INDIVIDUAL RESEARCH ESSAY

CT035-3-3-HCIAU

HUMAN COMPUTER INTERACTION AND USABILITY

HAND OUT DATE : 31st JANUARY 2024

HAND IN DATE : 10 APRIL 2024

WEIGHTAGE : 25%

TOPIC : Ensuring Accessibility in Web Interface Design

INSTRUCTIONS TO CANDIDATES:

1. **Submit your assignment at the Moodle System.**
2. **Students are advised to underpin their answers with the use of references (cited using the APA Style System of Referencing)**
3. **Late submission will be awarded zero (0) unless Extenuating Circumstances (EC) are upheld.**
4. **Cases of plagiarism will be penalized.**
5. **The assignment should be submitted in softcopy, where the softcopy of the written assignment and source code (where appropriate) should be on Moodle System.**
6. **You must obtain 50% overall to pass this module.**

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1.0 Introduction to Accessibility in Web Interface Design

Accessibility in web interface design involves the creation of digital interfaces that are usable and navigable for individuals with disabilities or limitations. This encompasses designing websites, applications, and software to ensure equal access and usability for all users, regardless of their abilities or impairments (Zaina et al., 2022). The main objective is to remove barriers that may prevent people with disabilities from effectively using digital products or services. This includes ensuring that individuals with visual, auditory, motor, or cognitive disabilities can perceive, understand, navigate, and interact with digital content without encountering obstacles (Cheoh et al., 2020).

Ensuring accessibility in web interface design is a key goal aimed at expanding the potential user base for digital products and services (Cheoh et al., 2020). By creating more inclusive interfaces, designers can effectively serve a broader spectrum of users, including individuals with disabilities or impairments. This not only addresses legal mandates and industry norms but also improves the overall user experience for all individuals irrespective of their capabilities.

Accessibility and usability are closely connected, with accessibility particularly directed at facilitating effective interaction for individuals with diverse abilities. While considering the user's capabilities, skills, and understanding usability focuses on the system's ease of use. Design principles are crucial in guaranteeing both usability and accessibility in interface design. The difference between accessibility and usability becomes evident when considering technology for disabled individuals. Accessibility provides entry points for users, while true usability ensures effective interaction with technology (Mohamed, 2013).

In designing web interface design, it is crucial to prioritize accessibility principles and guidelines in order to develop digital products and services that are functional, inclusive, and align with legal standards. This approach enables designers to accommodate the varied needs of users, including individuals with disabilities or impairments.

2.0 Importance of Accessibility in Web Interface Design

The significance of web accessibility is immense. It is not only a question of social duty and inclusivity, but it also carries legal implications. Numerous countries, such as the United States and the European Union member states, have enacted laws and regulations that require digital products and services to meet accessibility standards. Non-compliance with these standards can lead to legal repercussions and harm an organization's reputation (Fjeld, 2023). In addition, interfaces that are not accessible can cause frustration and exclusion for individuals with disabilities, denying them equal opportunities to access information and resources.

Implementing accessibility in digital content demands a comprehensive strategy that considers different aspects of design, development, and testing. Designers need to give precedence to inclusive design principles right from the beginning of the design process. This encompasses considering the needs and preferences of a wide range of user groups, including individuals with disabilities, and integrating features and functionalities that meet their needs (Persson et al., 2014).

When designing for accessibility, it is essential to consider the specific context and platform of the interface. Regardless of the type of application, whether it be a web application, desktop software, or mobile app, each platform presents its own distinct difficulties and factors to consider. When it comes to web-based interfaces, compliance with the WCAG is essential. The WCAG establishes a collection of globally acknowledged criteria for ensuring web accessibility, encompassing aspects like perceptibility, operability, and comprehensibility. Adhering to these principles allows designers to guarantee that their websites can be accessed by a diverse audience, including individuals who rely on assistive technologies such as screen readers or voice recognition software.

3.0 Current Accessibility in Web Interface Design

The accessibility status in web interface design differs based on the given situation and the initiatives undertaken by designers and developers to guarantee accessibility. Even though there are criteria and recommendations, such as the Web Content Accessibility Guidelines (WCAG), that establish a structure for constructing accessible interfaces, the extent of accessibility attained can be shaped by elements such as the dedication of the organization, resources devoted to accessibility, and the proficiency of the design team (Kumar et al., 2021).

In a study conducted by Cheoh et al. in 2020, the views of individuals with disabilities regarding the implementation of accessibility standards in web interface design were explored. The findings indicated that although most participants favored interfaces aligned with WCAG standards, some also offered insightful feedback on their specific feature preferences. This indicates that while WCAG serves as a valuable framework, there may be room for enhancement in certain areas to address the requirements of users more effectively with disabilities. The research also examined the responses and explanations provided by participants regarding the incorporation of different accessibility standards. The goal was to comprehend the reasoning behind this limited group of individuals with disabilities in web design. This study underscores the significance of considering the viewpoints of users with disabilities when creating accessible interfaces.

Besides, Almenara et al. (2023) presented Collaborative Wiki for WCAG Evaluation, an online platform created to streamline the evaluation of website accessibility according to WCAG 2.1 Guidelines. This collaborative tool provides thorough instructions for assessing a website's compliance with accessibility standards, accompanied by specific instances of both accessible and non-accessible elements to assist evaluators in their appraisals.

In brief, the present state of accessibility in interface design differs, and efforts are being made to enhance accessibility norms and recommendations to better address the requirements of users with disabilities. Designers and developers need to persist in giving priority to accessibility in their design procedures so that digital products and services can be used and navigated by all users, regardless of their abilities or impairments.

4.0 Web Content Accessibility Guidelines (WCAG)

The World Wide Web Consortium (W3C) has developed the Web Content Accessibility Guidelines, which are universally recognized technical standards. These guidelines aim to ensure that digital content, such as websites, applications, and electronic documents, can be utilized by people with disabilities. WCAG is focused on removing barriers faced by individuals with varying disabilities including sensory impairments or cognitive and physical limitations. Although not mandatory in all regions, WCAG has gained global acceptance as the standard for web accessibility and is frequently referenced in legislation, court decisions, and accessibility requirements. Adhering to WCAG helps organizations improve user experience and reduce legal risks associated with inaccessible web content (Rivenburgh, 2021).

The WCAG specifies four primary principles: Perceivable, Operable, Understandable, and Robust (POUR). POUR guarantees that web content is accessible to all individuals. Perceivable guidelines concentrate on ensuring that information can be perceived through text replacements, adaptable display options, and distinct designs. The principles of Operable ensure that interface elements are easy to navigate, accessible via keyboard, and do not trigger seizures. Understandable guidelines prioritize legible content, consistent website behavior, and support for user input. Lastly, the Robust principle strives for compatibility with both current and future user tools and supportive technologies to maintain accessibility as technology advances (CJ, 2019).

According to UCOP (n.d.), the WCAG divide accessibility conformity into three tiers: Level A, Level AA, and Level AAA. Level A signifies the basic standard of accessibility, offering a fundamental level of adherence but may not encompass all accessibility requirements in various scenarios. The most common tier is Level AA, which strikes a balance between accessibility and practicality for all web-based information. Lastly, Level AAA establishes the highest standard, requiring strict adherence to accessibility criteria. However, attaining full AAA compliance may not always be feasible due to the complexity of some content and the rigor of the criteria. Therefore, while Level AA is the goal for most organizations, striving for Level AAA may not always be realistic or essential.

Ensuring website accessibility primarily involves adhering to WCAG guidelines, which are essential to avoid legal issues and promote inclusivity (W3C Web Accessibility Initiative (WAI), 2023). Adhering to these standards not only ensures legal compliance for organizations

but also improves the accessibility of digital products, thereby enhancing user experience and inclusivity.

In essence, WCAG plays a crucial role in advancing web accessibility by providing a comprehensive framework that designers and developers can utilize to create more accessible and user-friendly digital experiences for everyone.

4.1 Implementation of WCAG

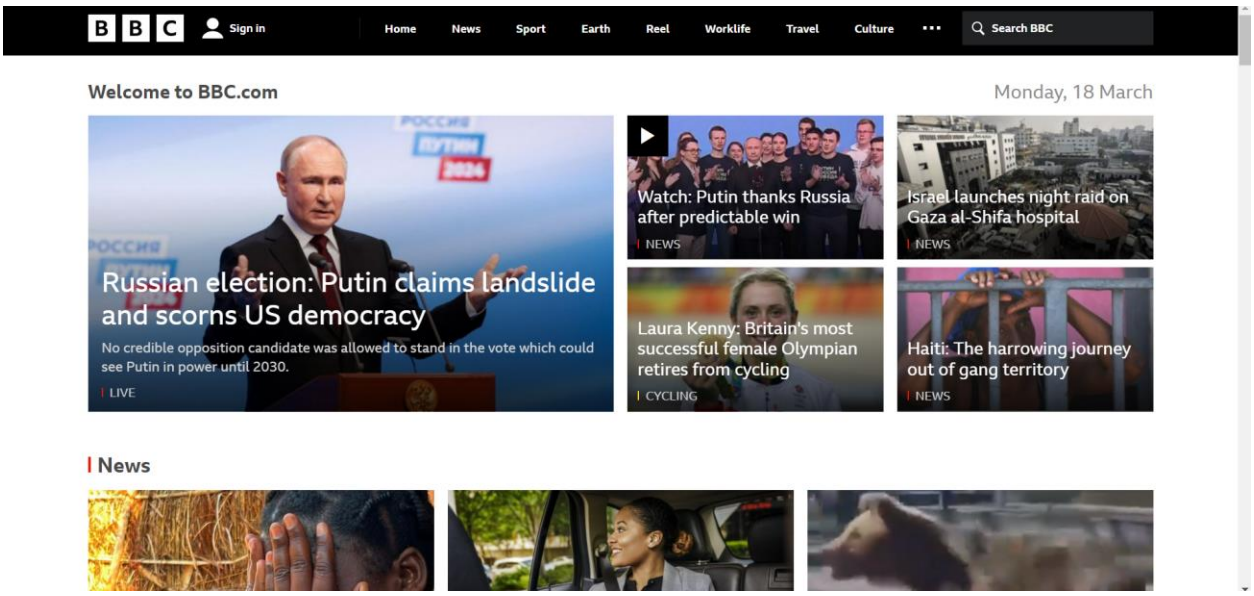

Figure 1: BBC Website

An exemplary illustration of successful WCAG implementation is demonstrated by the British Broadcasting Corporation (BBC), the BBC is a well-known British public service broadcaster headquartered in London, England (The Editors of Encyclopedia Britannica, 2017). The BBC website seamlessly incorporates WCAG and aligns with the POUR principle.

4.1.1 Perceivable

The BBC website effectively applies the Perceivable principle by including descriptive text for images in their articles. This method improves accessibility, enabling users with visual impairments to comprehend the information conveyed through images. Furthermore, the website

displays adaptability by ensuring consistent content and layout regardless of screen size, thereby delivering a smooth user experience across different devices.

4.1.2 Operable

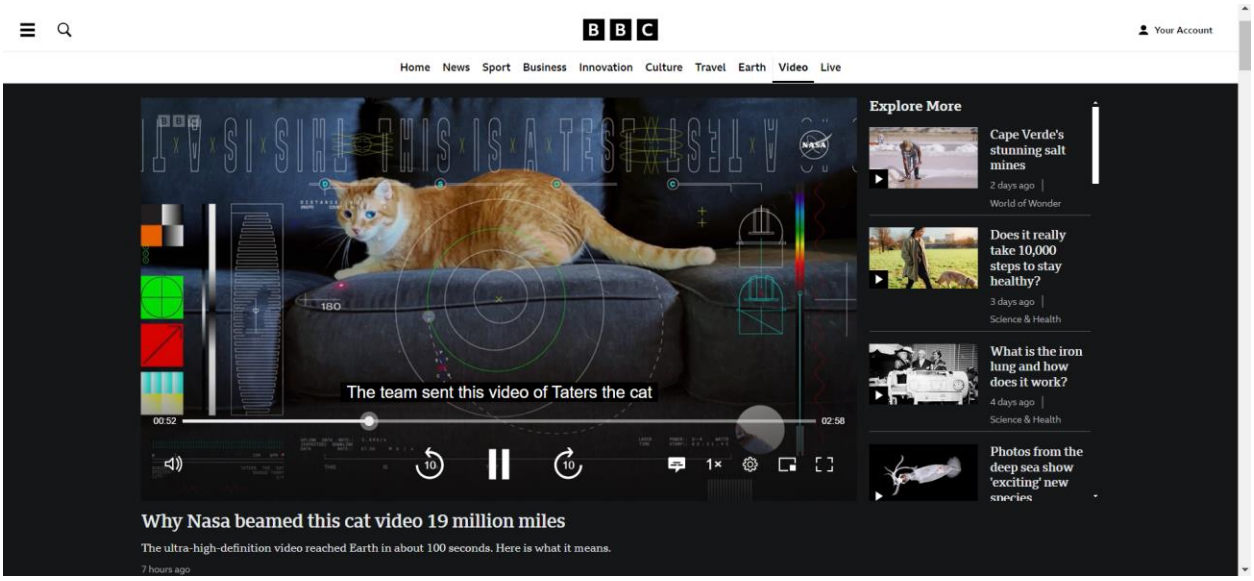

Figure 2: BBC website's video player

The video player on the BBC website exemplifies the Operable principle by offering a range of functional capabilities, including keyboard navigation during video playback. Users can effortlessly control video playback, pause, play, toggle closed captions, and adjust playback speed. Additionally, the website provides clear navigation cues on pages with video content to help users grasp their current position and explore available navigation choices.

4.1.3 Understandable

The BBC website also prioritizes the principle of Understandability by presenting information in a clear, easy-to-understand way. The text is clear and consistent in terms of typography and formatting across the site, which improves readability for all users. Furthermore, the website ensures that users can predict how interface elements will behave, making it easier for them to anticipate outcomes when interacting with the site.

4.1.4 Robust

The BBC website is designed to be compatible with a wide range of user tools and technologies, both current and future. The underlying code promotes interoperability and ensures that the website remains accessible as technology evolves. This helps future-proof its accessibility efforts, providing a sustainable digital experience for all users.

5.0 Conclusion

In my exploration of web interface design accessibility, I have developed a stronger comprehension of the significance of making digital products and services inclusive and accessible to everyone, regardless of their capabilities or restrictions. My knowledge has expanded on the essential principles that govern accessibility and how these principles influence the design and development process in order to guarantee usability for various user demographics.

This understanding has greatly influenced my views on design approaches and emphasized the importance of prioritizing accessibility at the beginning of every project. I now acknowledge the ethical responsibility to incorporate accessibility into designs and comprehend the potential legal consequences of failing to meet accessibility requirements. Additionally, I have acquired a deeper comprehension of diverse user needs and recognize the significance of integrating their perspectives into the entire design process.

In the future, I plan to incorporate the principles and guidelines delineated in this study into my own design endeavors, such as websites, applications, and digital interfaces. By integrating considerations for accessibility throughout my design process, my goal is to develop digital experiences that are not only functional but also welcoming and fair for all users. Furthermore, I recognize the significance of championing accessibility within both my professional and academic circles by raising awareness and fostering understanding of accessibility principles among colleagues and collaborators.

Overall, this study of inclusivity in web interface design has broadened my expertise and enhanced my dedication to developing digital experiences that are accessible, inclusive, and empowering for everyone.

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