good descriptions and were read by nvda. Although, they were marked as figures not as graphs.
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. Ch. 1-16 checked.
H. Assistive technology used can access the content from the STEM tables.	Fail
Additional Information:	0/10 tables passed. Were read correctly using NVDA Ch. 3.2 (0/1), ch. 4.1 (0/1), ch. 6.3 (0/3), ch.7.3 (0.2), ch. 7.4 (0/1), ch. 7.5 (0/1) and ch. 8.3 (0/1) were checked. There were no notation markups found to describe the tables.

15. Interactive Elements

A. Each interactive element (e.g. menu, hyperlink, button) and function (e.g.	N/A
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annotations) allows keyboard-only operation both with and without assistive technology.	
Additional Information:	No interactive keyboard elements found in book.
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 markup elements found in book.
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 text elements found in book.

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
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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:	Text that is selected is read. Chapter 9 and 10 checked. Google Select and Speak free version used.

3. Text Adjustment

A. Text is compatible with assistive technology.	Pass
Additional Information:	Text adjusts even after 200%, no horizontal scroll needed. Chapter 9 and 10 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, media player, or reader) that offers this functionality).	Pass
Additional Information:	Text is readable. Images are not inverted. Chapter 9 and 10 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:	PDF available but there are no page numbers online to compare to.
B. If the digital resource is an electronic alternative to printed materials, the page numbers correspond to the printed material.	N/A



Additional Information:	PDF available but there are no page numbers online to compare to.
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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

<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>Needs assistive technologies.</p>

8. Hyperlinks

<p>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.</p>	
<p>Additional Information:</p>	<p>Table of contents links work well.</p>
<p>B. Live hyperlinks take you to any website or webpages external to the book.</p>	<p>Pass</p>
<p>Additional Information:</p>	<p>Ch 2.1-4.1 pass.</p>
<p>C. Live links take you to the correct webpage that is functioning properly.</p>	<p>Pass</p>
<p>Additional Information:</p>	<p>19/20 work. Links from chapter 2.1 to 4.1 checked. "Interview" link on Ch3.1 leads to YouTube but not an exact video.</p>
<p>D. Live links are descriptive enough for the users to know where it should take them.</p>	<p>Pass</p>
<p>Additional Information:</p>	<p>20/20 links from Ch2.1-4.1 do not use URLs. Some use "website" or "video" as descriptions.</p>

9. Color and Contrast

<p>A. All information within the material that is conveyed using color is also available in a manner that is compatible with those that do</p>	<p>Pass</p>
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not perceive color, and information conveyed by color is also conveyed in other ways.	
Additional Information:	Headers are a bigger font and darker. Links are underlined. Italics are used in text. Chapters 1 and 2 checked.
B. Information is conveyed from the sub-categories for contrast.	Pass
Additional Information:	Chapters 1-2 headers and text pass. No simple images found.
C. Contrast for headers passed WCAG AA standards for large texts (contrast ratio 3:1).	Pass
Additional Information:	Dark grey headers pass. Chapters 1-2.
D. Contrast for text passed WCAG AA standards for normal texts (contrast ratio of 4.5:1).	Pass
Additional Information:	Text passes. Chapters 1-2.
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. Chapters 1 and 2.

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.	Pass
Additional Information:	Coding shows lang="en-US"
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 in foreign language.



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>Pass</p>
<p>Additional Information:</p>	<p>38/38 Chapters 1 and 2 checked. W3C validator website used.</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>Pass</p>
<p>Additional Information:</p>	<p>1/1 Chapters 1 and 2 checked. W3C validator website used.</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 player, or reader) that offers this functionality).</p>	<p>Pass</p>
<p>Additional Information:</p>	<p>1/1 Chapters 1 and 2 checked. W3C validator website used.</p>

12.Multimedia

<p>A. A synchronized text track (e.g. open or closed captions) is provided with all video content.</p>	<p>Fail</p>
<p>Additional Information:</p>	<p>0/3 Ch1.1 YouTube video "Reprogramming Our Circadian Rhythms for the Modern World" *english automated captions no accurate*; Ch1.2 YouTube video about Carl Rogers is private; Ch1.3 YouTube video "1.2 - Lesson 1 - introduction to cognitive psychology" *no captions available.*</p>
<p>B. A transcript is provided with all audio content.</p>	<p>Fail</p>
<p>Additional Information:</p>	<p>Ch 1.1 YouTube video "Reprogramming Our Circadian Rhythms for the Modern World" *transcript available but not accurate*; Ch 1.2 YouTube video about Carl Rogers is private; Ch 1.3 YouTube video</p>



	"1.2 - Lesson 1 - introduction to cognitive psychology" *no transcript available.*
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.	Fail
Additional Information:	2/3 Same videos as above. The Ch1.2 video is private thus not viewable. The Ch1.3 Video plays music (uses no words thus does not have captions nor a transcript).

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:	Chapters 1-3 checked.

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

A. STEM figures have appropriate markup that indicates that the image is a figure.	Pass
Additional Information:	10/10 marked as figures. Ch 1.
B. STEM graphs have appropriate markup that indicates that the image is a graph.	Fail
Additional Information:	0/2 marked as graphs marked as figures instead. Ch 1.4 and 2.3.
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.	Fail
Additional Information:	0/1 marked as table (marked in the text instead) Ch 1.4.



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 described meaningfully Ch 1.
F. STEM graphs have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	Pass
Additional Information:	Notation is good but markup is "figure" Ch 1.4, 2.3.
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.	Pass
Additional Information:	Described in text Ch 1.4.

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.	Pass
Additional Information:	Tab and enter key work on navigation bar and in the text.
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	N/A



by an application such as a browser, media player, or reader that offers this functionality).	
Additional Information:	No interactive elements found.

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