MICHIGAN STATE UNIVERSITY | Usability/Accessibility Research and Consulting

To: Kim Armstrong, Big Ten Academic Alliance
From: Graham L. Pierce, MSU Usability/Accessibility Research and Consulting
Subject: ProQuest Dissertations & Theses Global Preliminary Accessibility Evaluation
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Usability/Accessibility Research and Consulting (UARC) conducted a preliminary accessibility evaluation of ProQuest Dissertations & Theses Global 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, some PDFs have not had optical character recognition (OCR) performed, preventing screen reader users from accessing content (users cannot use Adobe Acrobat Professional to perform OCR because pages *do* contain text: a watermark and copyright statement). PDFs that have been OCRed have not been tagged (impeding usage, and forcing users to rely on automatic tagging processes that are not consistently accurate) and contain a number of minor OCR errors.

Screen reader users will find some interactive elements difficult to use, due to missing or confusing labels, instructions, error information, alternative text, roles, and values. All keyboard users (including screen reader users and individuals with dexterity impairments) will also experience difficulties due to non-standard keyboard usage and full-page refreshes when values are changed. Incorrect focus order and insufficient focus visibility will also negatively affect these individuals.

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 improperly structured headings, lack of PDF document titles, and missing language declarations for non-English words.

To improve access for users with disabilities, UARC recommends a full WCAG 2.0 AA evaluation of ProQuest Dissertations & Theses Global and that the problems discovered be remediated by ProQuest Dissertations & Theses Global.

Preliminary Findings

Document Structure

- Headings are not appropriately nested. [WCAG 2.0 SC 1.3.1]
- Lists are used for non-list content (e.g., many one-item lists are found on the site). [WCAG 2.0 SC 1.3.1]
- Languages of individual non-English elements are not indicated in the code, and are therefore incorrectly pronounced by screen readers (e.g., "Aarhus Universitet" in the "Look up Universities/institutions" lightbox on the Advanced Search page should be marked as Danish). [WCAG 2.0 SC 3.1.2]
- The "Race, *class, and gender" PDF is not tagged, and no document text can be accessed by screen readers (even after automatic tagging in Adobe Acrobat/Reader). Only the "PREVIEW" watermarks, footer copyright statements ("Reproduced with

permission of the copyright owner. Further reproduction prohibited without permission."), and the ProQuest citation on the first page are read out. [WCAG 2.0 SC 1.3.1]

- The "Destiny Unbound" PDF is not tagged, and automatic tagging in Adobe Acrobat/Reader must be conducted before content can be read by screen readers using that program (otherwise, all pages are read out as "Warning: Empty Page"). Automatic tagging not consistently accurate. [WCAG 2.0 SC 1.3.1]
- Content in the "Destiny Unbound" PDF has occasional OCR errors, most frequently in the addition of spaces between letters in words, making them difficult for screen reader users to understand (e.g., "Parameters" is read out as "P a ra m e te rs" and "Ann Arbor, MI" is read out as "Ann Arbor milliliters" – "MI" having been turned into "ml"). [WCAG 2.0 SC 1.3.1]
- Tab labels (e.g., on "Abstract/Details" and "Full Text – PDF" pages) include unnecessary/confusing information when read out by screen readers (e.g., "Full Text - PDF" tab is read out as "Full text - PDF from ProQuest Dissertations & Theses Global: Social Sciences and other databases"). [WCAG 2.0 SC 2.4.6]
- Some labels are incorrect or confusing (e.g., "Update" button under Publication date on Search Results pages is read out by screen readers as "Updateentered date range"). [WCAG 2.0 SC 2.4.6]
- Most expanding/collapsing elements have a hidden "m" that is read out by screen readers at the end of their labels. [WCAG 2.0 SC 2.4.6]
- PDFs are not programmatically titled. [WCAG 2.0 SC 2.4.2]

Keyboard Support

- Dropdowns do not work with standard keyboard controls (enter key selects current option and reloads page, instead of bringing up list of options). [WCAG 2.0 SC 2.1.1]
- Sliders (e.g., Publication Date range selector on Search Results pages) cannot be accessed via keyboard, and keyboard-only users must therefore use the text inputs to change dates. [WCAG 2.0 SC 2.1.1]
- Embedded PDFs cannot be reached via keyboard in Firefox, and document text cannot be consistently read by screen readers in Chrome. The presence of "Download PDF" links provides a workaround for these issues. [WCAG 2.0 SC 2.1.1]
- Focus is not consistently visible for interactive elements. [WCAG 2.0 SC 2.4.7]
- After users activate the "Find" button on the "Look up Universities/institutions" lightbox on the Advanced Search page, focus is returned to the text input, rather than advancing to the results. [WCAG 2.0 SC 2.4.3]
- There is no simple means for keyboard users to advance focus to the start of the search results list after changing options in the "Narrow Results" section of the Search Results pages (Narrow Results comes after the search results in the focus order, and no simple means to jump back is provided). [WCAG 2.0 SC 2.4.3]
- When results are sorted on the Search Results pages, focus incorrectly returns to the start of the page. [WCAG 2.0 SC 2.4.3]
- "Contains" and "Begins with" radio buttons on the "Look up Universities/institutions" lightbox on the Advanced Search page receive focus only after the "Find" button, making it unlikely that screen reader users will be aware of the options before searching. [WCAG 2.0 SC 2.4.3]
- When lightboxes are opened, focus is placed on the help link, and screen readers immediately read out "Help- this link will open in a new window link help", which may confuse users. [WCAG 2.0 SC 2.4.3]

Images

- Figures in the "Destiny Unbound" PDF lack alternative text. [WCAG 2.0 SC 1.1.1]

Forms and Data Submission

- Many errors (e.g., invalid entries for Publication Date text inputs on Search Results page) are not identified to screen reader users (not programmatically associated with form fields). [WCAG 2.0 SC 3.3.1]
- Text inputs include incorrect/confusing "Application" at the start of each input's label when read out by screen readers. [WCAG 2.0 SC 3.3.2]
- Instructions for many inputs (e.g., "Publication Date" text input formats on Search Results pages, "Email addresses" and "Your name" inputs in Email lightbox on Search Results pages, "(Optional)" indicator for "Message" input on Email lightbox on Search Results pages) are not provided to screen reader users (not programmatically associated with form fields). [WCAG 2.0 SC 3.3.2]
- Some form fields are not associated with labels (e.g., checkboxes in Email, Print, and Save lightboxes on Search Results pages not associated with "Include" label). [WCAG 2.0 SC 3.3.2]
- Checkboxes on Search Results pages are not labeled in a way that allows screen reader user to easily determine which results they are associated with. [WCAG 2.0 SC 3.3.2]
- "OR" text inputs (Advanced Search page) are not clearly labeled for screen reader users. [WCAG 2.0 SC 3.3.2]
- Screen reader users are not notified of autocomplete dropdown suggestions for text inputs (e.g., Basic Search primary text input). [WCAG 2.0 SC 3.3.2]

Custom Elements and Dynamic Content

- No feedback is provided to screen reader users when content is expanded or collapsed. [WCAG 2.0 SC 4.1.2]
- No feedback is provided to screen reader users when content is added or removed (e.g., "Add a row" and "Remove a row" on Advanced Search page). [WCAG 2.0 SC 4.1.2]
- Tabs (e.g., on Abstract/Details and Full Text – PDF pages) do not declare their roles or values (i.e., that they are tabs and whether they are selected). [WCAG 2.0 SC 4.1.2]
- Buttons throughout the site are incorrectly coded as links. [WCAG 2.0 SC 4.1.2]
- Sessions may expire without warning, causing the user to lose search information, be unable to download PDFs, etc. (session expiration popups do not consistently appear). [WCAG 2.0 SC 2.2.1]