Convenience and Sensory Experience: Analysis of Using Website as a Medium to Read

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Abstract: With the development of technology, the advent of e-books, computers, smartphones, and other electronic devices expanded the range of choices of media for reading, it also changed the way people consume information. Website, as a reading platform, has its advantages and disadvantages in reading experiences. For example, with a device connected to the internet, people can easily gain information and access what they want to read. Unlike traditional reading media such as books and newspapers, the website enables a variety of multimedia content, such as videos, animation, and images, which can make reading more engaging and informative, which further allows readers to enhance their understanding of a topic. However, as with any digital media, website reading may cause eye fatigue. And the movable images and inconsistent set type may be a disturbance. The diversity and potentiality of web reading call for advanced studies to further optimize the reader's experience and eliminate the inferior strength of web reading. Compared with traditional printed media, this paper explores how website increases readers' experiences in the field of sensory elements, interaction, and accessibility. The research methodology employed for this thesis involved reviewing academic literature and case studies. The results of the research indicate that websites indeed increase reading experiences for both people with and without disabilities. The findings suggest that websites provide readers with an attractive, delightful, and interactive experience. And the personalized settings, such as font size change, color adjustment, and alternative text, further increase the experience for people with different kinds of disabilities.

Keywords: web design, accessibility, visual communication, human-computer interaction

1. Introduction

Reading, one of the most direct and common ways to obtain information and enrich one's knowledge, relies on printed media or hand-written books in the past. In today's digital age, the invention of e-books, computers, smartphones, and other electronic devices creates a greater latitude for choices of medium for reading. Even though books, as a traditional and long-lived medium, will not disappear, the undoubtful convenience of both manufacturing and containing amounts of books on electronic devices still attracts many readers. Website, as a relatively new-born media, is also a popular alternative to traditional print media. With the advantages of easy access and allowing people to interact with the computer, website reading creates new experiences for readers that traditional print media cannot bring. According to Krisztina Szabó, the change from

print to online media is not simply a matter of exchanging tools or data storage but also involves a transformation in how text is comprehended [1]. The utilization of images, animations, and sounds on the website embellished the text. Compared with paper-based reading media, this paper will talk about how websites increase readers' experience through sensory stimulation, accessibility, and daily convenience and how to further increase website reading accessibility. The application of static and dynamic images and sound in digital media creates a more engaging experience in reading. Also, websites possess the capacity to enhance accessibility not only for non-disabled individuals but also for people with disabilities, through the provision of customizable reading settings and the utilization of reading aids, such as screen readers. This paper has presented a detailed analysis and synthesis of the extant benefits and potential prospects of website reading, intending to inform website designers on ways to enhance the user's reading experience and promote greater accessibility.

2.   Sensory Elements Increase the Reader's Engagement

Narration in traditional printed media such as books, newspapers, and magazines, mostly relies on text and sometimes accompanies images which act as a supplementary role within a particular part of the content. With relative pictures or instructive signs embed in the text, the content becomes clear and easier to understand. Visual aids are good tools to learn things, according to Kinder, S. James, the integration of visual aids enhances the efficiency of learning by facilitating a more accurate, active, and realistic learning experience [2]. Also, the vivid and authentic details depicted in images illuminate the context, simplifying convoluted ideas to improve accessibility and attract a wider audience with different ages and education [3]. Also, some images contain information and ideas that are outside the narrative text, which deepens and enriches the content of the reading. Website, one of the digital media, fully embodies the narrative characteristics of printed media and it further allows the residence of new sensory modalities such as animation, music, and sounds. The combination of static and dynamic images and auditory elements can enhance the reading experience to a higher level.

Animation, which adds dynamic movements and time sequences to static images, is an advancement of visual media. By using the programming language HTML, creators were able to add gif images, which is a file format that supports animated images, and video into the website pages. The movable pictures or narrative videos provide a more precise and vivid explanation of the content. For example, in Roth Annie's article published on National Geography, she talks about how an African wading bird uses its wings to capture food [4]. This predatory behavior is difficult to imagine and may cause misconceptions without seeing it with one's own eyes. But this article, published on a website, is accompanied by a video of the bird's predatory action below the title of the article. The embedded video enables readers to view the real predation scene of the African wading bird and eliminates the possibility of misunderstanding. Although readers can search the internet to look at the bird if the article is printed on paper, it takes time and additional operations which may interrupt the reading pace. Images and animations help to serve additional information, which also assists people who have weak imaginations to better engage in the story's world.

Auditory elements, such as background music and sound effects, stimulate the reader's auditory sense and add another dimension to the reading experience. The use of background music, including but not limited to looped natural sound and music, is an auditory expression that assists the storytelling and website's content. The website "A Life Extraordinary", created by Moooi, which is a Dutch furniture, interior, and lighting company, creatively integrates sound, music, images, and patterns [5]. The combination adds vitality and life to the web pages. Each page, represent as a room, has its interior design theme. Each room has a piece of unique background music that indicate the theme. For example, the page Dubble Bubble shows the interior design with the theme

of underwater. So, there is background music with continuous bubble sounds suggests and enhances the theme, the music lures the reader to explore more. When hovering over objects that can be purchased, readers can hear different sound effects, and with the hint of the sound, one can understand that the object is a commodity. The interactivity, as well as the background music, make the website playful and engaging and attract the readers to touch the furniture and immerse themselves into the digital space [6]. Another example of using background music to enhance immersion is the patronus casting page of Wizard World: The Official Home of Harry Potter [7]. When getting into the web, the mysterious background music and the sound of magic immediately lead readers into the magical world. Both the music and animation on the website let readers imagine themselves in a mysterious forest with their patronus flying above the lake.

The combination of static and dynamic images, auditory elements, and text can further increase the reader's engagement and immersion in the content. The Boat, an interactive graphic novel adaption created by Nam le, Matt Huynh, Kylie Boltin, and Matt Smith, combined music, graphics, text, and animation successfully and stunning [8]. The background music of the storm and wind indicates the atmosphere and the background of the story. The images and panels shake and sway while the reader scrolls down the page, the dynamic effects simulate the movement of the goods on the boat due to the huge waves, and further create the sense of sailing on a rough sea in terrible weather. In some panels, after the texts get into the middle top area of the screen, they will be blown away by the wind. The animation of text flying outside the screen is a strong visual display that enhanced the existence of the storm. Even though some of the drawings have an abstract background that readers can hardly understand where the main character is, with the background sound of wood crunching and wind blowing, readers can clearly imagine that the character is in a cabin of a boat.

Visual media, such as pictures, videos, and photographs, have been found to elicit empathic responses from viewers. These media can engage the viewer's emotions and imagination, providing a window into the experiences of others and promoting a deeper understanding of their perspectives.

3. Website Increases Accessibility in Reading

People with different disabilities may sometimes find it hard to do some daily activities, including reading. Traditional printed media has lots of limitations. For example, text and images are printed and cannot change size. Newspapers often employ dense layouts with small font sizes, resulting in a crowded presentation of text. Such design choices can pose significant barriers to individuals with low vision who may experience difficulty discerning the content. Unlike print media, digital platforms offer readers the ability to adjust the font size of displayed content through browser functionalities such as zooming in or out. This feature enables users to customize the presentation of online text to their individual visual preferences and needs, potentially improving accessibility for individuals with visual impairments. Moreover, website designers have the opportunity to enhance user accessibility by implementing features that allow for the customization of font sizes, styles, and other visual attributes to better suit individual preferences. By utilizing cookies to store user preferences, website visitors can enjoy a more personalized browsing experience, reducing the potential barriers to content consumption for those with visual impairments.

Screen readers, a type of assistive technology, provide an audio-based interface that reads aloud the textual content of digital media, including website content. This feature is particularly beneficial to individuals with visual impairments, including those with presbyopia, blindness, or amblyopia, who may experience difficulty with traditional visual content presentation. By offering audio-based access to digital content, screen readers can enhance the accessibility and inclusivity of websites, accommodating diverse user needs and preferences. In addition to reading textual content, screen

readers can facilitate image recognition and description, enabling individuals with visual disabilities to access and understand graphical content. By providing alternative textual descriptions for visual elements in HTML, screen readers can read out the description of the images to allow readers with visual disabilities to understand what the image is about. This promotes equal access to information and media for all users.

Even though the screen reader can read images for readers, the text hidden behind the pictures is chosen by the creator. According to Oh et al, empirical research has demonstrated a tendency to prioritize images that convey objective information, such as factual or informative content, over images that may be subjectively interpreted, such as artistic or aesthetic content [9]. They posit that additional research is warranted to enhance the accessibility and usability of subjective visual content for individuals with visual impairments, particularly those who are blind or have low vision.

The implementation of auto-scroll functionality on digital platforms such as websites is a helpful way to promote accessibility and inclusivity for individuals with physical disabilities, particularly those with limited use of their hands or arms. Auto-scroll facilitates seamless navigation of textual content without requiring manual page-turning, in other words, readers can access text and content without using their hands.

Digital media platforms also offer the opportunity to increase accessibility for individuals with color vision deficiencies, including color blindness and color weakness, through the implementation of customizable color settings. By incorporating user-controlled functions that enable adjustments to the color display of digital media, websites can provide a more accurate representation of graphical content, facilitating enhanced comprehension and engagement for diverse user groups.

In addition to the benefits for individuals with disabilities, reading on digital media platforms such as websites has the potential to enhance the overall accessibility and reading experience for a wider range of users. For instance, websites afford users the ability to tailor their reading experience by adjusting the on-screen reading environment, including options for light mode and dark mode. The website also provides a way to increase access to content for diverse linguistic communities through the incorporation of language customization functions. Users can select their preferred language for the display of textual content. Wikipedia represents an exemplar of a digital media platform that prioritizes user accessibility and inclusivity through the implementation of language customization functions [10]. The website's language settings feature enables users to select their preferred language, thereby increasing accessibility and engagement for diverse linguistic communities, which further facilitates global access to information and promotes cross-cultural exchange and understanding.

The customization features not only enhance user comfort and engagement but also provide a more accessible and accommodating digital environment for individuals with specific visual preferences or sensitivities.

4. Discussion

The incorporation of visual and auditory elements, such as images, animations, and sounds, on websites, can significantly enhance the reading experience for users. These multimedia features provide additional context and engagement, potentially increasing comprehension and retention of the information presented. According to Edgar Dale's Cone of learning (1969), people remember 10% of what they read, 20% of what they hear, 30% of what they see, and 50% of what they see and hear [11]. The utilization of multimedia features also has a positive impact on readers' memory retention of the information and content presented. The application of a screen reader, auto-scroll, customizable color settings, visual preferences, and language settings increase accessibility for people with and without disability, which again, facilitate the online reading process. While this paper has highlighted certain features of websites that may enhance readers' online reading process,

it is important to note that other factors could potentially impede such processes. For instance, certain sound elements may be a source of distraction for some readers. As such, further research is needed to identify and address such challenges to optimize the online reading experience and promote greater access to digital reading materials. Future investigations could focus on minimizing such problems and enhancing the overall quality of online reading experiences.

5. Conclusion

Compared to traditional printed media, digital media platforms such as website has more flexibility and potential. Websites offer readers an engaging, enjoyable, and interactive experience. Incorporating clarifying elements such as images, animation, and videos into the content and utilizing techniques to deepen learners' cognitive processing can augment their comprehension and knowledge acquisition of the subject matter and reduce cognitive load. The utilization of novel sensory modalities such as sound and background music enables a more multi-dimensional representation of the theme. Personalized settings such as font size adjustments, color customization, and alternative text further enhance the accessibility of content for individuals with various disabilities. These features allow users to tailor their reading experience to their needs and preferences, providing a more inclusive and equitable online environment. By prioritizing accessibility and usability, websites can improve the overall user experience for all readers, regardless of ability or disability. Further research is warranted to explore the full potential of website design in promoting accessibility and inclusivity for diverse user populations.

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