Tearing Down Walls: An Analysis on the Significance of Web Accessibility in the User Experience

Ryan Blocker
Computer Science
Colorado State University
Fort Collins, CO, USA
rblocker@colostate.edu

ABSTRACT

Web developers have a responsibility to ensure that their websites are accessible to all users, including those with disabilities. Making accessibility a priority in web design means implementing features that enable individuals with different abilities to navigate, understand, and interact with the site. This includes providing alternative text for images, using clear and descriptive language, and designing pages that are easy to navigate with keyboard commands. By prioritizing accessibility, web developers can create websites that are inclusive, user-friendly, and compliant with accessibility standards and regulations.

KEYWORDS

Web Design: Web design is the process of creating and designing websites. It involves using various techniques and tools to create a visually appealing, user-friendly, and effective website that meets the needs of the target audience. The goal of web design is to create a website that looks great, provides a positive user experience, and achieves the website owner's goals.

Accessibility: Accessibility refers to the design and development of products, services, or environments that are accessible to people with disabilities or special needs. It ensures that everyone, regardless of their abilities or disabilities, can access and use something without barriers or discrimination.

1 The Importance of Web-Design Accessibility

In 2023, the internet is such a diverse and interesting place with over 1.13 billion websites as of February 16, 2023! [1] With now over 4.9 billion people (62% of the global population) using the internet to do business and communicate it is more important than ever that they can effectively utilize all the internet's features seamlessly.

The internet user experience can be affected by many disabilities such as color blindness, hearing loss, motor disabilities, and lost eyesight. To focus on a specific disability, like color blindness. According to the National Eye Institute, approximately 8% of males (1 in 12 men) and 0.5% of females (1 in 200 women) are color blind. This means that in the United States alone, over 26.5 million men and 16.6 million women are unable to perceive the world in the same way as most individuals. This disability significantly affects every aspect of their lives.

These impairments have a significant negative impact on their internet user experience. A study published in the Journal of Assistive Technologies [2] found that people with disabilities face various challenges while using the internet, such as inaccessible websites, poor website design, and below average assistive technologies to aid with comprehension. As a result, these individuals the researchers observed that these individuals experienced social isolation, reduced access to information and services, and limited opportunities for education and employment as a result.

These studies further emphasize the issues that the exclusion of accessibility in design causes social and mental issues as well as an unhealthy imbalance in access to information.

1.1 What Does Poor Web Design Look Like

Poor web design can take a variety of forms, but some common examples include cluttered layouts, inconsistent use of color and font, and confusing navigation. Cluttered layouts can make it difficult for users to find the information they need, and inconsistent use of color and font can make it hard to read and understand the text. While confusing navigation can lead to users getting lost or frustrated and leaving the site altogether.

When it comes to accessibility, poor web design can have a significant impact on the user experience. For example, a cluttered layout can make it difficult for users with visual impairments to find and access the content they need, while inconsistent use of color and font can make it hard for users with color blindness or dyslexia to read and understand the text. Slow loading times can be especially frustrating for users with cognitive or physical disabilities, as it can make it difficult for them to navigate the site efficiently. Confusing navigation can also be a significant barrier for users with disabilities, as it can make it hard for them to find the information they need or complete tasks on the site.

Overall, web designers need to prioritize accessibility when creating websites. This means designing sites that are easy to use and navigate for users with a range of disabilities. Additionally, it means taking steps to ensure that all users can access the information they need. By prioritizing accessibility, designers can

create websites that are not only user-friendly but also more inclusive and welcoming to all users, despite any of their impairments or disabilities.

1.2 Current Web Design Standards

Good web-design accessibility is crucial for ensuring that all users can access and use websites effectively and with little to no help. To help achieve this goal, the Americans with Disabilities Act (ADA) was enacted to ensure that websites are accessible to people with disabilities, including those who are visually impaired, hearing impaired, and mobility impaired. The ADA requires that websites comply with the Web Content Accessibility Guidelines (WCAG), which were developed to help designers and developers create websites that are accessible to all users, including those with disabilities. The ADA is currently requiring designers to follow WCAG 2.1 which is the current standard. The standard outlines four main principles for web accessibility. It says that every website must be perceivable, operable, understandable, and robust.

The perceivable principle states that website content must be able to be perceived by all users. This includes providing alternative text for images and videos, providing captions or transcripts for audio and video content, and ensuring that color is not the only means of conveying information.

The operable principle states that users must be able to navigate and operate the website, regardless of their physical abilities. This includes ensuring that all functionalities can be accessed through a keyboard, providing clear and consistent navigation, and avoiding content that can cause seizures or other physical reactions.

The understandable principle states that website content must be understandable to all users, including those who may have difficulty with comprehension or cognitive disabilities. This includes using clear and simple language, avoiding jargon and abbreviations, and providing instructions and feedback that are easy to understand.

The robust principle states that website content must be able to be interpreted by a wide range of technologies, including assistive technologies used by people with disabilities. This includes using HTML, CSS, and other web technologies in a way that is consistent and predictable.

1.3 How an Accessible Site is a Better Site

Creating a website that is accessible to all users, including those with disabilities, can have a positive impact on the website's overall usability and user experience. According to a study by the [3] Nielsen Norman Group, making a website more accessible can improve its overall usability and make it easier for all users to navigate and use the site. This is because many of the accessibility features that benefit users with disabilities, such as clear navigation, alternative text for images, and consistent design, also benefit all users by making the site easier to use and understand.

In addition to improving usability, creating an accessible website can also have a positive impact on a company's brand image and reputation. According to a study by the World Wide Web Consortium (W3C) [4], accessible websites are seen as more inclusive and customer-friendly and can help build trust and loyalty with customers. This is because accessible websites demonstrate a commitment to serving all users, regardless of their abilities, and can help create a more positive and inclusive online experience.

Furthermore, creating an accessible website can also help companies comply with legal requirements and avoid potential lawsuits. In recent years, there has been an increase in lawsuits related to website accessibility, with companies facing legal action for failing to provide accessible websites to users with disabilities. By creating an accessible website that meets the WCAG 2.1 standards, companies can help mitigate the risk of legal action and ensure that their website is accessible to all users.

1.4 What Needs to Change in the Future

While there has been significant progress made in recent years to improve website accessibility, there is still much work to be done to ensure that all users have equal access to online information and services. To achieve this goal, web designers and developers must prioritize accessibility in their work and continue to push for advancements in this area. This will not only benefit users with disabilities but will also result in a more inclusive and user-friendly online experience for all users.

One area where web designers and developers need to improve is in creating more accessible multimedia content, such as videos and audio files. While there are guidelines in place for creating accessible multimedia content, many websites still fail to provide alternative text, captions, or transcripts for these types of content. This can be particularly problematic for users with visual or hearing impairments, who may not be able to access the content without these features. By prioritizing accessibility in multimedia content creation, web designers and developers can help ensure that all users can access and enjoy this content.

Another area where web designers and developers can improve is in creating more accessible [5] mobile websites and apps. With more and more users accessing websites and services on their mobile devices, these platforms must be accessible to all users, regardless of their physical abilities. This includes ensuring that all functionalities can be accessed through a touch screen or other input method, providing clear and consistent navigation, and avoiding content that can cause seizures or other physical reactions.

To make progress in improving website accessibility, web designers and developers must stay up to date on the latest guidelines and best practices. This includes staying informed about changes to the [6] WCAG standards, as well as seeking out resources and training opportunities related to accessibility. By making accessibility a priority and committing to ongoing learning and improvement, web designers and developers can help create a more inclusive and accessible online experience for all users.

1.5 CONCLUSION

In today's digital age, the internet has become an essential part of daily life for people all around the world. It is therefore imperative that web designers and developers take steps to ensure that all users, regardless of their physical abilities, can access and use online information and services. Failure to consider accessibility in web design can have serious consequences for people with disabilities, who may be unable to fully access or participate in online activities.

However, by prioritizing accessibility in web design, designers can improve the readability, usability, and overall user experience of their websites. This not only benefits users with disabilities but also creates a more user-friendly and inclusive online environment for everyone. By considering accessibility in all aspects of web design, from multimedia content to mobile interfaces, designers can ensure that their websites are accessible to all users, regardless of their abilities.

As we move forward into the future, designers must have an open mind and commit to creating websites that are accessible to all. By doing so, they can help create a more inclusive online environment that promotes equal access to information and services for everyone.

REFERENCES

[1]. Huss, Nick. 2023, February 16. How many Websites Are There in the World. Siteefy. https://siteefy.com/how-many-websites-are-there/

[2]. Lazar, J., Goldstein, D. G., & Taylor, A. S. 2015. Ensuring digital accessibility through process and policy. Journal of Assistive Technologies, 9(2), 68-79. https://www.gbv.de/dms/ilmenau/toc/83445372X.PDF

[3]. Nielsen, J., & Loranger, H. 2006. Prioritizing web usability. New Riders.https://ptgmedia.pearsoncmg.com/images/9780321350312/samplechapter/0321350316_Ch04.pdf

[4]. World Wide Web Consortium (W3C). 2018. Accessibility: Business Case for Digital Accessibility. W3C, Massachusetts, United States. https://www.w3.org/WAI/business-case/

[5]. W3C. 2018. Web Content Accessibility Guidelines (WCAG) 2.1. W3C, Massachusetts, United States. https://www.w3.org/TR/WCAG21/

[6]. Adams, A., & Sahni, U. 2017. Developing Accessible Mobile Applications for Android. In S. Saha & S. Kumar (Eds.), Advances in Human Factors and System Interactions, 385-395. Springer. https://www.researchgate.net/profile/Patricia-Acosta-Vargas/publication/333625374_Accessibility_Assessment_in_Mobile_Applications_for_Android/links/62b555346ec05339cc9e6abc/Accessibility-Assessment-in-Mobile-Applications-for-Android.pdf