Usability Requirements for Accessible Tourism Systems

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Abstract

This paper investigates the usability requirements for an accessible tourism system. Tourism is an information intensive industry that heavily relies on ICTs to disseminate information, facilitate bookings and transactions, and provide customer support. However, inaccessible tourism web pages imply that travellers are not able to use a service, consume information or book a trip. To support these processes, the online environment in which they operate needs to be accessible and inclusive to effectively cater for a wider range of customers. However, there are barriers to online environments that diminish participation. To remove those barriers and effectively address customer needs, destinations and tourism organisations need to understand the requirements of the users. This study looks into the usability requirements for accessible tourism systems and identifies requirements that are important for travellers and with and without disabilities.

Keywords: accessible tourism; user requirements; web accessibility; usability; inclusive design; disability.

1 Introduction

Innovations in ICT enable people with disabilities to take part in almost any area of daily life. People with disabilities use the internet even more than people without disabilities (Huber & Vitouch, 2008; Puhretmair & Nussbaum, 2011). Inaccessible tourism web pages imply that travellers are not able to use a service, consume information or book a trip. Typically, the cause is the inaccessible design and not the restricted information perception (visual, auditory, haptic) of people with disabilities because people with disabilities use assistive technologies that enhance their ability to interact with computers and (partly) compensate for their disabilities. Inclusive design and information provision does not only improve the accessibility and usability for people with disabilities, but also makes tourism in general more approachable for a wider range of the population (Buhalis et al., 2012; Pühretmair, 2004). This study

looks into the usability requirements for a tourism information system that can serve people with and without disabilities, under the principles of inclusive design.

2 Theoretical Issues

In a world that is largely not designed for people with disabilities, travellers with access needs are challenged to negotiate a number of travel attributes such as location, mode of travel and time of travel (Darcy, Ambrose, Schweinberg, & Buhalis, 2011). To enhance or even create travel options for people with disabilities, barriers in physical and informational infrastructure need to be eliminated or reduced. Barriers to online environments are prominently the result of badly designed web pages, as people with disabilities use assistive technologies that enhance their ability to interact with computers and (partly) compensate for their disabilities. For instance, in 2004, an analysis of national tourism web pages in the European Union was conducted (Oertel, Hasse, Scheermesser, Thio, & Feil, 2004) and results indicate that destination management systems and tourism web pages were inaccessible and not Web Accessibility Initiative (WAI) compliant even at the first level. A global accessibility audit commissioned by the United Nations (Nomensa, 2006) also reports that most of the web pages fail to sustain the basic level of web accessibility. While recent developments in legislation, policies and tourism initiatives have contributed to a relative improvement on web accessibility, tourism websites remain largely inaccessible (Pühretmair, 2004; Puhretmair & Nussbaum, 2011; Williams, Rattray, & Grimes, 2006). Hence, to remove these barriers destinations and tourism organisations need to make accessibility information available, present it in a particular way to be usable, and distribute it via accessible platforms (Michopoulou & Buhalis, 2013). To be able to remove barriers and design accessible environments it is important to develop an understanding of user requirements and apply the concept of "design for all" to design tourism products and services to be usable by the largest group of tourists possible (Neumann & Reuber, 2004).

3 Methodology

To identify the usability requirements of people with disabilities from a tourism information system, a series of interviews in the form of usability testing were performed. An invitation to participate in the usability testing was sent by e-mail to "stakeholder" organisations, meaning organisations that would have an interest in developing a system with accessible tourism information. Since the testing takes the form of an in-depth interview, the objective becomes to obtain rich and detailed feedback from the users, not to conduct a large number of tests. In total, eight tests were performed, and the average duration of the tests was 90 minutes. The actual test

was performed on the www.europeforall.com website. The portal effectively focused on destination "Europe" by aggregating accessibility information from different destinations. The usability testing took place in a laboratory environment. Users were presented with a prototype website and were asked to complete nine scenarios based on trying to find information for different imaginary trips. Each discussion with the participants provided insights on the issues they faced when using the system. The outcomes from each discussion were embedded in the conversation topics for the following discussion.

4 Findings

Usability testing results revealed 20 specific requirements. **Table 1** provides a summary of the requirements for an accessible tourism system as provided by the usability test participants.

Table 1. Summary of usability requirements

R1: Option to change font size on all web pages
R2: Automation of data input where possible
R3: System functions should have a short and understandable explanatory text attached
R4: Minimise clicks for destination selection
R5: Use maps to assist destination selection
R6: Introduce bigger than average sized buttons
R7: Web pages should be available in accessible, printable formats
R8: Search filters should be available throughout the search process
R9: Integrate accessibility filters with other tourism filters
R10: Accessibility filters should be ranked alphabetically
R11: Include "pet-friendly" filter among the accessibility filters
R12: Include pictures of different areas of venues and upload date
R13: Accessibility information should be accompanied by pictures in every section
R14: Include a forum section
R15: Enable users to clear search forms with a push of a button
R16: Use webpage space wisely, and create pages that users do not need to scroll down
R17: A system should assist users in minimising cognitive effort required
R18: The source of accessibility information should be clearly stated
R19: Develop multilingual versions for a website
R20: The display of accessibility information should allow users to go through detailed information in the least possible time

Users claimed that they wanted to type in the least information possible, especially as people with mobility/dexterity problems may find it very strenuous to enter information. Users performing a geographical search suggested that horizontal destination selection features are very helpful, especially for people who cannot easily

operate a mouse due to mobility issues. They also mentioned that geographical searches often require memory recall and cognitive effort that is difficult for mentally impaired users to perform and maps as a visual aid (preferably interactive ones could alleviate this issue). Users thought that printed information is very convenient to discuss with travel companions and reach a decision about travel attributes. Hence, users should be able to access printable versions of the website as well as be able to download PDFs of floor plans. Participants focused on the importance of accessibility filters (i.e., type of impairment) because accessibility information often belongs to specific venue information. In that case, they need to check venues one by one, which is ineffective and time-consuming. The integration of accessibility filters with tourism ones would enable the user to personalise their searches and combine more search criteria, for instance, search simultaneously using accessibility and hotel star rating filters. Participants noticed that accessibility filter options should be ranked alphabetically because people with impairments that are not related to mobility feel that their requirements are not perceived as important. Some participants suggested that though not directly related to accessibility options, the "pet-friendly" filter is important. This is a primary requirement of the visually impaired population who utilise guide dogs and travelling without them is simply impossible. Participants also expressed a wish to be able to view pictures of the different areas of venues because they enable them to judge accessibility for themselves. Users were looking for information on the date the data was entered (regarding a venue) because a recent date would indicate that the information provided would be "close to reality".

Participants claimed that forums that are built in travel sites are very useful to the disabled population as they can share opinions and experiences. They feel this feature empowers them to criticise vendors that provide false accessibility information or give credit to those who are worth it. Another issue that participants were concerned with is the language because when disability is involved, searches need to utilise terminology associated with types of disabilities. For example, when a hearing impaired person is looking for accommodation that offers *emergency call system with flashlight*, she/he must know the term to perform the search. Respondents also explained that when the accessibility information displayed was produced by a professional assessor they tend to regard the information as more trustworthy and reliable. Accessibility information provided by venue owners is welcomed because at least some is better than no information, but users would have to call the venue to verify the data. Hence, participants argued for the accessibility information source to be clearly stated.

5 Conclusion

In conclusion, usability results revealed twenty important requirements relevant to printing options, flexibility of interface and content/information presentation. It was evident that the importance of these requirements varies between individuals, so that while for most people some requirements are "nice to have", for people with impairments they may be a "must have". Also, two of those requirements are particular to travellers with impairments and these refer to "the source of accessibility clearly stated" and "accessibility information is accompanied by pictures". The rationale behind those is to ensure the reliability of information with visual evidence, to act as trust builders. For people with severe impairment, inaccurate information may mean finding themselves unable to complete part of the journey and consequently miss out on the whole holiday experience. Embedding the 'Design for all' philosophy to product and service offerings will enable destinations and tourism suppliers to create better services and create competitive advantage over other less inclusive destinations and organisations.

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