

The Cost Impact of Implementing Web Accessibility for People with Disabilities: Israel & New Zealand as Case Studies

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Abstract

The purpose of this study is to compare the degrees of web accessibility, for people with disabilities, of public sector or NPO websites based in Israel and New Zealand. The degrees of accessibility are evaluated according to criteria detailed in the Web Content Accessibility Guidelines (WCAG) 2.0 written by the World Wide Web Consortium (W3C). The goal is to examine which country and which sector provides the most accessible websites, while investigating the factors contributing to the varying degrees of accessibility found.

1 Introduction

The comparison between the degrees of web accessibility is performed between countries with similar laws and sociological characteristics – Israel and New Zealand; and between different sectors – the public sector and the non-profit sector. The comparison draws from a representative sample of the sections featured on the Web Accessibility Checklist Form with the purpose of providing a broad perspective on the accessibility of websites in general and of NPO websites in particular; in that regard, it is an innovative, unique comparison.

2 Related Work

Research into web accessibility is relatively new, and so the number of publications focused on evaluating accessibility is negligible; moreover, there is no consensus on the best research methodology. The few studies done in the field in recent years indicate that websites suffer from a resounding lack of accessibility. They also indicate that most web developers and website owners lack awareness of the issue, in stark contrast to the number of websites that provide trustworthy, relevant information on web accessibility (Sloan, 2010).

3 Methodology

In this study, web accessibility was examined by ranking 25 common mistakes; these are detailed on the Accessibility Barrier System (ABS) and are divided into six categories: image and color, structure and navigation, video and audio, data tables, forms and comprehension (Lorca, Andrés, & Martínez, 2011).

20 websites were studied: ten in Hebrew (a first for any academic research on the subject) and ten in English -- five public sector websites and five non-profit sector websites, during January and February 2015. Research into web accessibility has hitherto been limited to an examination of websites from a single sector, or to websites of like-minded organizations, or websites from countries which do not share common laws and sociological characteristics. In Israel, there have been several attempts at cross-sectional studies of websites in Hebrew, but their findings have never been published. The reasons vary: from too great a number of websites studied to findings that, as of November 2014, proved to be inconclusive. In this study, therefore, the lead researcher has relied on his own personal and professional experience in the field, stemming from his direct involvement in standardization; his involvement in the advancement of the issue in formal settings; and his experience as a

consultant on the subject to various organizations in Israel.

4 Experimental Results

The findings indicate that most New Zealand-based websites are characterized by a higher degree of accessibility than Israel-based websites. In addition, most public sector websites are characterized by a higher degree of accessibility than non-profit sector websites. Most of the websites that are characterized by a high degree of accessibility are public sector websites in New Zealand. That is, the public sector and New Zealand have more accessible websites than the non-profit sector and Israel, but not unequivocally.

There are several factors contributing to the greater degree of web accessibility noted among public sector websites in New Zealand: first, developers in New Zealand undergo formal, structured training, and have specific expertise in computer science and the internet – in contrast to their Israeli counterparts. As a consequence, New Zealand websites are consistent with correct web development standards that are, for the most part, on a par with standards for web accessibility.

In addition, large public sector organizations have significantly larger budgets than NPOs and voluntary organizations. Consequently, they are able to hire professionals with extensive experience in web accessibility, who naturally demand a higher wage than NPOs and voluntary organizations. The latter are usually only able to hire professionals with less experience, or recruit the aid of professionals who work on web accessibility projects pro-bono. These budgetary gaps are evident in the accessibility of their respective websites.

Furthermore, this study also includes exploratory research into the financial costs involved in the creation of accessible websites for people with disabilities both in Hebrew and in English. This was done to gauge the actual impact of the financial factor on the decision to implement web accessibility. The financial factor, to be examined at length later on, is crucial: standards deemed too “expensive” might prevent websites from making the effort, or might drive them to break the law. Therefore, this research includes a proposal for a “middle way” to promote web accessibility

for people with disabilities without harming the freedom of expression of the greater public that wishes to be heard (or informed) through this important medium.

The financial costs involved were examined during February and March, 2015, using the responses of 18 computer science and web experts to an online questionnaire – nine residing in Israel and nine in New Zealand. This questionnaire enabled the respondents to rank the costs involved in the implementation of sections in six categories: image and color, structure and navigation, video and audio, data tables, forms and comprehension. It is important to emphasize that hitherto, the financial investment involved in the implementation of the criteria detailed in WCAG 2.0, and in accordance with expert advice on the subject, was never investigated.

The findings of this exploratory research show that forms, data tables and understanding incur the lowest costs. Video and audio, structure and navigation are the most expensive features to implement. The gap in costs stems from the degree of technical intervention and expertise needed to implement web accessibility in these features.

However, it is important to note that the experts' opinion differed widely as to the level of costs involved in the implementation of web accessibility. Therefore, the findings regarding costs at this stage are tentative and provisional.

Examination of the link between cost and actual implementation was done by statistical analysis only, aimed at integrating the investigation of the degrees of accessibility of websites, that constitutes the major part of this study, with the evaluation of the costs of implementing web accessibility, that constitutes a smaller part of this study.

Findings related to the link between cost and actual implementation show that forms ($P = 0.035$, Sig. = 0.899) and data tables ($P = 0.120$, Sig. = 0.695) have the highest realization rate and incur the lowest costs.,

5 Conclusion

There is a weak to non-existent correlation between the costs of implementing web accessibility to its actual implementation. This stems from the fact that the Web Content Accessibility Guidelines only include

principles of web accessibility, without detailing actual guidelines for current implementation practices. Additionally, the guidelines mostly refer to statistical features, while dynamic features – which can be found in almost every website nowadays – do not receive proper attention. Therefore, there is a “grey area” regarding the actual implementation of web accessibility.

Moreover, there are no clear rules as to the persons who are allowed to declare themselves as experts in web accessibility. Since all information on the subject is online, open and free for all, self-declared experts are a common occurrence.

References

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