

Hypothesis Test Results

Test conducted by University of Michigan

Contact person: Stephanie Rosen, ssrosen@umich.edu

Testing team: Jane Berliss-Vincent, Brandon Werner, Scott Williams, Walt Stover

I. Summary

There are major accessibility issues in the hypothesis toolbar functionality, in navigation and login, and in the toolbar appearance. Some issues have fairly straightforward fixes (for example, elements that lack labels should be labelled), and accessibility has clearly already been considered in building the tool. However, the nature of the tool presents complex and difficult accessibility issues, some of which have no obvious solutions. Making all of the core functionality of the tool accessible to assistive technology (AT) will require significant further development.

Hypothesis toolbar functionality

Major toolbar functionality is not accessible to assistive technology (screen reader software and keyboard-only browsing). Functionally that is inaccessible includes:

- adding a note to specific text (as opposed to an entire page)
- reviewing existing annotations in context, i.e. navigating between web page text and associated notes
- editing new notes with rich text editor options
- limiting exposed notes by “public” or group
- “Share this page” and “my account” buttons

The inability to add a new note to specific text is a major problem since it is central to the tool’s purpose and community of practice. It is likely that the mouse workflow cannot be replicated with some AT. It may be necessary to develop a workflow to create a new note (associated with whole page) from the toolbar, then take additional steps to associate the note with specific text.

There is furthermore an inability to interact with hypothesis features from the webpage itself rather than the toolbar. For example, the AT user cannot select highlighted text to view associated annotations, and the user cannot highlight webpage text to create a new annotation.

The only functionality available to AT through the toolbar is add new note to entire page, read existing notes from the toolbar, and post a new note to public, group, or private.

Navigation and login

Login page and join group page are mostly accessible with AT. However, after signing in, the user is directed to the Stream page with no means of returning to the homepage or navigating to a specific web page with hypothesis enabled. This is confusing and a significant problem for usability and accessibility. After login, user should be redirected to the homepage or to a general dashboard with options to navigate to any web page with hypothesis enabled or go to “stream.”

The “How to get started” orientation panel in the toolbar is also not sufficient for users of AT. The icons lack alt text and the instructions are not meaningful for a screen reader user.

Toolbar appearance

The slight color change in toolbar elements when they receive focus (from mouse or keyboard) lacks good contrast and makes navigating by keyboard very difficult. For some elements, there are additional color changes with mouse focus that are not replicated with keyboard focus.

II. Core Functions Tested

Hypothesis account

Hypothesis [home page](https://hypothes.is/), <https://hypothes.is/>

- Create an account
- Sign in to account

Hypothesis [group invitation](https://hypothes.is/groups/6KvGaDLq/u-m-hypothesis-testing) <https://hypothes.is/groups/6KvGaDLq/u-m-hypothesis-testing>

- Join group

Using hypothes.is

Sample [webpage with Hypothesis enabled](https://hypothes.is/blog/a-coalition-of-over-40-scholarly-publishers/),

<https://hypothes.is/blog/a-coalition-of-over-40-scholarly-publishers/>

Toolbar/sidebar

- Locate hypothesis toolbar
- Locate and read existing annotation(s) from toolbar
- Limit exposed annotations by group
- Select existing annotation(s) from toolbar
- Add new note
- Associate new note with specific text on page.

- Post note to Public
- Post note to private, “Only Me”
- Post note to group

Webpage

- Locate annotations (highlighted text) on page
- Select highlighted text on page, read associated annotation
- Highlight text on page, add new note.

III. Screen Reader results

NVDA/Firefox

- Create an account: blank entries are announced “invalid entry”, which is not helpful.
- Users are not required to enter email or, especially, password twice in order to confirm entries.
- When joining a group, after authenticating, I am presented with the same “join” screen and have to activate it again.
- When I log in when viewing the test page, I am taken to a “stream” page that appears unrelated to the page I was on.
- iFrame for the sidebar does not have a title, which is critical.
- Sidebar is at the end of the reading order (not necessarily a problem). Perhaps insert a skip-to-comments link at top of reading order? Search doesn’t appear to work. The search button doesn’t appear to be labeled or doesn’t work.
- The sidebar persists in the DOM and can be read by NVDA (not necessarily a problem). Even if a user knew to navigate by landmarks (doubtful), I’m not sure how they would locate it.
- Selecting text without a mouse does not activate popup. Navigating to the sidebar, there doesn’t appear to be a way to add a note to selected text without a mouse.
- Why do I get login link after I’ve already logged in? I should see a “Welcome Swims” or “Logged in as Swims” message.
- Controls announced as “menu button collapsed submenu clickable” <button name> What?!
- How to get started: The icon buttons do not have alt text. Screen reader users would not know this.
- “Click the “button at the top” is as directional reference that means nothing to a screen reader user.
- Blockquote announced as “clickable”. When activated, focus is moved to the scope (Public, U-M, etc.) without announcing context change.
- “More” link exposed even if full quote is announced, which it always seems to reveal.
- Text region clickable as well, but it is unclear what it does.

- Tags are announced simply as links. No language attribute for foreign terms.
- Edit, Delete, Reply, Share buttons read as a group with arrow key, but read correctly when tabbing or using the “B”. Confusing—but intended—behavior for NVDA.
- Unable to access editor toolbar.
- Landmark roles used incorrectly throughout sidebar. I can see the logic behind their naming, but it is confusing for those who know what they actually are defined as.

JAWS/Firefox

- Essentially the same results as NVDA/Firefox.

VoiceOver/Safari

- Icons on the sidebar are not announced other than “button”.
- “Show one annotation” label announced. When I select it, VO stops interacting with page.
- iFrame not labeled. I can interact with the frame, however.
- Expanded pop-up button presents a list of links, not radio buttons (what visual users see).
- No way to select text then move to annotate.
- VoiceOver by far the worst experience.

IV. Keyboard only results

Summary

Tested with both Firefox 38.6.0 and Chrome 49.0.2623.112 m

Most of the functionality included in the test plan cannot be accessed without using a mouse.

Hypothesis account

Hypothesis home page, <<https://hypothes.is/>>

Create an account

- No problems noted

Sign in to account

- No problems noted

Hypothesis group invitation

Join group

- Join button does not gain visible focus in Firefox, but does in Chrome.

Using hypothes.is

Toolbar/sidebar

Locate hypothesis toolbar

- Keyboard accessible, but keyboard focus lacks sufficient contrast (difficult or impossible to recognize when Toolbar Expand button has focus). This problem applies to all parts of the toolbar.

Locate and read existing annotation(s) from toolbar

- Unable to access right-hand icons (share, account) without the mouse.

Limit exposed annotations by group. HINT: default is "Public."

- Group menu is not accessible without the mouse. Once the menu is open, it is navigable using TAB and Shift-TAB.

Select existing annotation(s) from toolbar.

- this is not keyboard accessible. Selecting annotations with mouse adjusts visual focus on webpage to highlight associated text. This action cannot be performed from the keyboard.

Add new note

- Keyboard accessible, and moves keyboard focus to content editor. But it's not immediately clear which button is "add new note."
- There is no clear way to access the Rich Text Editor (RTE) formatting toolbar.

Associate new note with specific text on page. NOTE: note added from toolbar is automatically associated with whole page.

- Inaccessible

Post note to Public

- No unique problems noted.

Post note to private, "Only Me"

- No unique problems noted.

Post note to group

- No unique problems noted.

Webpage

Locate annotations (highlighted text) on page

- N/A

Select highlighted text on page, read associated annotation

- The Caret Browsing feature (F7) can be used to select text; however, the annotation does not appear automatically as it does when the mouse is used to select text.

Highlight text on page, add new note.

- Not possible to access popup Annotate and Highlight menu without the mouse.