

To: Robert Van Rennes, Big Ten Academic Alliance  
From: Grey L. Pierce, MSU Usability/Accessibility Research and Consulting  
Subject: De Gruyter High-Level Accessibility Evaluation for the Library Accessibility Alliance  
Date: March 9, 2021

MSU Usability/Accessibility Research and Consulting (MSU UARC) conducted a high-level accessibility evaluation of the De Gruyter platform to evaluate its conformance with WCAG 2.1 AA Criteria. This evaluation did not include all functionality or content of the site or all WCAG 2.1 AA Success Criteria.

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

Keyboard users, including screen reader users and users with dexterity impairments, will find it difficult or impossible to access or use some content. Some content cannot be reached or operated via keyboard, making it impossible to use for those that rely on keyboard access. Many interactive elements lack a sufficiently visible focus indicator, making it difficult for many keyboard-only users to effectively use them, as they cannot determine when they have reached the correct element. Some content unexpectedly changes when keyboard focus shifts and focus order is incorrect in some places, increasing the difficulty of using the site with a keyboard.

Individuals who rely on screen readers, including many users with visual, reading, and language impairments, will have problems using the site. Some content is not read out correctly and structural information (including headings and lists) is not appropriately conveyed to users, making it difficult or impossible to understand content and organization in places. Some form inputs are not appropriately labeled, making those inputs difficult to use for those that rely on screen readers. Some custom elements do not correctly announce themselves to screen readers, making them difficult to understand and use. Some images have inappropriate alternative text, significantly impacting users with visual impairments.

The PDF has not been tagged for accessibility and no structural information is provided to assistive technologies, making it extremely difficult to use and navigate for users with disabilities. Additionally, no title or language is provided to assistive technologies and images in the PDF lack alternative text.

Other issues were found that will make it difficult for users with a variety of disabilities to effectively use the system, including inappropriate heading and label text, insufficient color contrast, use of color alone to distinguish content, and inappropriate page titles.

To improve access for users with disabilities, MSU UARC recommends a full WCAG 2.1 AA evaluation and that the problems discovered be remediated.

*Note: Results for "hate crimes" were used as an example of a Search Results page, "Hate Crimes in Cyberspace" was used as an example of a Book page, "Hate Crimes in Cyberspace: one. Digital Hate" was used as an example of a Chapter page, and "The Effects of Hate Groups on Hate Crimes" was used as an example of an Article page and PDF.*

*For reference, screenshots of the Home page (wide, medium, and narrow viewport widths) at the time this evaluation was completed have been included at the end of this memo.*

# High-Level Findings

## Document Structure

- Headings are not appropriately structured. [[WCAG 2.1 SC 1.3.1](#)]
  - On the Home page, "De Gruyter" should be tagged as a heading (h1)
  - On the Home page, "THE NEW DEGRUYTER.COM: WELCOME!" should be tagged as a heading (h2)
  - On the Search Results page, "FILTER RESULTS" should be tagged as an h2, not an h3, and subheadings under "FILTER RESULTS" (e.g., "ACCESS", "DOCUMENT TYPE") should be tagged as h3s, not h4s
  - On the Search Results page, result names should be tagged as h2s, not h3s
  - On the Book page, "Hate Crimes in Cyberspace" should be tagged as an h1, not an h2
  - On the Book page, "DETAILS" and "FORMATS" should be tagged as h3s, not h5s
  - On the Book page, "ABOUT THIS BOOK" and "AUTHOR INFORMATION" (Overview tab) should be tagged as h2s, not h3s
  - On the Book page, visual headings in the Contents tab (e.g., "PART ONE: UNDERSTANDING CYBER HARASSMENT") should be tagged as headings
  - On the Chapter page, "Hate Crimes in Cyberspace" should be tagged as an h1, not an h2
  - On the Chapter page, "one. Digital Hate" should not be tagged as a heading (it does not organize any content)
  - On the Chapter page, headings in the chapter are not tagged
  - On the Chapter page, "CHAPTERS IN THIS BOOK (16)" should be tagged as an h2, not an h6
  - On the Article page, "The Effects of Hate Groups on Hate Crimes" should be tagged as an h1, not an h2
  - On the Article page, "Abstract" should be tagged as an h2, not an h1
  - On the Article page, "References" should be tagged as an h2, not an h3
  - On the Article page, "JOURNAL AND ISSUE" and "ARTICLES IN THE SAME ISSUE" should be tagged as an h2, not an h6
  - On the Advanced Search page, "Enter Search Terms", "Add filters", and "Display Results" should be tagged as h2s, not h4s
- Lists are not appropriately structured. [[WCAG 2.1 SC 1.3.1](#)]
  - On the Book, Chapter, and Article pages, the PDF button should not be coded into a one-item list
  - On the Chapter page, the share, cite, and go to top of page buttons should be coded into a single programmatic list
  - On the Article page, the read out, share, cite, and go to top of page buttons should be coded into a single programmatic list
  - On the Article page, the list of References and the list under "Articles in the same issue" should be coded into programmatic lists
  - On the Advanced Search page, label and input pairs should not be coded into programmatic lists

- On the Chapter page, document text is incorrectly broken into fragments of sentences and words in the code, and is therefore not read out correctly by assistive technologies (e.g., "most eff", "ective and pop", "u lar software programs"). [[WCAG 2.1 SC 1.3.1](#), [WCAG 2.1 SC 1.3.2](#)]
- PDF is untagged, and provides no structural information or reading order information to assistive technologies. [[WCAG 2.1 SC 1.3.1](#), [WCAG 2.1 SC 1.3.2](#)]
- On the Book page, "Hate Crimes in Cyberspace" heading should be read before the author name. [[WCAG 2.1 SC 1.3.2](#)]
- On the Article page, "The Effects of Hate Groups on Hate Crimes" heading should be read before the author name. [[WCAG 2.1 SC 1.3.2](#)]
- On the Search Results page, ancillary information about results should not be included in programmatic headings (e.g., heading should be read out as "Hate Crimes in Cyberspace" and not "BOOK Content is available marked content Hate out of marked content marked content Crimes out of marked content in Cyberspace"). [[WCAG 2.1 SC 2.4.6](#)]
- On the Search Results page, "Search result navigation" is not an appropriate label for page navigation buttons (i.e., there are many results per page, and the page links do not go through individual results). [[WCAG 2.1 SC 2.4.6](#)]
- The language of the PDF is not defined. [[WCAG 2.1 SC 3.1.1](#)]

## Keyboard Support

- On the Article page, in-text citation tooltips cannot be reached via keyboard. [[WCAG 2.1 SC 2.1.1](#)]
- On the Home page, focus incorrectly goes to the page behind the Citation lightbox when it is open. [[WCAG 2.1 SC 2.4.3](#)]
- Focus is not sufficiently visible for a variety of interactive content. [[WCAG 2.1 SC 2.4.7](#)]
  - On the Home page, all interactive elements with the exception of the text input
  - On the Search Results page, image links (thumbnails), search button, dropdowns, and page numbers
  - On the Book page, search, share, and "Product Information" buttons
  - On the Chapter page, image links (thumbnails), search buttons, and share button
  - On the Article page, image links, search buttons, share button, and radio buttons
  - On the Advanced Search page, "Search" button, radio buttons, and checkboxes
- On the Search Results and Book pages, "Citations" unexpectedly opens a tooltip when it receives focus, without the user taking an action. [[WCAG 2.1 SC 3.2.1](#)]

## Navigation

- On all pages except the Home page, page titles do not include the site name. [[WCAG 2.1 SC 2.4.2](#)]
- On the Chapter page, page title does not include the book name. [[WCAG 2.1 SC 2.4.2](#)]
- PDF is not titled. [[WCAG 2.1 SC 2.4.2](#)]

## Forms and Data Submission

- On the Home page, "Search placeholder equals search content" is not an appropriate programmatic label for the search input. [[WCAG 2.1 SC 2.4.6](#)]
- On the Advanced Search page, radio buttons and checkboxes are not programmatically associated with grouping labels (e.g., "Any of the specified terms" is not associated with "Find documents containing"). [[WCAG 2.1 SC 2.4.6](#)]
- On the Advanced Search page, "Publication year" text inputs are not programmatically associated with grouping label ("Publication year"). [[WCAG 2.1 SC 2.4.6](#)]

## Images

- A variety of images do not have appropriate alternative text. [[WCAG 2.1 SC 1.1.1](#)]
  - Logged in as button [narrow viewport]
  - On the Search Results page, checkmarks next to selected Filters (e.g., next to "All accessible content" and "English" when they are active)
  - On the Search Results, Chapter, and Article pages, thumbnails are decorative and should have null alt attributes
  - On the Book page, share and cite buttons (adding a title to a link is not a replacement for alternative text)
  - On the Chapter page, share, cite, and go to top of page buttons (adding a title to a link is not a replacement for alternative text)
  - On the Article page, read out, share, cite, and go to top buttons (adding a title to a link is not a replacement for alternative text)
  - On the Article page, Figure 1
- Images in the PDF lack alternative text. [[WCAG 2.1 SC 1.1.1](#)]

## Color and Visual Characteristics

- Color is the only means to differentiate some focused elements. [[WCAG 2.1 SC 1.4.1](#)]
  - On the Search Results page, search button, dropdowns, and page number buttons
  - On the Book page, search and share buttons
  - On the Chapter page, search, share, and "Product Information" buttons
  - On the Article page, search, share, and radio buttons
  - On the Advanced Search page, radio buttons, checkboxes, and "Search" button
- On the Search Results page, color is the only means to differentiate search term highlighting (yellow vs. white background). [[WCAG 2.1 SC 1.4.1](#)]
- Black text on blue background (e.g., "LOGGED IN AS:" and "MICHIGAN STATE UNIVERSITY" in menu dropdown), white text on white (e.g., "ENGLISH", "EUR €", "MY PRODUCTS" in menu dropdowns on keyboard focus), grey text on white (e.g., "PART ONE: UNDERSTANDING CYBER HARASSMENT" in Contents tab on Book page), blue text on light grey (e.g., "ACCESS BROUGHT TO YOU BY" on Book, Chapter, and Article pages), and grey text on light grey (e.g., "Language:" under "DETAILS" on Book page) have insufficient contrast. [[WCAG 2.1 SC 1.4.3](#)]

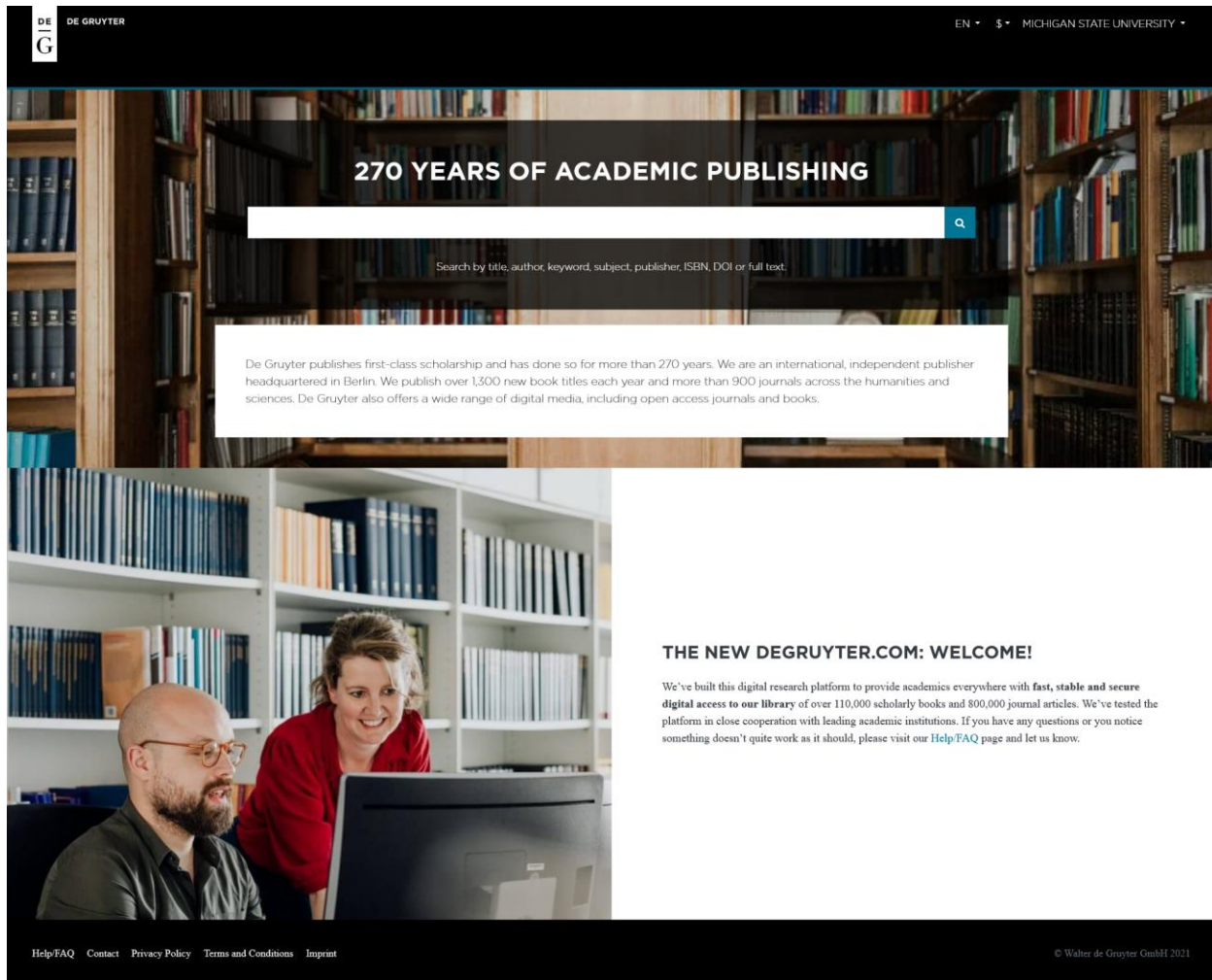
## Custom Elements and Dynamic Content

- In the Citation lightbox on the Search Results page, all tabs are incorrectly identified as "tab 1 of 1" to assistive technologies. [[WCAG 2.1 SC 1.4.4](#)]
- In the Citation lightbox on the Search Results page, the values of tabs that are not selected are incorrectly identified as "selected". [[WCAG 2.1 SC 1.4.4](#)]
- On the Book page, both tabs are incorrectly identified as "tab 1 of 1" to assistive technologies. [[WCAG 2.1 SC 1.4.4](#)]

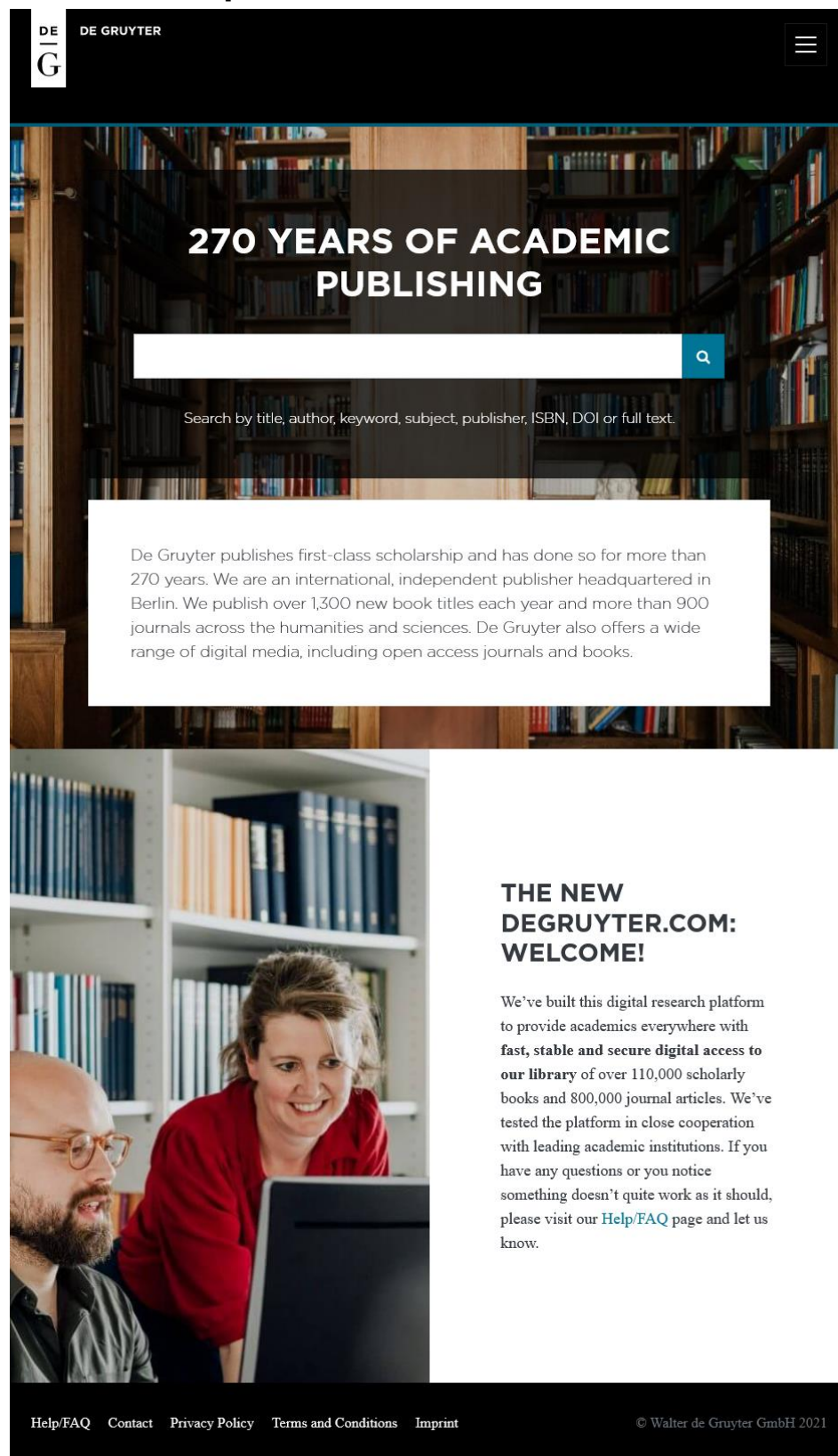
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# Home Page Screenshots

## Wide Viewport



## Medium Viewport



DE GRUYTER

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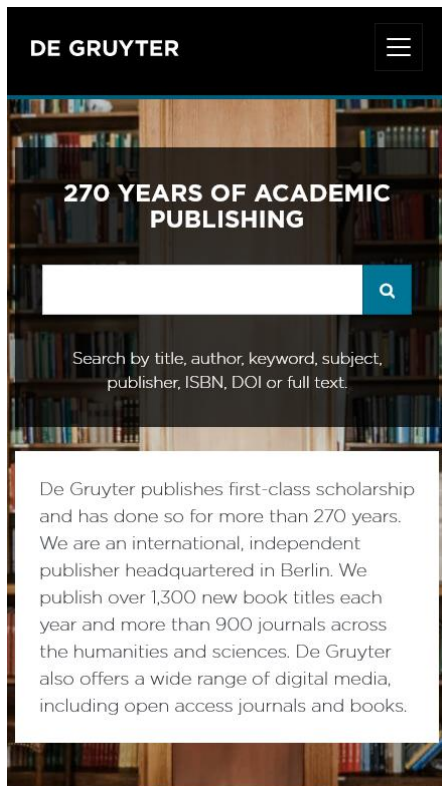
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## Narrow Viewport



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