EBSCO eBooks updated response to BTAA/LAA review (May 2021)

Big Ten Academic Alliance conducted a review of EBSCO eBooks in April, 2017. Since this time, EBSCO has invested a great deal in enhancing the accessibility of EBSCO eBooks. Some work is still in progress, but this updated response will address progress to date and forthcoming updates.

Overview

Testing: In addition to the 2017 review by BTAA, EBSCO has commissioned or received audits from several sources:

- 2019 test by Deque Systems of EBSCO eBooks
- 2020 review by Library Accessibility Alliance of EBSCOhost search and retrieve detailed record (Academic Search, not including eBook viewing)
- 2020 test by Deque Systems of EBSCOhost search and retrieve detailed record (Academic Search, not including eBook viewing)
- User testing with users who are blind
- Regular internal manual and automated review of EBSCO eBooks/EBSCOhost using screen readers and axe accessibility checker

Most of the issues identified have been fixed in the eBook experience, but some work is ongoing in the search, retrieve and user folder/preferences areas of EBSCOhost. Some issues still exist within the eBook content itself, where the publisher-supplied files contain limitations with regard to accessibility. EBSCO is an aggregator and is working with publishers to provide the most accessible content possible. PDF content remains a challenging area since tagged content cannot be rendered in the online viewer, and offline viewing is restricted by DRM readers. EBSCO maintains a fully-featured online EPUB viewer to maximize the accessibility features available to users and provide them an alternative to PDF.

Status of issues identified in BTAA review of EBSCO eBooks

Top issues:

1. Challenges raised to consult an ebook resource using NVDA
   a. EBSCO response: This has been resolved for EPUB content. Document semantics are available as provided by the publisher in our online viewer, and as exposed by DRM readers in offline reading. EBSCO provides an EPUB accessibility report, by title, to all of our publishers in an effort to promote more accessible content.
2. Objects not being accessible to keyboard only users
   a. EBSCO response: This has been fully resolved as of March 2021
3. Keyboard focus not being managed in a way that facilitates wayfinding for screen readers.
   a. EBSCO response: This has been fully resolved as of Q4 2020.

Detailed Issues from the initial Big Ten review that have been fixed to date:

1. **WCAG 2.1.1 -** All accesskeys (when used) in the document must be unique. Put another way, accesskeys must not be repeated to prevent unexpected effects for keyboard users. Pages have multiple elements with the same accesskey attribute values.
   a. Access keys have been retired in EBSCOhost and EBSCO eBooks
2. **WCAG 2.4.1 -** Each page must offer a mechanism to bypass repeated blocks of content or interface elements (like header and navigation) and quickly arrive at the main content.
   a. Skip links have been added throughout EBSCO eBooks. Headings and landmarks are also available to skip content.
3. **WCAG 4.1.1 -** ARIA attributes (i.e. starting with aria-) must have valid names. Referring to a misspelled attribute or to one that does not exist will result in an invalid attribute and thus failure of this Rule. There are occurrences of an attribute mislabeled as "aria-haspop".
   a. All invalid aria attributes have been fixed in EBSCO eBooks
4. **WCAG 2.4.4 –** The purpose of many links and calls to action in the pages are not meaningful, even within their immediate contexts. Providing complementary information would help distinguish the links or calls to action, as they are all labeled the same way.
   a. Contextual complementary information has been added to repeating, generic links. An exception is any case inside publisher-provided content.
5. **WCAG 3.3.2 -** The dropdown menus for "And, "Or" and "Not" are not assigned text label that allows users to easily understand the purpose of these controls.
   a. The Boolean dropdown for search inputs has been updated to include a text label
6. **WCAG 1.3.1 –** The tables provided in the "Subject", "Publishers' and "Category" modal windows do not have proper association for table header cells and data cells. As a result, the header cells are not conveyed when navigating through the tables.
   a. The modal windows for these filters have been updated to include proper table header associations
7. **WCAG 2.1.1 –** The slider provided in the left column for the "Limit to" section cannot be operated using only the keyboard.
   a. The slider for filters has been updated to be keyboard operable
8. **WCAG 2.1.1 -** The up and down arrows in the "Category" modal window are not keyboard operable and require a mouse to operate.
   a. These arrow buttons were removed, as they were redundant with the scroll bar.
9. **WCAG 2.4.3 –** When a filtering option is chosen (sort by or page options dropdowns), the page is updated and the keyboard focus is sent back at the top of the page, meaning screen reader users (as well as keyboard users) need to make their way back to the search results again. Expectation is that the focus will be set on the search results when filters are applied, to facilitate navigation.
   a. This behavior was changed to maintain focus on the activated filter, rather than to initiate a change of context by sending focus to the result list.
10. **WCAG 4.1.2 -** Assistive technology users such as screen reader users are not being made aware that a filter has been applied to the page once one of the sorting options have been selected. The same I true of the "Add results to folder" feature – screen reader users are not being confirmed that this action has been successfully completed (while sighted users are given a visual confirmation).
    a. An alert now notifies screen readers of the change of context
11. **WCAG 4.1.2 -** Triggering the "Sort by", "Page options" , or "Share" buttons with the keyboard does not announce the state of the newly displayed modals back to screen reader users.

a. Focus is managed to these modals now to ensure the screen reader is aware they have been displayed. It is no longer possible to navigate behind the modal version of these controls while open.

12. **WCAG 1.3.1** – In the Email non-modal dialog window, dropdown menus are associated with some of the options in the radio buttons grouping. These dropdowns do not have programmatic labels assigned to them.
    a. Programmatic labels have been added to these dropdown controls

13. **WCAG 3.3.1** - In the Email non-modal dialog window, when the form is submitted and errors are returned, focus is not set to the error messages and as a result, screen reader users cannot tell if error were returned and have no way to confirm if submitting the form was a success.
    a. Screen reader users are now notified of these errors.

14. **WCAG 1.3.1 -** Certain aria roles are being used without their expected counterparts, such as the tablist role being used without a tab role on the child element.
    a. This occurred in the table of contents/search within/notes panel on the ebook viewer. This page section was rebuilt and now includes the proper aria roles and expected counterparts

15. **WCAG 2.4.1 -** Frames and iframes must be assigned meaningful title attribute values to clearly announce their content to users of assistive technologies.
    a. The ebook viewer iframes now include a proper title attribute

16. **WCAG 4.1.1 -** Elements must only use allowed ARIA roles. Some aria roles are misused on certain elements, potentially causing screen readers to misinterpret content.
    a. All identified misuses of aria have been corrected

17. **WCAG 1.3.1 –** Groups of radio buttons are not programmatically associated with their common group labels. The group labels are not identified as such to assistive technologies.

    a. Group label issues have been fixed in EBSCO eBooks. There are some remaining grouping issues on the Advanced Search page that will be fixed in Q1 2021.

18. **WCAG 1.3.1 -** All checkbox groups must have either a proper aria-labelledby value for all group members, or a proper containing <fieldset> or ARIA group to associate them programmatically for screen reader users.
    a. Checkboxes in EBSCO eBooks now have group names. There are some grouped fields on the Advanced Search page that will be fixed in Q1 2021.

19. **WCAG 4.1.1 -** ID attribute values must be unique. Some ID values are duplicated in this page.
    a. All duplicate IDs have been fixed in EBSCO eBooks, with the exception of a duplicate ID inside the pdf.js PDF viewer, which is a third party tool. Note that there are still known duplicate IDs in parts of EBSCOhost.

20. **WCAG BP -** Elements should have tabindex values set to 0 or -1 only. Positive integers should be avoided to facilitate navigation using the keyboard.
    a. Any positive tabindex values have been changed or removed.

21. **WCAG 2.1.1 -** While clicking on any of the elements in the table of content on the left moves the user to the corresponding page in the resource, doing so with the keyboard yields no results.
    a. This behavior has been updated to manage focus to the newly displayed content.

22. **WCAG 2.4.7 -** The visible focus is often lost in this page, when tabbing only with the keyboard. As a result, sighted keyboard only users are struggling to find where they are in the page. This makes navigation more difficult.
    a. All cases of missing visible focus have been addressed.

23. **WCAG 1.1.1 -** All images must have alternate text to convey their purpose and meaning to screen reader users. The EBSCO Host image has poor alt text value assigned to it.
    a. The EBSCOhost logo now has proper alt text.
24. **WCAG 3.3.2 -** Keyboard has a tab stop between the search button and the help icon that is announced as "clear button" yet, no buttons are displayed. This makes it very confusing for anyone using a screen reader, or navigating using only the keyboard.
    a. Visually hidden buttons are now also hidden from the screen reader.
25. **WCAG 1.3.1 -** Elements acting as headings on some pages are not marked up as such. Changing the markup would allow screen reader users to easily locate content in the page, and easily navigate to sections while relying on descriptive headings.
    a. This issue is resolved as of March 2021
26. **WCAG 2.1.1 -** The tooltip for the preview available on the right (the icon next to the Add to folder icon) is not keyboard accessible and icon only be triggered on mouseover. It is also skipped over by screen readers due to CSS rules.
    a. This issue is fixed as of March 2021

Issues that have not been resolved to date:

1. **WCAG 1.4.3 -** All text elements must have sufficient contrast between text in the foreground and background colors behind it in accordance with WCAG 2 AA contrast ratio thresholds. Some of the text in pages has insufficient contrast.
    a. Many contrast issues have been resolved, specifically in the eBook viewer experience. However other contrast issues still exist in certain workflows of EBSCOhost.
2. **WCAG 2.4.6 -** The page has a <H1> and a <H2> that are labeled the same way ("Choose databases"). It would be better to differentiate the content of the headings, so users can more easily tell them apart and better understand the structure of the content.
    a. Work is in progress to overhaul choose databases and will be completed in Q2 2021.
3. **WCAG 1.3.1 –** Form controls rely on title attribute values to convey their purpose. While this is acceptable as per WCAG, it is not a reliable way to convey information to assistive technologies. Consider using aria-label attributes instead.
    a. Extensive work has been done to reduce the use of title attribute, including all cases of title as accessible name. However, in certain cases the title attribute is still used as an accessible description.
4. **WCAG 1.1.1 -** The alt text provided for the book jackets only convey "book jackets", which isn't sufficient to let a screen reader user know what the title of the publication is about.
    a. This issue is currently deferred for the existing eBooks/EBSCOhost user interface. It will be addressed in the new generation user interface rolling out 2021-2022.
5. **WCAG 2.1.1 –** The toolbar made available in the rich text editor for taking Notes is not keyboard compatible. These functionalities can only be triggered while using the mouse.
    a. This issue is deferred indefinitely. A workaround is to use shortcut keys for text formatting: ctrl+b for bold, ctrl+I for italic, ctrl+u for underline.
6. **WCAG 4.1.2 –** The rich text editor available for taking Notes does not convey all functionalities to screen readers.
    a. This issue is deferred indefinitely. A workaround is to use shortcut keys for text formatting: ctrl+b for bold, ctrl+I for italic, ctrl+u for underline.

7. **WCAG 3.1.1 -** The HTML document must contain a valid lang attribute or must correspond to a valid lang code for multilingual screen reader users who may prefer a different language.
   a. All pages in EBSCO eBooks interface and EPUB documents have a proper lang attribute defined. PDF documents do not have a language defined.
8. **WCAG 3.2.4 -** Several features have been added to the viewer to help screen reader users navigate to the ebook resource, but it is still difficult for someone who can't see to operate the navigation efficiently.
   a. This item is unspecific, however all controls are identified consistently in accordance with WCAG 3.2.4. Many improvements have been made to the screen reader experience, which were tested with blind users.
9. **WCAG 1.3.1 -** Once inside the ebook viewer, it is possible to go through the document linearly, but efficient navigation is also difficult, because the document does not appear to be tagged. Its content appears to be conveyed as plain text, meaning that none of the documents semantics are conveyed back to users. Headings are not conveyed as such, neither are lists, etc. This makes navigation and consulting the resource more difficult than it should.
   a. This issue is resolved for EPUB content, assuming the publisher has provided the correct document semantics. For PDF content it is still only possible to navigate the text of a document linearly. EBSCO can provide remediated content upon request by contacting accessibility@ebsco.com.