



ENTELIS SEMINAR

Supporting the development of digital skills of persons with disabilities of all ages:

Policies, strategies and tools

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Creation of an Interactive and Accessible Online Learning Environment.

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Abstract. In our project www.kaikille.fi, we planned and created an interactive online learning environment, the purpose of which is to create a pedagogical model for the development of an accessible online service. The site includes accessibility-related articles written by experts in this field and the site's graphic design and programming was carried out by using accessible solutions.

Keywords. *accessibility, usability, responsive design, data transfer, Content Management*

Background

The main objective of this website project was to support the equality of citizens in society. In order to achieve this objective, the online site acts as an interactive and accessible online learning environment, which provides wide-ranging information about accessibility. At the same time, the site design is based on the principle of accessibility and the idea that its users become our partners in the design project. The internationally. The technical development was done to satisfy usability and accessibility issues with mobility and persons with visual disabilities such as color blindness.

Method

The technical development was done to satisfy usability and accessibility issues with mobility and persons with visual disabilities such as color blindness. The most Wordpress themes are designed for blogging and the content production. Wordpress is a user-friendly content management system (CMS) for publishing web sites and blogs. We wanted to combine the easiness of content management, responsive design with one page web design, which supports better UX (User Experience) amongst mobile users. One page design simply means that the entire content of the site is gathered into a one website.

Our idea was not use alternative theme design than the default theme because we created our own solution for data transferring from Back end to Front end side. Final

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way to produce the website is an independent solution which is separated from Wordpress common framework. The only reason why Wordpress was applied is the easiness of writing articles, adding images, editing, etc. The technological development was based on user feedback about accessibility issues on our website. Participants with our survey were mostly blind or older person who needs AT. Our project was not technology-first project and it was based on iterative design process where the site was developed step by step after user feedback.

To achieve the project goals, we have utilized responsive web design for the site layout. We decided to use Bootstrap for developing responsive, mobile first site on our project. Because Bootstrap is developed for all kind of mobile device, it offers a fluid grid layout for all kind devices. Therefore it is mobile first front-end framework for easier web development.

The site layout is deliberately left plain and simple and its colour scheme takes into consideration the needs of users suffering from different types of colour-blindness. To make the site layout appear similar to every user, we opted for blue on a white background, since colour-blind users see the colour blue in a fairly similar way as other users (Liu, 2010).

Information retrieval between Back End and Front End

The aim of this implementation was to create a website, where the content to be presented is searched from the content management system (Wordpress) and where the website is modified into its final form with the help of dynamic technologies in responsive web design. The aim was to create a faster technical solution, which would create the website in a more efficient way than the present system of content management. Our idea was not use alternative theme design other than the default theme because we created our own solution for data transferring from Back end to Front end side. Final way to produce the website is an independent solution which is separated from Wordpress common framework. The only reason why we used Wordpress is the easiness of writing articles, adding images and so on.

Evaluation of Accessibility and Usability

The evaluation of the site's usability and accessibility is based on the guidelines on the accessibility of online services published by the Web Accessibility Initiative WAI (W3C). In addition, we conducted two online surveys with the visually impaired and people with learning disabilities as target groups. The inquiries included a few of tasks and multiple-choice questions related to usability and user experience as well as accessibility.

The site was also tested with several mobile devices including IOS, Windows Phone and Android devices. We also evaluated accessibility with web-based online simulators and screen voice over reader application.

Result and Discussion

It is difficult to assess the efficiency of the website, since the devices used are of different quality. However, on the basis of the usability tests, our solution can be used with a variety of web browsers and data terminal equipment. None of the testers who

answered the questions on usability used a mobile device. Based on our testers feedback it seems that there is a lot development work with all kind on CMS (Content Management Systems) like Drupal, Wordpress and so on to make them accessible and to fulfill W3WAI levels.

Positive feedback was given, in particular, on the user interface and its efficiency with different assistive aids. However, this does not necessarily mean that the website in itself functions well but it might indicate that the assistive aids, e.g. the speech synthesis programme works well. Yet, the testers thought that the user interface mostly works well. The testers mentioned as deficiencies the complex dropdown-menus which demand good motor skills from their users. The website also has some other deficiencies, and therefore, it does not yet conform the definitions of W3C A-level accessibility. The visually impaired users only criticised the dropdown-menus but not the accessibility or usability of the website. The participants also gave positive feedback on the content of the website. For a supporting learning over language barriers the site should also be translated into English. However, the testers gave positive feedback learning about accessibility.

References

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