

To: Kim Armstrong & Rob VanRenes, Big Ten Academic Alliance
From: Graham L. Pierce, MSU Usability/Accessibility Research and Consulting
Subject: Cambridge Core High-Level Accessibility Evaluation
Date: June 13, 2017

MSU Usability/Accessibility Research and Consulting (UARC) conducted a high-level accessibility evaluation of Cambridge Core to evaluate its conformance with WCAG 2.0 AA Criteria. This evaluation did not include all functionality or content of the site or all WCAG 2.0 AA Criteria.

During this evaluation, a number of issues were found that will make the site difficult or impossible to use for some individuals with disabilities.

Critically, PDF documents cannot be effectively used by screen reader users. PDF files are untagged and contain no text that can be used by assistive technologies (other than the automatically generated footer legal text, "Downloaded from <https://www.cambridge.org/core>. Michigan State University Libraries, on...") and alternative text is not provided for any images. As a result, individuals with visual impairments and other disabilities cannot use PDF documents provided by the system.

Keyboard users, including screen reader users, will not be able to use a considerable portion of content on the Cambridge Core website. Significant content cannot be accessed with the keyboard alone, preventing users with severe dexterity impairments and users who rely on screen readers (including users with severe visual impairments) from having access. For those elements that can be reached by keyboard, many lack a sufficiently visible focus indicator, making it difficult or impossible for many keyboard-only users to effectively use them, as they cannot determine when they have reached the correct element.

A number of other issues were found that will make it difficult for users with a variety of disabilities from effectively using the system, including missing or incorrect alternative text, incorrect use of headings, content not being read out by screen readers, missing form labels, input errors not programmatically associated with inputs, images of text being used instead of styled text, insufficient color contrast, and incorrectly coded custom elements.

To improve access for users with disabilities, UARC recommends a full WCAG 2.0 AA evaluation of Cambridge Core and that the problems discovered be remediated.

High-Level Findings

Document Structure

- Headings are not consistently used to organize content (e.g., "Refine listing" and "Actions for selected content:" on Issue page and "Abstract", "Copyright", and "Linked references" on Article page should be headings). [[WCAG 2.0 SC 1.3.1](#)]
- Headings are not appropriately nested on Home and Issue pages. [[WCAG 2.0 SC 1.3.1](#)]
- PDFs are not tagged for accessibility; no document text or structure information (including heading tags, table structure, etc.) is available to users of assistive technologies. [[WCAG 2.0 SC 1.3.1](#)]

- "20.415" and the immediately following content are not read out by screen readers on the Home page. [[WCAG 2.0 SC 1.3.1](#), [WCAG 2.0 SC 1.3.2](#)]
- No easy means is provided for screen reader users to move between articles on the Issue page; headings are not used for individual results and article details are coded as sub-lists, preventing users from navigating by list structure. [[WCAG 2.0 SC 1.3.1](#)]
- PDFs are not programmatically titled (window title property is not set to "Document Title"). [[WCAG 2.0 SC 2.4.2](#)]

Keyboard Support

- Main navigation dropdowns (i.e., "Academic" and "About Us" sub-navigation) cannot be reached with the keyboard alone. [[WCAG 2.0 SC 2.1.1](#)]
- Text size options (All Issues and Article pages) cannot be reached with the keyboard alone. [[WCAG 2.0 SC 2.1.1](#)]
- "Export citation" button (Issue and Article pages) cannot be reached with the keyboard alone. [[WCAG 2.0 SC 2.1.1](#)]
- Sort dropdowns (Issue and Journals pages) do not function properly with the keyboard (cannot use Enter key to display full list of items; page automatically updates without user confirmation when arrow keys are used). [[WCAG 2.0 SC 2.1.1](#), [WCAG 2.0 SC 3.2.2](#)]
- "+" button to show full author details (Article page) cannot be reached with the keyboard alone. [[WCAG 2.0 SC 2.1.1](#)]
- Buttons to collapse/expand sidebars (Issue and Article pages) cannot be reached with the keyboard alone. [[WCAG 2.0 SC 2.1.1](#)]
- Charts in the "Metrics" tab (Article page) are not displayed when the Metrics tab is selected with the keyboard (unless the mouse has already been used to select the tab). [[WCAG 2.0 SC 2.1.1](#)]
- Information ("i" icon) lightboxes (Article page) cannot be reached with the keyboard alone. [[WCAG 2.0 SC 2.1.1](#)]
- "Access" dropdown/lightbox (Journals page) cannot be reached with the keyboard alone. [[WCAG 2.0 SC 2.1.1](#)]
- Focus is difficult to see or is not visible for many interactive elements, including checkboxes, buttons, and many image and text links. [[WCAG 2.0 SC 2.4.7](#)]
- Focus is not visible for decade and year expanding/collapsing elements on the All Issues page, making it impossible to easily navigate with the keyboard alone. [[WCAG 2.0 SC 2.4.7](#)]
- Focus is not visible for expanding/collapsing elements on the Issue (e.g., "View abstract"/"Hide abstract") and Article (e.g., "Hide All"/"View All") pages. [[WCAG 2.0 SC 2.4.7](#)]
- "Manage institutions login" button (Home page) receives focus when it is not visible on screen. [[WCAG 2.0 SC 2.4.3](#)]
- "First", "<< Prev", and current page number links are greyed out (inactive) and cannot be reached with the mouse, but receive focus and can be activated with the keyboard. [[WCAG 2.0 SC 2.4.3](#)]

Navigation

- Screen reader users cannot skip to main content through use of headings on the Home, All Issues, and Issue pages, as the main heading (h1) is not at the start of content. [[WCAG 2.0 SC 2.4.1](#)]

Forms and Data Submission

- Checkboxes are not programmatically associated with grouping labels on the Issue and Journal Search Results pages (e.g., "Publication date:" for "Over 12 months (90)" on Issues page). [[WCAG 2.0 SC 3.3.2](#)]
- Input suggestions (e.g., "e.g. John Smith" and "e.g. 1771") are not programmatically associated with fields and are not read out by screen readers on the Journals Search Results page. [[WCAG 2.0 SC 3.3.2](#)]
- Errors (e.g., entering "x" as year in "Publication date" text inputs on Journals page) are not programmatically associated with form fields, and are not read out by screen readers. [[WCAG 2.0 SC 3.3.1](#)]

Images

- Alternative text is missing or inappropriate for many images throughout site (e.g., social media icons, "Cambridge Core", "Save to my bookmarks", and "Share" on Home page, checkmark on Issue page, graphs on Article Metrics page). [[WCAG 2.0 SC 1.1.1](#)]
- "Cambridge Core" is an image of text, instead of styled text. [[WCAG 2.0 SC 1.4.5](#)]
- Alternative text is not provided for images in PDFs. [[WCAG 2.0 SC 1.1.1](#)]

Color and Visual Characteristics

- White text on pink background (e.g., "Behavioral and Brain Sciences" on Home, All Issues, and Issue pages), yellow text on red (e.g., "The Cambridge Handbook of" in image on Home page), blue text on grey (e.g., links when hovered on All Issues page), green text on white and grey (e.g., "Access" on All Issues, Issue, Article, and Journals pages), orange text on white (e.g., "Contains open access" on Journals page), white on blue (e.g., selected items in dropdowns on Issue and Journals pages), and white text on light colors (e.g., "Applied Social Psychology" on Home page) have insufficient contrast. [[WCAG 2.0 SC 1.4.3](#)]

Custom Elements and Dynamic Content

- Buttons throughout the site are incorrectly coded as links. [[WCAG 2.0 SC 4.1.2](#)]
- Custom dropdowns and menus (e.g., "Academic" and "About Us" in main navigation bar and "Access provided by" dropdown) do not have roles or values provided (i.e., screen reader users are not informed that they are dropdowns and whether or not they are expanded/collapsed). [[WCAG 2.0 SC 4.1.2](#)]
- Screen reader users are given different names for many text elements (primarily buttons) that appear on the screen (e.g., "View all" is read out as "View most cited articles" on Home page). This may confuse readers who are looking at a page while using a screen reader due to cognitive, reading, or visual impairments. [[WCAG 2.0 SC 4.1.2](#)]
- Screen reader users are not informed when search results are updated on the Journals Search Results page (e.g., through the use of filters). [[WCAG 2.0 SC 4.1.2](#)]

Disclaimer: This high-level evaluation was conducted for the Big Ten Academic Alliance, and represents a good faith effort conducted within a limited time frame. It should not be assumed to be complete or free from error. No warranties or guarantees are implied. UARC is not responsible for direct, indirect, or incidental damages based on this work; its use or interpretation by any individual, group, or organization; or on conditions beyond our control.