

Web Accessibility Report: Twitch.tv

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HCI 511
October 30, 2022

EXECUTIVE SUMMARY

Twitch is known as the founder of online livestreaming. It maintains its status as the frontrunner in video game streaming, with 5,646,000,000 hours watched by viewers worldwide in the second quarter of 2022 [1]. For a website with such a broad audience and high viewership numbers, accessibility is essential.

In this report, I evaluated the accessibility of the Twitch home and channel pages using WCAG POUR (Perceivable, Operable, Understandable, Robust). Methods and tools I used for this evaluation include the W3C Easy Checks list, HTML and CSS validators, manual and automated ARIA assessments, cognitive level testing of readability scores, automated evaluations using WAVE and TAW, and screen reader testing of both desktop and mobile pages.

Lesser accessibility violations include a lack of captions, missing HTML elements (ex: h1 tags, language attributes), and a dark mode contrast ratio fail with a score of 2.97:1. More pronounced issues include clickable images that display vital information but lack meaningful alt text. Additionally, toggles for dropdown menus that list important settings are hidden within user avatar images that have no corresponding text alternative. Using a screen reader, it was difficult to attend to all the auditory inputs simultaneously competing for my attention, from the streamer's voice to the chat's characteristic badges, emotes, and icons.

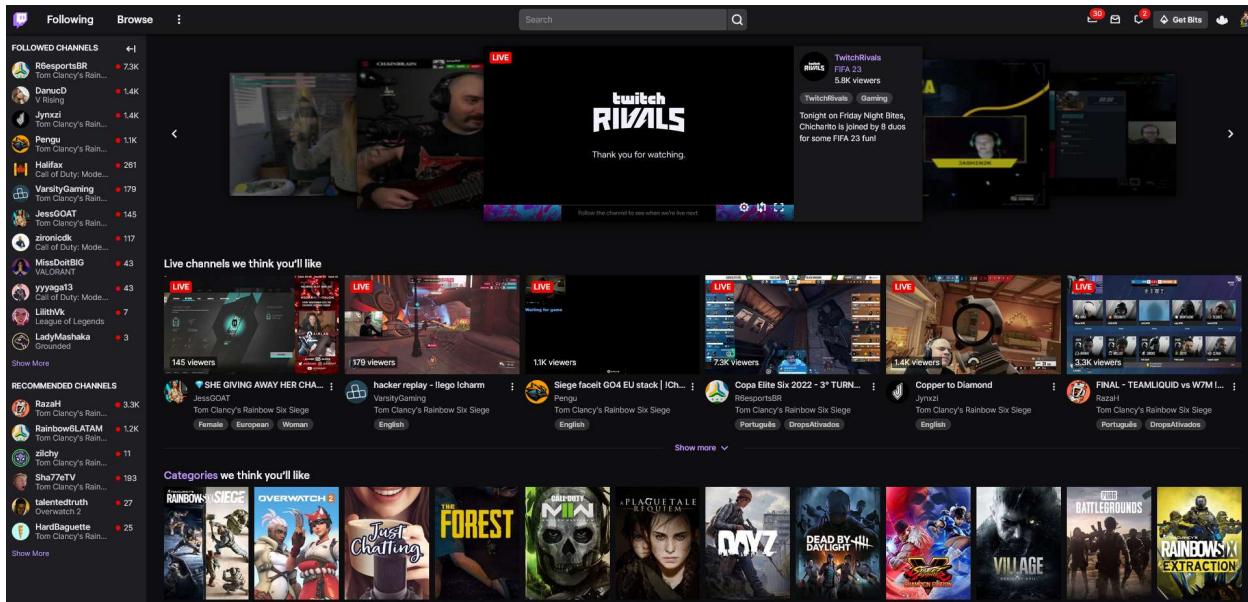
Major recommendations include utilizing headings tags properly, ensuring all images have adequate alt text, employing proper keyboard navigation for dropdown menus, and redesigning page structures to prioritize information flow for screen readers.

WEBSITE DESCRIPTION & TARGET USERS

Twitch.tv is an online streaming platform where viewers can watch streamers live and interact in real-time via chat rooms. Twitch is composed of two user categories: streamers and viewers. Streamers use the website to host their video content and chat with viewers live. Viewers can subscribe to their favorite streams and interact with streamers in real-time via the chat feature.

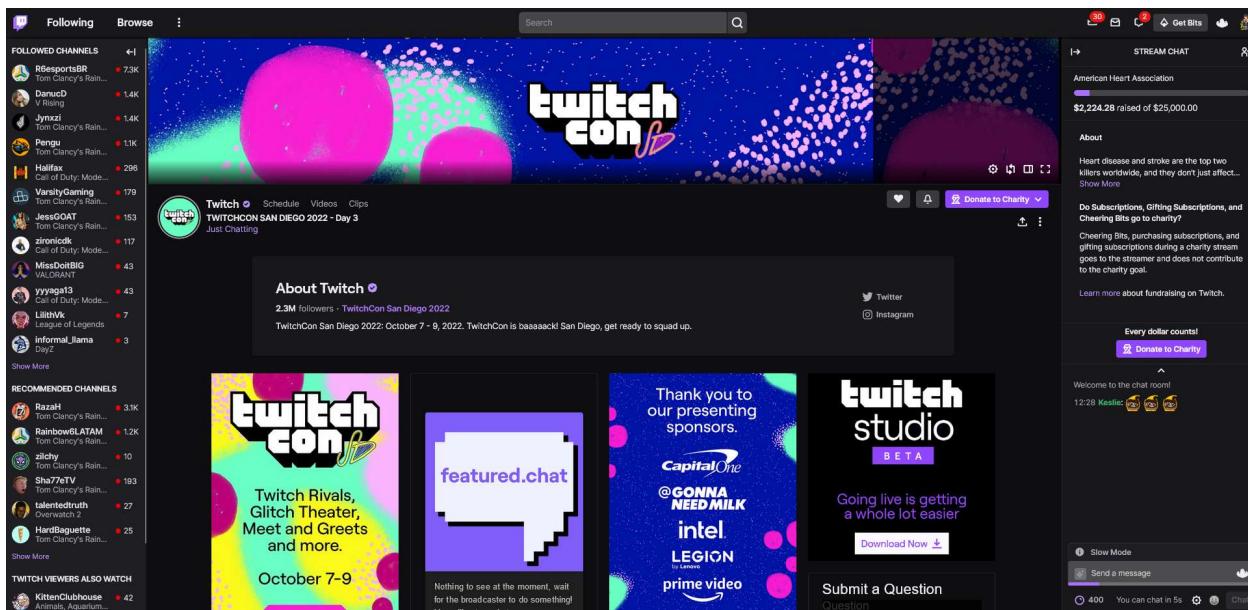
The target users for Twitch are vast and worldwide. Twitch users are people of all ages, varied socioeconomic backgrounds, and are located just about anywhere in the world. From broad topics like politics to niche areas like Pacman speed runs, Twitch has it all! With such a broad range of viewers, accessibility is incredibly important. A link to the "Twitch Accessibility Statement" can be found in the main navigation menu. Twitch states that they follow the "Web Content Accessibility Guidelines (WCAG) 2.1 Level AA" and that they perform regular internal reviews of their content [2]. UserVoice, a Twitch forum for community feedback and suggestions, includes multiple reports of accessibility concerns. Many users have made accessibility requests, such as universal closed captioning and a redesign that supports screen readers. [3].

This accessibility evaluation focuses on Twitch.tv's homepage (Figure 1) and the official Twitch streaming channel (Figure 2). These two pages offer a holistic view of the features a typical Twitch user might experience within the platform. I chose this website because many users report significant challenges accessing the Twitch platform. I believe that Twitch.tv is not in compliance with WCAG accessibility guidelines like their developer statement suggests. As the largest platform for video game streaming, Twitch should be designed in a way that is accessible for all.



<https://www.twitch.tv/>

Figure 1: Twitch Homepage



<https://www.twitch.tv/twitch>

Figure 2: Twitch Channel Page

METHODS AND TOOLS

I evaluated the accessibility for two pages on Twitch.tv: the homepage (Figure 1) and the Twitch channel page (Figure 2). Both pages were assessed on a Windows 10 desktop using Firefox and Google Chrome, and on an iPhone via the Safari browser. I chose to assess the Twitch channel page since most interactions between streamers and viewers take place in individual channel pages and chat rooms. An assessment of Twitch's streaming channel is beneficial because as the website creators, they are expected to adhere to their own accessibility standards. For the rest of this report, I will refer to Figure 1 as the homepage and Figure 2 as the Twitch channel page.

I used five methods in this assessment:

W3C Easy Checks | <https://www.w3.org/WAI/test-evaluate/preliminary/> + WebDev Firefox

I began with a general review of both pages by utilizing the W3C Easy Checks outline. I incorporated the WebDev Firefox extension to assist with the evaluation of certain elements, to include headings and alt tags. I documented violations, their locations, and frequency.

W3C HTML and CSS Validators | <https://validator.w3.org/> + <https://jigsaw.w3.org/css-validator/>

Using the W3C validators, I conducted an evaluation of the HTML and CSS for these webpages. I recorded violations and errors of the W3C standards.

Web Accessibility Initiative-Accessible Rich Internet Applications (ARIA)

I employed a combination of WebAIM's web accessibility evaluation tool (WAVE: <http://wave.webaim.org/>) and the browser's "view page source" tool to assess Twitch's use of ARIA. I used Mozilla Firefox's informational page (https://developer.mozilla.org/en-US/docs/Learn/Accessibility/WAI-ARIA_basics) to provide guidance for analyzing the HTML.

Cognitive Level Test: Readability Score | <http://www.readability-score.com/>

I copied the main body content from these pages and pasted them into the Readable's text scoring tool. This tool provides information about the readability grade level of any given text.

WAVE Evaluation and TAW Analysis | <https://wave.webaim.org/>, <https://www.tawdis.net/>

I used WebAIM's web accessibility evaluation tool (WAVE: <http://wave.webaim.org/>) and TAW Web (<https://www.tawdis.net>) to conduct automated evaluations of the Twitch homepage and channel.

Screen Reader | NVDA for Desktop + iPhone Voiceover for Mobile

I navigated through the web pages using the NVDA screen reader with keyboard presses on a Windows 10 desktop on both Firefox and Google Chrome. Then, I used an iPhone with VoiceOver to assess the screen reader experience on mobile. I describe my experience with these screen readers in a paragraph at the end of my findings.

FINDINGS

Findings are organized in accordance with WebAIM's WCAG 2 Checklist using "POUR."

Perceivable

Guideline 1.1: Text Alternatives

1.1.1 Non-text Content: There is a lot of content on Twitch that is presented as images without any sort of text alternative. For example, the "About" section of the Twitch channel page has eight different panels displaying information such as upcoming events, special chat features, and channel sponsors. The alt text

for each of these panels is simply, “Panel Content.” Users requiring alt text miss out on vital information, like event dates and sponsor lists. In many other cases, the alt text that is present is not sufficient. For example, in order to toggle the dropdown menu for account management users need to click on a photo of their avatar. The alt text for this avatar reads “User Avatar” and makes no indication that this is a clickable toggle for a dropdown menu.

Guideline 1.2: Time-based Media

1.2.4 Captions (Live): Captions for Twitch streams are rare, or inadequate when available.

Guideline 1.3: Adaptable

1.3.1 Info and Relationships: An automated evaluation of these webpages with TAW and WAVE identified errors within headings and form controls. The h1 tags were missing, or blank, so there are no titles to orient the user to the webpage. There is copious use of the h2 tag for main body text areas where a paragraph tag would be better. Some forms are missing labels. For example, the search icon is skipped over by screen readers, as it is not labeled.

1.3.2 Meaningful Sequence: The structure of the Twitch channel page may be very difficult to navigate for those who use screen readers. The chat window is one of the very last things that will come up for those who use a keyboard to navigate. There is too much information on the front-end of the structure, with Twitch listing out dozens of “suggested” channels without any way for the user to opt out of these suggestions.

Guideline 1.4: Distinguishable

1.4.3 Contrast (Minimum): There is a toggle button to switch between dark and light modes in the settings. This may be difficult to find, since this menu is only clickable via the user’s profile picture. The alt text for the user’s profile picture e is “User Avatar;” it mentions nothing about this being a dropdown menu once clicked. The WebAIM WAVE extension for Firefox (<http://wave.webaim.org/>) generated a passing contrast ratio in light mode of 8.59:1. In dark mode, the contrast ratio fails with a score of 2.97:1.

1.4.4 Resize Text: Most of the text resizes well, except for in a few places. The panels within the “About” section of the Twitch channel become too large and begin to overlap one another. Also, text within the chat window becomes difficult to see, as some icons grow in size along with the text and obscure the chat.

Operable

Guideline 2.1: Keyboard Accessible

2.1 Keyboard Accessible: All Twitch pages have a huge issue when it comes to browsing with a keyboard. The way that they have their main menu navigation structured is such that most of the menu options are hidden within a dropdown. In order to toggle the dropdown with a keyboard, you navigate to it with the tab key and press enter. Then you cannot navigate using the arrow keys, you have to continue to use TAB and SHIFT-TAB for navigation. If you accidentally hit SHIFT+TAB too many times, the keyboard navigation takes you to a completely random spot on the webpage like “Collapse Chat Window,” for example. It is difficult to get back to your previous location in the menu.

Guideline 2.2: Enough Time

2.2.2 Pause, Stop, Hide: Twitch’s homepage automatically begins to play videos from recommended channels using a carousel of videos at the top of the page. These videos can be paused using the video player controls. They automatically play the video audio of whichever stream is featured in the carousel.

Guideline 2.3: Seizures and Physical Reactions

Video games are filled with lights and flashes that can cause seizures. Twitch doesn’t mitigate these

flashes other than providing a “Photosensitive Seizure Warning” within their “Accessibility Statement.”

Guideline 2.4: Navigable

2.4.2 Page Titled: The homepage title on the browser tab is “Twitch,” with no indication that it is the homepage. Twitch’s channel page reads “Twitch – Twitch.” It is unclear if this is also the homepage, or a separate channel. Looking at other channels the title page is “*ChannelName* – Twitch.”

2.4.4 Link Purpose (In Context): TAW found that there were multiple empty buttons and links across the homepage and Twitch channel page. For example, some of the eight graphic panels on the Twitch channel page navigate to external websites. There is no link or button information for these panels other than what is contained within the photo.

2.4.6 Headings and Labels: The home page and Twitch channel are both missing an `<h1>` heading tag to identify them. On all pages, the headings skip straight to the `<h2>` tags for the leftmost section of “Followed Channels” and “Recommended Channels.” The main content area in the center of the page is read after everything on the left. For the Twitch channel page, the most visually distinct header is “About Twitch,” but this is listed as the seventh header on the page as an `<h3>` tag.

Guideline 2.5: Input Modalities

2.5.5 Target Size: On the mobile site, clickable targets do not meet the required 44 x 44 pixel target-size.

Understandable

Guideline 3.1: Readable

3.1.1 Language of Page: The language attribute is missing from the HTML of both pages.

3.1.3 Unusual Words: Many of the words on a page are unique usernames, gamer terms, and lingo that would not be found in a dictionary.

3.1.5 Reading Level: The average readability score for the Twitch homepage and channel is 5.19. Scores ranged from a 2.5 on the Gunning Fog Index and an 11.4 on the FORCAST Grade Level.

Guideline 3.2: Predictable

3.2.3 Consistent Navigation: The order of “Followed Channels” and “Recommended Channels” changes as a stream’s viewer count increases or decreases. There are no options available to organize them via a static method, like alphabetically, for example.

Guideline 3.3: Input Assistance

3.3.1 Error Identification: For the chat feature, if a user types and enters banned or restricted terms they can be timed-out or banned from a Twitch channel altogether. These terms are unknown to the user unless they receive a timeout or ban message after hitting submit. Users cannot edit their chat once submitted.

Robust

Guideline 4.1: Compatible

4.1.1 Parsing: The W3C HTML validator reported the same four errors and one warning for both the homepage and the Twitch channel page. The language attribute is missing from the HTML of both pages. The W3C CSS validator returned the same four errors for both pages. There is a parse error identified within the side navigational content height for “Followed Channels” and “Recommended Channels.”

4.1.2 Name, Role, Value: ARIA is present throughout many of the elements, to include menu navigation, search bars, and streamer lists. The use of the WAVE tool identified 184 broken ARIA references on the

homepage and 10 on the Twitch channel page. A look into the HTML code shows that ARIA references exist, but that the targets for these references are missing. Elements have an “aria-labelledby” or an “aria-describedby” value, but they do not match the ID attribute values of another element on the page. Due to this, none of the ARIA labels will be presented to a screen reader.

Screen Reader Evaluation

I used the NVDA screen reader to navigate through the webpages on both Mozilla Firefox and Google Chrome. I also navigated through the mobile website using the Safari browser and iPhone’s VoiceOver. The most frustrating issue I encountered was that Twitch’s layout makes no sense to a screen reader. On a desktop you have to navigate past dozens and dozens of currently live streamers, past every single video control and share option, and through graphic panels lacking appropriate alt text in order to reach the chat window. Important numbers, such as stream viewer count, are read aloud with no context as to what those numbers reference. When I navigate to the main body of the page, the screen readers go through all the elements below the stream video, with no pause between options (Share, Follow, Twitter, Instagram, etc). Some buttons, such as the follow button, are not read aloud by the screen reader at all. When a stream is live, keeping up with the chat is basically impossible. The sounds from the stream and the screen reader reading out the chat compete with each other, and it is difficult to retain auditory information from either source.

To supplement this experience, I reached out to an acquaintance on Twitch who is visually impaired and moderates a stream using a screen reader. They shared that “for an experienced screen reader-user Twitch is...okay, but can be overwhelming.” The frequent website updates pose unique challenges as they mentioned that “some days, I can easily “see” which of the streamers I follow are online, other days not. Sometimes I can move between headings of channels I follow, recommended channels etc, and some days I cannot (today is one of those, apparently)... It feels like I will never know how the layout will be from day to day, and it's annoying.”

RECOMMENDATIONS

- Include detail in page titles. Example: “Twitch Homepage” & “*ChannelName* – Twitch Channel”
- Enforce alt text guidelines and provide streamers with the option to add alt text into their panels.
- Enable closed captioning support within the website. Provide transcripts for past broadcasts.
- Use heading tags in conjunction with paragraph tags appropriately to structure content. Identify site pages with an h1 tag to orient users.
- Reformat page structures. Prioritize important information, frequently visited links, and chat.
- Ensure colors provide adequate contrast. Twitch purple for “dark mode” renders text illegible for some users.
- Prevent icons from resizing along with text, which leads to obstructions when enlarged.
- Dropdown menus need to use directional arrows for navigation, not shift and tab.
- Ensure that all links/buttons have an appropriate text identifier.
- Dropdown menus must be clearly labeled. Use a dropdown toggle instead of the user image.
- Do not automatically play video audio on the homepage or any channel page.
- Provide photosensitivity warnings on videos. Allow users to opt in to playing a video.
- On mobile, ensure that clickable targets meet the 44 x 44 pixel minimum size.
- Include a language attribute tag, which is often necessary for screen readers.
- Keep navigation consistent. Allow users to sort streams manually, instead of automatically changing them based on viewer count.
- Provide users with a list of banned terms, along with chat rules to mitigate errors and accidents.
- Use ARIA correctly. Fix missing ID attribute values.
- Fix HTML and CSS parsing errors (i.e. side navigational content height, etc.).

References

- [1] J. Clement. 2022. Number of hours watched on leading gaming live stream platforms worldwide in 2nd quarter 2022, by platform. (August 12, 2022). Retrieved October 30, 2022 from <https://www.statista.com/statistics/1030795/hours-watched-streamlabs-platform/>
- [2] Twitch. 2022. Twitch Accessibility Statement. (April 29, 2022). Retrieved October 30, 2022 from <https://www.twitch.tv/p/en/legal/accessibility/>
- [3] UserVoice. 2022. How can we make Twitch more accessible for users with disabilities or those who depend on assistive technologies to access our services? Retrieved October 30, 2022 from <https://twitch.uservoice.com/forums/926080-user-accessibility>