



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: Writing Commons
Format of Textbook: HTML

Assistive Technology (AT) Evaluation Score: Overall	7.7 (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	7.5 (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 Writing Commons's Formal Accessibility Policy.
B. The organization providing the online materials has an accessibility statement.	Fail
Additional Information:	Did not find any information about Writing Commons's Accessibility Statement.
C. An Accessibility Evaluation Report is available from an external organization.	Fail
Additional Information:	Did not find any information about Writing Commons'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:	5/7 chapters are read aloud properly by the NVDA system (Information Literacy, Delivering the Speech, Consider your audience, Scientific Review and Recommendations, Invent). No text is skipped and all the text is read in a logical order for users to understand. One problem that was found was that when there was a space between the end of one section and the next section in the "What to think about when writing for particular audience" Chapter, the space was read aloud by the NVDA program as "Heading." In the "Library and Internet Research"



	<p>chapter, all of the text in the whole page was skipped. The NVDA program read the top heading down to the middle of the page then did not continue reading the rest of the text. Instead it skipped all the way down to the bottom menu of the page.</p>
--	---

3. Text Adjustment

<p>A. Text is compatible with assistive technology.</p>	<p>Pass</p>
<p>Additional Information:</p>	<p>7/7 chapters are able to adjust the text size. The textbook is able to zoom in and out without any problems with horizontal zooming (Information Literacy, Library and Internet Research, Delivering the Speech, Consider your audience, What to think about when writing for particular audience, Scientific Reviews and Recommendations, Invent).</p>
<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>7/7 chapters were able to adjust background and font color (Information Literacy, Library and Internet Research, Delivering the Speech, Consider your audience, What to think about when writing for particular audience, Scientific Reviews and Recommendations, Invent).</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>
---	--------------------



Additional Information:	30/30 webpages were able to zoom in and out with no problems with the reflow of the text. Horizontal scrolling was not required to read the text in the webpages and all of the text was complete and continued properly in the following lines even when zoomed in to 200%.
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.	Fail
Additional Information:	3/5 pages had proper reading order in the textbook (Consider your Audience, Delivering the Speech, Invent). These pages were read in a logical order that users would be able to understand and no content was skipped. The remaining two pages, however, had pages that skipped chunks of text and spaces were read aloud as "Headings" (Library and Internet Research, What to think about when writing for particular audience). One problem that was found was that when there was a space between the end of one section and the next section in the "What to think about when writing for particular audience" Chapter, the space was read aloud by the NVDA program as "Heading." In the "Library and Internet Research" chapter, all of the text in the whole page was skipped. The NVDA program read the top heading down to the middle of the page then did not continue reading the rest of the text. Instead it skipped all the way down to the bottom menu of the page.



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>Pass</p>
<p>Additional Information:</p>	<p>6/7 chapters are navigable through headings, lists, and links by using the NVDA hotkeys (Information Literacy, Library and Internet Research, Delivering the Speech, Consider your audience). Only chapter out of the ones that were evaluated was unable to navigate through the lists of the textbook (Using Databases). Even though there were lists available to navigate to on the page, the NVDA program said that there were "No lists available."</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>8/10 lists were navigable using the NVDA hotkeys (What are new literacies? (3), Understanding opposing...(2), Develop Effective Writing (2), What to think...) Two lists were unnavigable using the NVDA hotkeys (Using Databases, Introduce Evidence). Even though there were lists available to navigate to on the page, the NVDA program said that there were "No lists available."</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>	



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>3/3 tables that were found were navigable using the NVDA hotkeys in the textbook while going from the normal text to the table (Scientific Reviews and Recommendations (2), Invent) However, when navigating through the actual tables, I was not able to go in other directions besides left and right even while using the up and down directional hot keys. Even when I pushed the up and down directional keys, I was only able to go left and right through the tables's cells.</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>Pass</p>
<p>Additional Information:</p>	<p>50/50 live hyperlinks were functional, most of which were in the first chapter (What are new literacies? (43), Scientific Posters). They all directed the user to the proper website on the internet and had no errors. 43/50 live hyperlinks had proper description of the links. These links were labeled in a way that users would be able to predict where they were going to end up online. However, the remaining 7 hyperlinks in the "Scientific Posters" chapter did not</p>



	<p>have proper descriptions that described where the links would take the users. Instead, it listed the links as URLs. I would also suggest that links should be in another color besides black, such as blue, so that users can easily distinguish links from the rest of the text.</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 live hyperlinks were functional, most of which were in the first chapter (What are new literacies? (43), Scientific Posters). They all directed the user to the proper website on the internet and had no errors.</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>43/50 live hyperlinks had proper description of the links. These links were labeled in a way that users would be able to predict where they were going to end up online. However, the remaining 7 hyperlinks in the "Scientific Posters" chapter did not have proper descriptions that described where the links would take the users. Instead, it listed the links as URLs. I would also suggest that links should be in another color besides black, such as blue, so that users can easily distinguish links from the rest of the text.</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 not perceive color, and information conveyed by color is also conveyed in other ways.</p>	<p>Pass</p>
<p>Additional Information:</p>	<p>7/7 chapters had proper color redundancy with text, headings, and links in black (Information Literacy, Library and Internet Research, Delivering the Speech, Consider your audience, What to think about when</p>

	<p>writing for particular audience, Scientific Reviews and Recommendations, Invent). However, I would suggest that the links should be in another color, such as blue so that they stand out from the rest of the text.</p>
B. Information is conveyed from the sub-categories for contrast.	Pass
Additional Information:	<p>Headers were in black against a white background. Normal text and links were in black against a white background.</p>
C. Contrast for headers passed WCAG AA standards for large texts (contrast ratio 3:1).	Pass
Additional Information:	<p>Headers were in black against a white background.</p>
D. Contrast for text passed WCAG AA standards for normal texts (contrast ratio of 4.5:1).	Pass
Additional Information:	<p>Normal text and links were in black against a white background.</p>
E. Contrast for simple images (for example, images of atoms) passed WCAG AA standards (contrast ratio of 4.5:1).	N/A
Additional Information:	<p>Images had more than 3 colors</p>

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:	<p>The language markup is "en-gb"</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.	Pass
Additional Information:	<p>The language markup is "en-gb"</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>0/7 chapters had non-decorative images that were marked or described as figures. Rather, they were described as "graphics" by the NVDA reader with no additional information to describe the images. The images also did not have any captions that the NVDA reader could read aloud as well.</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>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>Fail</p>
<p>Additional Information:</p>	<p>0/7 chapters had complex images that were marked or described as figures. Rather, they were described as "graphics" by the NVDA reader with no additional information to describe the images. The images also did not have any captions that the NVDA reader could read aloud as well.</p>

12.Multimedia

<p>A. A synchronized text track (e.g. open or closed captions) is provided with all video content.</p>	<p>Pass</p>
<p>Additional Information:</p>	<p>3/3 multimedia had proper closed captioning in the videos that were posted in the textbook (Information Literacy(2), Library and Internet Research).</p>
<p>B. A transcript is provided with all audio content.</p>	<p>Fail</p>



Additional Information:	0/3 multimedia had transcript for the videos that were in the textbook (Using Databases, Develop Effective Writing, Think Rhetorically).
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:	

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.	N/A
Additional Information:	
B. STEM graphs have appropriate markup that indicates that the image is a graph.	N/A
Additional Information:	
C. STEM equations have appropriate markup that indicates that the image is an equation.	N/A
Additional Information:	
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:	



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.	N/A
Additional Information:	
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:	
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:	



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:	There was no URL to the Formal Accessibility Policy provided.
B. The organization providing the online materials has an accessibility statement.	Fail
Additional Information:	There was no URL to the Accessibility Statement.
C. An Accessibility Evaluation Report is available from an external organization.	Fail
Additional Information:	There was no URL 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:	All content checked passed text to speech.

3. Text Adjustment

A. Text is compatible with assistive technology.	Pass
Additional Information:	200+ the menu get mess up and block other content. However, the standard only require to check up to 200% so it passed.
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:	All content checked were able to adjust color.

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:	200+ the menu get mess up and block other content. However, the standard only require to check up to 200% so it passed.
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 PDF or printed material available.

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:	No source code provided, cannot evaluate.

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:	No source code provided, cannot evaluate.
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:	No source code provided, cannot evaluate.
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:	No additional eReader used.

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:	No source code provided, cannot evaluate.

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:	All within book links are considered live links.
B. Live hyperlinks take you to any website or webpages external to the book.	Pass



Additional Information:	Average
C. Live links take you to the correct webpage that is functioning properly.	Pass
Additional Information:	All links functioned properly.
D. Live links are descriptive enough for the users to know where it should take them.	Fail
Additional Information:	None of the links are descriptive enough.

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:	3/3 chapters passed. Chapter 1, 9, 17 the headings and subheading are different colors and sizes, if someone is color blind they can tell there is a difference like heading vs. body text, but within the body there are blue text and they are not underlined or told in any other element.
B. Information is conveyed from the sub-categories for contrast.	Pass
Additional Information:	All information checked have color redundancy.
C. Contrast for headers passed WCAG AA standards for large texts (contrast ratio 3:1).	Pass
Additional Information:	Chp 2, 9 checked, all headers passed AA standard.
D. Contrast for text passed WCAG AA standards for normal texts (contrast ratio of 4.5:1).	Pass
Additional Information:	Chp 2, 9 checked, all text passed AA standard.
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.



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:	Language markups was found.
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 secondary 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:	Chp 2, 9 none of the images checked has alternative texts, only have null alt statements; two logos have alt text.
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:	Chp 2, 9 No decorative images.
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).	N/A
Additional Information:	Chp 2, 9 No complex images.



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 found.
B. A transcript is provided with all audio content.	N/A
Additional Information:	No Multimedia 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 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.	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	N/A



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

© 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.