Accessibility & Usability Best Practices

wire media

Introduction

Nearly 1 billion[1] people in the world have a disability. The internet has opened the doors to a world of information, but poorly designed websites make it much harder for people with disabilities to access that information.

The United Nations Convention on the Rights of Persons with Disabilities (UN CRPD) considers accessible websites to be a basic human right. Web design that prioritizes user experience (UX) and follows accessibility standards offers equal access to information and social inclusion for people with disabilities.

Accessibility and usability are the UX design standards that make websites available to everyone.

[1] "World Report on Disability 2011," World Health Organization, January 1, 2011

Photo by fauxels from Pexels.

"The internet could be a very positive step towards education, organization and participation in a meaningful society."

Noam Chomsky

MIT Institute Professor Emeritus and cognitive scientist

Accessibility & Usability: What Does it All Mean?

Although web accessibility and usability have the same goal, they're two different aspects of a well-designed site.

Accessibility means that the website is usable by people with disabilities, regardless of the kinds of assistive technology they might need. Whether they use text readers, speech input software, screen magnifiers, head pointers, eye tracking, or any similar tool, a properly accessible website will be compatible and ready. Any user should be able to navigate the site and access its content.

Usability focuses on developing a positive user experience for everyone, regardless of ability. UX design makes the site valuable to the user, function properly, and meet the user's needs.

Combining web accessibility and usability in web design allows for inclusion and equal access to anyone who uses the site.

Poor UX Design Interferes with User Engagement

Websites can enhance or harm an organization's reputation. Poor website design leaves visitors frustrated and not inclined to return.

On the other hand, a carefully crafted webpage encourages users to navigate deeper into the site and engage with its content.

Since users spend a mere 10-20 seconds scanning[2] a page to decide if they want to continue, the UX design and its first impression are crucial.

[2] Jakob Neilsen, "How Long Do Users Stay on Web Pages?" Neilsen Norman Group, September 11, 2011

Damages Credibility

A website is often an organization's first contact with the world. A website that neglects accessibility makes the organization seem insensitive to the needs of people with disabilities. If the site is cluttered, hard to navigate, or slow to load, it also reflects poorly on professionalism and credibility.

Reduced Visibility

Engagement isn't possible when users can't find a website. UX design influences where a website appears in search engine rankings and can be the difference between a high-ranking result versus a second or third-page link.

Search engines assess several factors to rank a webpage. Examples include:

- Page load time
- Page speed
- Site navigation clarity
- Mobile responsiveness
- Information layout

Organizations that don't prioritize UX web design risk reduced visibility for their website.

Web Accessibility Removes Barriers to People with Disabilities

Website users are as diverse and individual as the sites they visit. There are many factors designers should consider when trying to achieve accessibility and usability.

Auditory—People with auditory disabilities have difficulty hearing and interpreting speech.

Cognitive—A cognitive difference affects a person's information processing and communication skills. Examples include autism, dyslexia, and attention deficit hyperactivity disorder (ADHD).

Neurological—Neurological disabilities result from changes to the nervous system. These types of disabilities often result in loss of cognitive or bodily function. Common neurological disorders include Parkinson's disease, epilepsy, multiple sclerosis, Tourette's syndrome, and cerebral palsy.

Physical—Physical disabilities impact a person's mobility, dexterity, or stamina. Examples include spinal cord injuries and amputation.

> Web accessibility best-practice standards mean equal access to the internet for everyone, regardless of ability. The power of the Web is in its universality. Access by everyone regardless of disability is an essential aspect.
>
> **Tim Berners-Lee**
> W3C Director and inventor of the World Wide Web

Speech—A person with a speech disability has difficulty producing speech sounds. Speech disorders include selective mutism and stuttering.

Visual—People with vision disabilities have difficulty processing visual information. Causes include cataracts and macular degeneration.

Effective UX Design Improves the User Experience for All

Web accessibility and usability affect the user experience for everyone, not just people with disabilities. Web design standards affect all website users.

Aging—The aging population should have equal website access despite mobility, vision, and speech challenges members may face.

Different Devices—Websites should provide consistent access to various devices like smartphones, smart TVs, tablets, or PCs.

Situational Limitations—Sometimes, environmental factors create accessibility challenges. For example, sunlight can affect vision and quiet environments can prohibit a user from listening to audio or watch a video.

Technology Limitations—Internet speed or broadband limitations can also affect the user experience. For example, slow internet or limited bandwidth affects page speed or limits the ability to view video or animation properly.

Temporary Disabilities—People experiencing temporary setbacks like a broken arm or misplaced glasses benefit from accessibility and usability in web design.

Web Accessibility and The Law

Thousands of web accessibility lawsuits[3] are filed each year. The Americans with Disabilities Act (ADA) prohibits discrimination[4] against people with disabilities in access to public places. The Department of Justice (DOJ) has affirmed that the ADA applies to websites. As a result, organizations that do not follow web accessibility practices could face significant fines and penalties.

[3] "Over 2250 Web Accessibility Lawsuits Filed in 2018. Could They Triple in 2019?" Bureau of Internet Accessibility, February 28, 2019

[4] "Is There a Legal Requirement to Implement WCAG?" Bureau of Internet Accessibility, August 22, 2019

Best Practices for Accessible UX Design

The Web Content Accessibility Guidelines (WCAG)[5] provide a universal set of standards for accessible website design. They act as a useful outline for designers to follow, to help ensure they meet ADA requirements.

[5] "Web Content Accessibility Guidelines (WCAG) 2.1," W3.org, 2017-2018

The WCAG bases its standards on four principles. According to WCAG, a properly designed website must be perceivable, operable, understandable, and robust.

Web Content Should Be Perceivable

Web content is perceivable when the brain can process and interpret it. UX designers use several methods to make this happen.

Text Alternatives—Text alternatives adapt web content into other forms like braille, speech, or large print.

1. Name input controls in a way that describes their purpose.
2. Provide text alternatives for all media on the page.
3. Offer other ways of providing CAPTCHA.

Time-Based Media—Sites should provide a mechanism for those with disabilities to consume time-based content such as video or audio.

1. Include captions with live video and audio content.
2. Provide an audio description for all prerecorded video content.
3. Provide sign language interpretation when possible.

Adaptable—Develop all content for easy presentation in different ways without losing structure, meaning, or function.

1. Present information in the correct reading sequence.
2. Avoid restricting content to a single display orientation (portrait versus landscape).

Distinguishable—Present web content in a way that users can see and hear it clearly.

1. Avoid using color as the sole means of conveying information.
2. Users should be able to resize text up to 200 percent without assistive technology and without compromising content and functionality.
3. Any audio on the page that automatically starts should have a mechanism to pause or stop the audio.
4. Prerecorded audio should have no background sounds or, at a minimum, provide a means to turn off the background sounds.

Effective UX Design Ensures the Website is Operable

All elements on the site should be operable by a variety of assistive technologies.

Ensure Keyboard Input—Ensure all functionality of the site is operable through the keyboard.

1. Users should be able to navigate the site using a keyboard.
2. The site should not require specific timings for keystrokes.
3. Provide a method to turn off or remap keyboard shortcuts.

Provide Enough Time to Digest The Content—Allow users to turn off or adjust the time limit for time-based content.

1. Minimize the use of automatically updating content or provide a means for the user to request updated content manually.
2. For time-based content, allow the user to adjust the time limit.
3. Minimize the use of auto-updating content or provide a mechanism for the user to suppress the auto-update.

Minimize Seizures and Physical Reactions—Those with neurological disorders may be sensitive to flashing information and animation.

1. Effective UX design ensures web pages that involve flashes do not occur more than three times in any one second.
2. Users should be able to disable animations that are not essential to the content being displayed.

Ensure Each Page is Easily Navigable—Remove barriers to page navigation.

1. Each page should have a page title and section headings.
2. The focus indicator should always be available to help the user identify where they are on the page.
3. Each link should provide a means to identify the link's purpose using text alone.

Allow for Variety of Input Mechanisms—Not all website visitors rely on a keyboard and mouse for input.

1. Users should be able to interact through other input methods such as pointer gestures.

Web Content Should Be Understandable

All elements of the user interface must be understandable.

Make Each Page Readable—Web pages should provide a way to determine the default human language programmatically.

1. Provide a method to identify unusual words such as idioms and jargon.
2. Ensure a mechanism to determine the expanded meaning of abbreviations.
3. Provide supplemental content for anything that requires advanced reading ability.
4. Provide a mechanism to identify the pronunciation of words.

Web Page Functionality Should Be Predictable—Consistent navigation structure across all pages eliminates frustration and provides a positive user experience while navigating the site.

1. Design components to have the same identity and functionality across pages.
2. Provide text-based error description.

Provide Input Assistance—Provide a way to help input information correctly and avoid and correct mistakes.

1. Labels should clearly describe the content required for input.
2. Provide suggestions via text for correcting errors.
3. Help the user prevent errors by providing a means to review and confirm data before submission, make form submissions reversible and provide automatic data validation.

Effective UX Design is Robust in Compatibility with Current and Future Technologies

Website accessibility must be able to adapt to a wide variety of assistive technologies.

Parsing—Implementing correct markup on the page ensures assistive technology can appropriately interpret and present content.

1. All markup elements have complete start and end tags.
2. All makeup elements have unique names.

Name, Role, Value—Assistive technology must be able to identify, activate and maintain the status of user controls.

Status Messages—Sites should provide a mechanism to determine status messages programmatically to present to assistive devices.

Tips for Implementing Web Accessibility

Implementing a website that provides equal access for all starts with a good plan and a long-term commitment to inclusion.

Good Usability Starts with Good Planning

Effective website planning lays the groundwork for a positive user experience. Designers and programmers should begin with inclusion in mind and proceed with accessibility and usability included throughout the website development.

Conduct an Accessibility Audit

A website audit can help determine gaps in site accessibility. Using the information gathered in the audit, website owners can develop a plan to address any areas of concern. The key steps of an audit include:

Review & Familiarize with WCAG Guidelines—The WCAG provides a comprehensive set of standards for web accessibility. Following these guidelines enables designers to make websites accessible and useable.

Develop Checklist—Based on WCAG guidelines, develop a checklist of critical features to review on the website.

Testing—Use the checklist to evaluate every area of the website for accessibility.

Test Early and Often

Creating a great user experience requires more than just setting up an inclusive website. Web accessibility and usability require a long-term commitment to updates. This is so the site can keep pace with technological change.

Regular testing is the best way to keep a website current and maintain its inclusivity. There are several ways to conduct testing.

- Run the site through a markup tool to validate that the site's markup (HTML) doesn't cause any accessibility issues.
- Conduct manual testing on each site's feature according to the checklist developed during the audit.
- Use software-based testing tools to evaluate all functions of the site for accessibility.
- Include users with disabilities in the testing effort, and use their feedback in site improvements.

Website accessibility and usability standards make the internet a place of inclusion. An accessible site should serve all disabilities and assistive technology.

Designing for a positive user experience starts with planning and continues with regular testing and updates. Creating an accessible website may not always be easy, but it is worth it.

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