Are You Aware Of Web Accessibility?

An Eye Tracking Study On Web Accessibility.

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Introduction

The web is an increasingly important resource in many aspects of life: education, employment, commerce, and more. It is critical that everyone, whether living with a disability or not, is able to perceive, understand, navigate, and interact with the Web. Therefore, websites, tools, and technologies must be designed and developed so that people with disabilities can use them like people without disabilities. Unfortunately, many people are unaware of web accessibility and its tremendous impact.
This study investigates awareness of accessibility on the web. 14 people of different ages and backgrounds participated in this experiment and were asked to view screenshots of home pages in terms of their structure and accessibility.

Hypothesis

H1: Participants are not aware of accessibility on the web.
H2: Participants have misconceptions about accessibility on the web.
H3: Participants distinguish between UX and accessibility.

Method

In the MediaLab laboratory at the University of Vienna, 14 participants performed an eye-tracking measurement followed by a questionnaire on knowledge about accessibility on the web.

SR Research EyeLink 1000 Plus

- ✓ Eye gaze data were collected using the SR Research EyeLink 1000 Plus
- ✓ Each participant was presented with 10 different screenshots of homepages
- ✓ Each screenshot was viewed for 20 seconds using the EyeLink1000 Plus
- ✓ Participants observed each screenshot for structure and accessibility

After the eye-tracking experiment, each participant answered a questionnaire with the opportunity to view the screenshots again in printed form with no time limit.

Questionnaire

- ✓ Questions were asked about the structure, appearance, style, and accessibility of the homepages (Rating system: evaluation range in 5 levels, where 1 means “very bad" and 5 means “very good”)
- ✓ Regarding accessibility, participant were asked about their awareness (open question answered with keywords)
- ✓ Finally, participants were asked to rate the top three homepages according to personal preference

Results

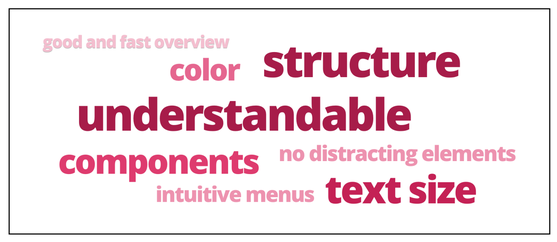
For H1, the questionnaire asked participants about their familiarity with accessibility. Contrary to expectations, more than 80% indicated that they had heard of or were aware of web accessibility.

	Not at all	I can only imagine	I have an idea	Absolutely yes
Do you know what “web accessibility is?	1	1	7	4

1 participant abstained from voting.

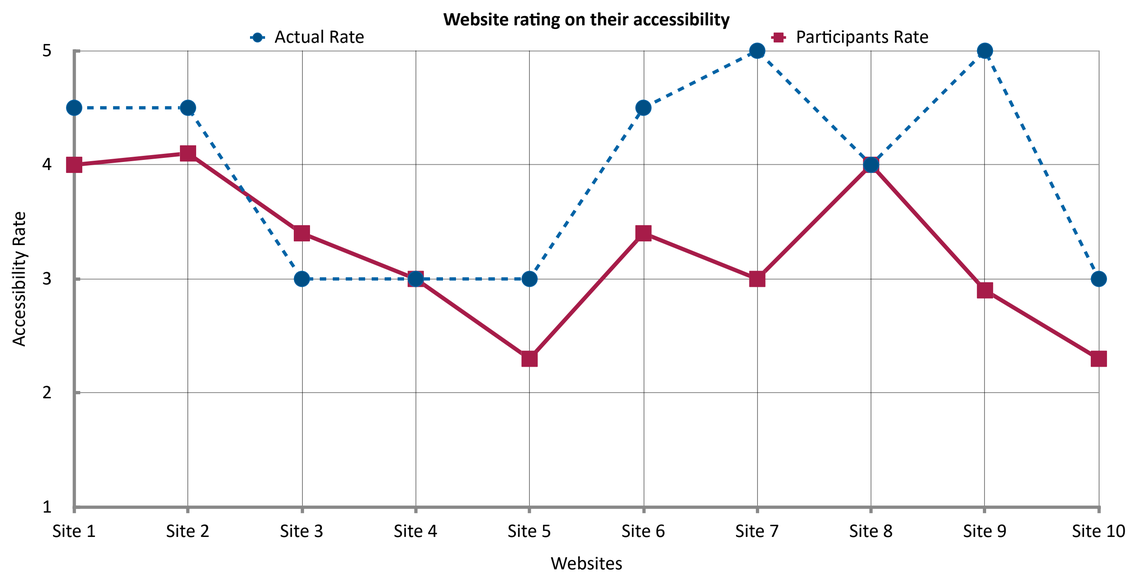
When examining screenshots of homepages for accessibility with the SR Research EyeLink 1000 Plus, participants seem to notice accessibility problems for the most part.
As an example, *Graph 1* shows a screenshot of a home page that was rated as one of the most accessible home pages. The Area of Interest (AoI) was set at the top right, both for the image/icon in the text and for the search field. As the heatmap shows, participants perceived the image within the text (which does not necessarily mean it is so for accessibility reasons), but not the low color contrast of text and background in the search box.

Graphic 1



Graphic 2

This result partially supports H2 that participants tend to have misconceptions about Internet accessibility. This is supported by the responses to the questions about how participants describe accessibility using keywords (*Graphic 2*). Regardless of how participants responded to the questions about whether or not they are aware of web accessibility, misconceptions could be found in all 4 familiarity groups (awareness of accessibility), mainly related to color.



Accessibility rate of participants compared to actual rate of accessibility measured with automated testing tool Axe DevTools: 5 means “very good”, 1 means “very bad”.

Participants rated websites according to how accessible they thought they were based on the user interface (UI). As only screenshots were shown, the user experience (UX), i.e. interaction with the website, could not be taken into account. The line graph shows that websites tend to be rated lower on accessibility than they actually are (H2).
Two websites were rated significantly lower than they actually are, website 7 and website 9, neither showing any unusual eye movements or fixations that would explain why participants rated these two websites lower. Only the keywords indicate that it was due to misconceptions about colors, that dark colors, "bad" colors and high color contrast are bad for accessibility (provided answers of the participants).
Against expectations (H3), when asked which website they personally prefer, participants chose websites 1, 2, and 8 (average score), which are also the ones that participants rated as most accessible.

Conclusion

- ✓ The results show that although not all participants claimed to know exactly what web accessibility means, the theoretical understanding is quite present. This is shown by providing keywords to answer the questions about what web accessibility means.
- ✓ There were deviations in the evaluation of the homepages for their accessibility and the actual accessibility. This can be explained by the misunderstanding of colors in relation to accessibility.

References

What is Web Accessibility? https://www.w3.org/WAI/fundamentals/accessibility-intro/ | EyeLink ® Data Viewer User’s Manual, Document Version 3.2.1, (2018). Mississauga, Ontario, Canada: SR Research Ltd. | SR Research Experiment Builder User Manual, Version 1.10.1630, (2004-2015) SR Research Ltd. Mississauga, Canada https://www.sr-support.com/forums/showthread.php?t=99