Uncovering the Role of Expectations on Perceived Web Accessibility

Amaia Aizpurua
University of the Basque Country
UPV/EHU
School of Computer Science
Donostia/San Sebastián, Spain
amaia.aizpurua@ehu.es

Myriam Arrue
University of the Basque Country
UPV/EHU
School of Computer Science
Donostia/San Sebastián, Spain
myriam.arrue@ehu.es

Markel Vigo
University of the Basque Country
UPV/EHU
School of Computer Science
Donostia/San Sebastián, Spain
markel.vigo@ehu.es

ABSTRACT
Compliance to accessibility standards does not guarantee a satisfying user experience on the Web. Both unmet content and functionality expectations have been identified as central factors on the lack of coverage shown by guidelines. We expand on this by examining the role played by subjective dimensions, and particularly expectations, on the perception that users have on web accessibility. We conducted a study with 11 blind users to explore how these expectations shape the perception of web accessibility. Our preliminary findings corroborate that expectations can affect the perception of web accessibility. Additionally, we find that expectations on the Web are built up on previous experiences and prejudices. What is more, we reveal that these expectations are not only shaped by previous Web usage, but also by real life experiences. Our outcomes suggest that user expectations should be considered in user tests.

Categories and Subject Descriptors
H.5.4 Hypertext/Hypermedia: User issues

General Terms
Human Factors

Keywords
Web accessibility, expectations, blind users, screen readers

1. INTRODUCTION
Perceived web accessibility describes the subjective quality by which users experience the accessibility of websites. Perceived web accessibility is not always consistent with compliance to guidelines for several reasons [2]: accessibility barriers – as defined by guidelines – may not be noticable by users if these barriers do not prevent them from accomplishing their tasks. Sometimes these barriers are noticable however users are able to overcome them because they employ workarounds to overcome them. Paradoxically websites that do not violate accessibility guidelines may still contain a number of barriers that cause users a great hindrance. The particular task to accomplish, skills, expertise, preferences, navigation styles, etc. determine how users perceive barriers and how severe these are. Therefore, the interplay of the above-mentioned qualities affects the perception of accessibility in different ways to different users.

Evidence suggests that compliance to accessibility standards such as WCAG does not necessarily guarantee a satisfying user experience on the Web. Studies that corroborate such evidence state that guidelines conformant websites may be inaccessible for a particular user. Power et al. [1] conducted a study about the problems identified by 32 screen reader users on the Web. Results revealed that only 50.4% of the problems encountered by participants were covered by WCAG 2.0 success criteria. They found that a high number of those problems are related to subjective factors including unmet expectations in terms of unexpected content and non-expected functionalities.

So far, little attention has been paid to the role that subjectivity plays on web accessibility. Thus, this study provides insights on the role of subjectivity by focusing on how subjective aspects such as preferences, likings and past experiences may influence perceived web accessibility. We report the initial findings on the relationship between expectations and browsing experience of blind users, and how these expectations shape perceived web accessibility.

2. RESEARCH METHODOLOGY
The abstract and subjective nature of perceived accessibility and human expectations calls for an initial qualitative research approach that will inform subsequent stages. Next we describe a study to explore how expectations shape user perception of website accessibility.

2.1 Participants
11 users (4 females) with an average age of 45 (range from 21 to 64 years) took part in the study. All participants were legally blind and utilised screen readers to navigate on the Web: 10 participants were Jaws users (versions 10-12) on Internet Explorer and Windows XP, while just one participant was a VoiceOver user on Safari over MacOS. Web familiarity and expertise varied among participants.

2.2 Stimuli
4 restaurant websites were used in our study: W1 and W3 represent internationally well known restaurants with an innovative character, while the style of restaurants corresponding to W2 and W4 is based on traditional Basque cuisine. These websites were selected due to their different accessibility levels. According to the Barrier Walkthough method that was carried out by the authors, W1 and W2 were more accessible than W3 and W4.

2.3 Tasks and Procedure
Once participants were informed, they signed a consent form and were familiarised with the use of the screen reader. After familiarisation, participants completed two tasks: (1) an interview about the perceived accessibility, and (2) a navigation session on the websites. After the navigation session, participants filled in an evaluation form.
questionnaires. Then participants were interviewed about their previous experiences and expectations regarding restaurant websites. A within-subject design was adopted where each participant was asked to complete these tasks: 1) freely navigate to get familiar with the site; 2) find information about the gastronomic offer; and 3) find the means offered by the website to make a reservation. The task order was counterbalanced. The interaction with each website was followed by a semi-structured interview to gather information on participants’ insights about their browsing experience. The interviews were audio-recorded and interactions were videotaped. Then we performed Thematic Analysis on the resulting transcripts by focusing on the role of expectations on participants’ perception of website accessibility.

3. PRELIMINARY RESULTS

The pre-interaction interview showed that most participants expected to find information about the gastronomic offer, prices, contact, location, regular timetable, how to make a reservation or opinions of customers. This suggests that previous experiences, either real (at restaurants) or virtual (with similar websites) may determine the general expectations participants had with regard to the selected websites.

Post-interaction interviews revealed that there were content and functionality aspects related to participants’ expectations, which could possibly influence their accessibility perceptions (either positively or negatively). We identified seven types: 1) Content found where not expected; 2) Content not found where expected; 3) Content not found as expected; 4) Expectations on not accessed content; 5) Expectations on content labeled as “accessible”; 6) Functionality does not work as expected; 7) Expected functionality not present. For instance, during the interaction if users found the piece of information they were looking for, they were satisfied: e.g., the telephone number was handy at the home page in W2 “We already have a task done! [laughs]” (U09). In contrast, sometimes participants felt like they were missing information they expected to find on the websites: e.g., when looking for the gastronomic offer in W3 “I see it incomplete... it doesn’t even mention the menus” (U11). These examples on website-specific expectations are closely related to the information required in given tasks.

Then, we looked into accessibility perceptions of participants, see table 1 in this regard. These were obtained in the post-interaction interview, by asking participants to rate each website in a 7-item Likert scale, (from 1, very inaccessible, to 7, very accessible), after browsing each website. The median states that W1, W2 and W4 are perceived to be similarly accessible. Smaller standard deviation in W2 and W3 show broader consensus among participants, than in W1 and W4. In the case of the latter two, although opinions vary it seems that most participants considered them accessible. We focused on participants’ expectations to analyse why some participants perceived W1 as inaccessible and in contrast, why most of them considered W4 accessible.

Regarding W1, it does not include a menu, in fact, it contains only a few pictures of dishes (with rare names) and a text explaining that it cannot be anticipated what one could eat there, as the products they use to create their dishes are sensitive to the weather, the season and the firmness of nature. Apparently, this information was not enough for participants who were looking for a menu: “nor menu not even anything, it’s all messed up” (U06), “I have found no practical information, not even the menu” (U09), “I’ve been in ‘the other kitchen’ link looking for this and I have found cultural events ... today I’m not eating in this restaurant” (U10). In addition, U09 realized that W1 was the accessible version of the website, which made her create higher expectations about its accessibility: “As I was browsing I was feeling as if I lacked resources, because I figured that if the version was accessible, it’d be for something, and if I wasn’t finding information, I was thinking: others would have found it, because it’s accessible, and I look silly because I don’t get to see the information”.

<table>
<thead>
<tr>
<th>website</th>
<th>compliance</th>
<th>distribution</th>
<th>median</th>
<th>mode</th>
<th>SD</th>
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<tr>
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<td>6</td>
<td>7</td>
<td>1.95</td>
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<tr>
<td>W2</td>
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<td>6</td>
<td>6</td>
<td>1.42</td>
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<tr>
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<td>lower</td>
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<td>6</td>
<td>6</td>
<td>1.95</td>
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Focusing on the case of W4, we analysed how a website, which is non-accessible with respect to guidelines compliance (e.g., contains dynamic Flash based content, uses frames and layout tables) could meet most participants’ expectations. We suspect that a key factor may have been its main navigation menu. It was composed of 8 links with clear and concise text (history, location, restaurant, menu, wines, specialities, links and bookings) which perfectly matched participants’ general expectations and information required in the given tasks. When Jaws read up those 8 links U04 said: “This is going to be accessible”. We also observed that most participants were not aware of the dynamic content, thus they could not perceive associated accessibility issues. “In the link ‘specialities’ there is no information...I don’t know if it had been previously...well, I entered and I found that there was no information” (U03). In the case of the “menu” link, even if Jaws only could read the starters, most participants did not expect more information than the one provided by Jaws. “Just one second course of ‘pig’s trotters’ and the rest they were all starters! unless I missed something to browse, but I think that was all.” (U09).

4. CONCLUSIONS

This study provides initial clues on how expectations may influence blind users’ perceptions on website accessibility. Users’ perception is not only about the website and its accessibility but about what they imagine about it. Initial findings indicate that expectations play a key role when it comes to blind users’ accessibility perceptions. This may have implications on user testing in that user expectations should be considered in order to provide reliable and robust assessments. Apart from expectations, there may be other subjective aspects, such as preconceptions about website’s branding, evoking memories, user’s mood, affective state and self-confidence, which may also affect the perceptions of accessibility.

5. REFERENCES
