



## 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:** Cognitive Development in Childhood  
**Format of Textbook:** HTML

<b>Assistive Technology (AT) Evaluation Score: Overall</b>	<b>8.9 (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>7.6 (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 anything about NODA's accessibility policy.</b>
B. The organization providing the online materials has an accessibility statement.	<b>Fail</b>
Additional Information:	<b>Does not state any legal terms about accessibility.</b>
C. An Accessibility Evaluation Report is available from an external organization.	<b>Fail</b>
Additional Information:	<b>Did not find anything about their 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 (Nature and Nurture, Does Cognitive Development Progress Through Direct Stages?) were read properly by the NVDA assistive technology without any text or figures skipped.</b>

### 3. Text Adjustment

A. Text is compatible with assistive technology.	<b>Pass</b>
Additional Information:	<b>2/2 chapters (Nature and Nurture, Does Cognitive Development Progress Through Direct Stages?) were</b>



	able to zoom in and out properly without horizontal scrolling.
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:	All of the text and the background of the textbook was able to change colors. However, the figures did not change color with the Care your Eyes program. The only figure that changed colors was the picture of the textbook's author.

#### 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:	Since the textbook was not sectioned into separate webpages, I counted the whole textbook as one webpage. The whole textbook had good reflow of all the text while in normal viewing and when zoomed in or out.
B. If the digital resource is an electronic alternative to printed materials, the page numbers correspond to the printed material.	N/A
Additional Information:	

#### 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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<p>Additional Information:</p>	<p>Since the textbook was not sectioned into separate webpages, I counted the whole textbook as one webpage. Whenever there were figures, it was difficult to tell where the NVDA reader was reading from because the figures were not labeled as figures. You also did not know that the figure being read was a picture until the end of the caption that was read aloud. These parts were the only parts that I felt were not read in a logical order, especially since the NVDA assistive technology went from the text directly into the caption of the 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 were good for navigating through the text. A person would be able to use just their hotkeys to navigate through the whole textbook.</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>6/6 lists are navigable using only NVDA hotkeys. The lists could be read item by item.</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 content that is compatible with assistive technology.</p>	<p><b>N/A</b></p>



Additional Information:	
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### 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:	

### 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.	N/A
Additional Information:	
B. Live hyperlinks take you to any website or webpages external to the book.	Pass
Additional Information:	<b>8/50 hyperlinks did not work. 5 of the hyperlinks that did not work were located in the Sections Menu on the right-hand side of the textbook website. While navigating through the hyperlinks with the keyboard and the mouse, I was not able to navigate through the textbook by clicking on the links. It just kept going back to the abstract at the top of the textbook webpage. The side menu also does not match where you are at when you are navigating through the headings in the textbook. The other 3 hyperlinks that did not work were just broken links that did not lead to a pop up window that described the link.</b>
C. Live links take you to the correct webpage that is functioning properly.	Pass
Additional Information:	<b>8/50 hyperlinks did not work. 5 of the hyperlinks that did not work were located in the Sections Menu on</b>



	<p>the right-hand side of the textbook website. While navigating through the hyperlinks with the keyboard and the mouse, I was not able to navigate through the textbook by clicking on the links. It just kept going back to the abstract at the top of the textbook webpage. The side menu also does not match where you are at when you are navigating through the headings in the textbook. The other 3 hyperlinks that did not work were just broken links that did not lead to a pop up window that described the link.</p>
D. Live links are descriptive enough for the users to know where it should take them.	Pass
Additional Information:	50/50 hyperlinks had good description of the hyperlinks rather than just describing it as a URL.

### 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 (Nature and Nurture, Applications to Education) had good color redundancy in the text, headings, hyperlinks, and the references of the textbook.
B. Information is conveyed from the sub-categories for contrast.	Pass
Additional Information:	2/2 chapters (Nature and Nurture, Applications to Education) had good contrast levels. Although a few of the simple images did not pass the color contrast analyzer evaluation, the simple images are just a small part of the textbook, therefore I rate it as a 9.
C. Contrast for headers passed WCAG AA standards for large texts (contrast ratio 3:1).	Pass



Additional Information:	<b>All of the headers in the textbook were in black font with white background and therefore passed the colour contrast analyzer evaluation.</b>
D. Contrast for text passed WCAG AA standards for normal texts (contrast ratio of 4.5:1).	<b>Pass</b>
Additional Information:	<b>All of the text in the textbook were in black font with a white background allowing the textbook to pass the colour contrast analyzer. The hyperlinks did not pass though because they were in red font color.. However, the hyperlinks did not make up the majority of the textbook, that is why I rate it as a 9.</b>
E. Contrast for simple images (for example, images of atoms) passed WCAG AA standards (contrast ratio of 4.5:1).	<b>Fail</b>
Additional Information:	<b>Simple images throughout the textbook did not pass the Colour contrast analyzer because the colors in the images were too light. However, since the images did not make up the majority of the textbook, it did not have a large effect on its rating.</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>The markup language is in 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.	<b>N/A</b>
Additional Information:	



## 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><b>Fail</b></p>
<p>Additional Information:</p>	<p><b>5/6 figures that I found in the whole textbook were not labeled as figures, just labeled as a photo but it was not distinguished as a photo until the end of the captions. When read aloud, the person reading the textbook may get lost because the NVDA readers just jumps from the text directly into the caption of the photos. 6/6 figures were also not read in more detail other than just the caption beneath the figure.</b></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><b>N/A</b></p>
<p>Additional Information:</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><b>Fail</b></p>
<p>Additional Information:</p>	<p><b>5/6 figures that I found in the whole textbook were not labeled as figures, just labeled as a photo but it was not distinguished as a photo until the end of the captions. When read aloud, the person reading the textbook may get lost because the NVDA readers just jumps from the text directly into the caption of the photos. 6/6 figures were also not read in more detail other than just the caption beneath the figure.</b></p>

## 12.Multimedia

<p>A. A synchronized text track (e.g. open or closed captions) is provided with all video content.</p>	<p><b>N/A</b></p>
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Additional Information:	
B. A transcript is provided with all audio content.	<b>N/A</b>
Additional Information:	
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:	

### ***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.	<b>N/A</b>
Additional Information:	
B. STEM graphs have appropriate markup that indicates that the image is a graph.	<b>N/A</b>
Additional Information:	
C. STEM equations have appropriate markup that indicates that the image is an equation.	<b>N/A</b>
Additional Information:	
D. STEM tables have appropriate markup that indicates the image is a table.	<b>N/A</b>
Additional Information:	
E. STEM figures have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	<b>N/A</b>



Additional Information:	
F. STEM graphs have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	N/A
Additional Information:	
G. STEM equations have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	N/A
Additional Information:	
H. Assistive technology used can access the content from the STEM tables.	N/A
Additional Information:	

### ***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:	<b>10/10 interactive elements worked with just navigating through the textbook with a keyboard.</b>
B. Each interactive element conveys information to assistive technology regarding the element's name, type, and status (e.g. "Play, button, selected").	Pass
Additional Information:	<b>10/10 interactive elements were marked up as links, however, I was expecting the link to take me somewhere rather than just having a pop-up menu about the link. I was expecting to be taken to another website.</b>
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:	

## 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.	<b>Fail</b>
Additional Information:	<b>Nothing found</b>
B. The organization providing the online materials has an accessibility statement.	<b>Fail</b>
Additional Information:	<b>Nothing found</b>
C. An Accessibility Evaluation Report is available from an external organization.	<b>Fail</b>
Additional Information:	<b>Nothing 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>Pass</b>
Additional Information:	<b>Ch. 1 and 2.</b>

### *3. Text Adjustment*

A. Text is compatible with assistive technology.	<b>Pass</b>
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Additional Information:	<b>At zoom levels 125% and 150% the navigation buttons get in the way, but at 200% the buttons are compacted into an expandable menu button so they are no longer in the way.</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>All text and bg color changes, ch. 1 and 2.</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>Entire book.</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.</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>Need assistive technology.</b>

#### **6. Structural Markup/Navigation**

A. The text of the digital resource includes markup (e.g. tags or styles) that allows for	<b>N/A</b>
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<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><b>Need assistive technology.</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>N/A</b></p>
<p>Additional Information:</p>	<p><b>Need assistive technology.</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 content that is compatible with assistive technology.</p>	<p><b>N/A</b></p>
<p>Additional Information:</p>	<p><b>Need assistive technology.</b></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><b>N/A</b></p>
<p>Additional Information:</p>	<p><b>Need assistive technology.</b></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</p>	<p><b>N/A</b></p>
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embedded links take you to the correct location in the book.	
Additional Information:	<b>All HTML links are live.</b>
B. Live hyperlinks take you to any website or webpages external to the book.	<b>Pass</b>
Additional Information:	<b>Some links don't work.</b>
C. Live links take you to the correct webpage that is functioning properly.	<b>Pass</b>
Additional Information:	<b>Titles 3-7 in the "table of contents" take you back to the top of the page instead of to their respective section. Sometimes none of the links in the "table of contents" work and I have to refresh the page to fix the issue. Instructor Resources work as expected.</b>
D. Live links are descriptive enough for the users to know where it should take them.	<b>Pass</b>
Additional Information:	<b>All links have descriptive text.</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>Fail</b>
Additional Information:	<b>There are several phrases in orange that can be moused over for more information and there are links at the bottom of the page (bottom of the entire book) as well as one hyperlink. There is no way to tell that these words are interactive without seeing the color of the text.</b>
B. Information is conveyed from the sub-categories for contrast.	<b>Pass</b>
Additional Information:	<b>Not being able to see the images would mean missing out on examples.</b>



C. Contrast for headers passed WCAG AA standards for large texts (contrast ratio 3:1).	<b>Pass</b>
Additional Information:	<b>All headers pass.</b>
D. Contrast for text passed WCAG AA standards for normal texts (contrast ratio of 4.5:1).	<b>Pass</b>
Additional Information:	<b>All text passes.</b>
E. Contrast for simple images (for example, images of atoms) passed WCAG AA standards (contrast ratio of 4.5:1).	<b>Fail</b>
Additional Information:	<b>In the 5th section of the book there are images of trees and insects which fail against the white background.</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 found.</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.	<b>N/A</b>
Additional Information:	<b>No foreign languages.</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>No img errors.</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.</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>The two images in the 5th section of the book (depicting Piaget's stages) do not have an alt tag in the source code.</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.</b>
B. A transcript is provided with all audio content.	<b>N/A</b>
Additional Information:	<b>No multimedia.</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.</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:	
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:	



### 15. Interactive Elements

<p>A. Each interactive element (e.g. menu, hyperlink, button) and function (e.g. annotations) allows keyboard-only operation both with and without assistive technology.</p>	<p><b>Pass</b></p>
<p>Additional Information:</p>	<p><b>Can tab through interactive content and interact with it, but it's hard to tell where I am at any given time. The "table of contents" on the right side of the page never gets selected.</b></p>
<p>B. Each interactive element conveys information to assistive technology regarding the element's name, type, and status (e.g. "Play, button, selected").</p>	<p><b>N/A</b></p>
<p>Additional Information:</p>	<p><b>No interactive elements.</b></p>
<p>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).</p>	<p><b>N/A</b></p>
<p>Additional Information:</p>	<p><b>No interactive elements.</b></p>

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