Concise paper

Raising Awareness of Stakeholders with Disability in Multimedia Design

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ABSTRACT

Certain multimedia elements in a multimedia application can cause irritation or even harm to people with a disability like dyslexia, epilepsy or colour blindness. It is possible that these disabilities occur among a significant number of the target audience. The SoDIS Project Auditor can be used for raising the awareness of the multimedia application developer of the existence of these disabilities. However, using the Project Auditor for target audience analysis represents a departure from the traditional use of the software. It is also difficult for students to use as the adaptation of the terminology of the default principles and issues is not a transparent one. By customising the Project Auditor through adding a new principle and new common issues that are concerned with the presence of disability, the software has become easier to use. This resulted in improved target audience analyses.

Keywords

Stakeholders, disability, multimedia application, SoDIS Project Auditor, target audience analysis, software development impact

1. INTRODUCTION

Software systems created without adequate consideration of their impact on indirect stakeholders often lead to disastrous consequences (Gotterbarn, 2003). Similarly, multimedia applications are often developed without consideration of their impact on their target audience which can comprise people with disability such as dyslexia, epilepsy and colour blindness. The number of people with these disabilities is not insignificant. The Dyslexia Institute of the United Kingdom reported that between 4-5% of the population is dyslexic (The Dyslexia Institute, nd). The National Society for Epilepsy, a UK organisation, stated that about 0.5% of the population is epileptic (The National Society for Epilepsy, nd). People who are affected by colour blindness make up 8% of the male population of the United States and 0.5 % of the female population (Heath, nd). As some multimedia elements are capable of causing undesirable effects in these three types of disability, it is therefore important to evaluate their impact at the design stage.

The SoDIS Projector Auditor is a tool that is used for assessing the impact of a software project on the stakeholders (Gotterbarn, 2003). It is configured with principles and issues that are relevant to a typical software development project. However, it is possible to customise the principles and issues. The Project Auditor was trialled with a multimedia class at Unitec New Zealand. Students enrolled in the level six course are required to perform a target audience analysis as part of their design for their project. Although a lecture on target audience analysis is given before the exercise, the analysis is often badly done as the students tend to focus on the final product and not on the impact on the stakeholders. In the first trial, students were asked to use the SoDIS Project Auditor for the analysis. Most of the students in that group did not use the Project Auditor because they found the software difficult to use. The default principles and issues were not suited to their analysis and they were unable to add ones that were. Those who did use SoDIS did not use it to its full potential.

Subsequently, it was decided to customise the SoDIS Project Auditor through the addition of a new principle and issues related to it that were relevant to the design of multimedia software.

Table 1. Common Issues in Multimedia Design

Common Issues
Colour blindness
Dyslexia
Epilepsy
Poor eyesight
Loss of hearing acuity

This paper describes how the customisation of the SoDIS Project Auditor was carried out and the reaction from the students who used the customised software.

2. TARGET AUDIENCE ANALYSIS

Target audience analysis may be carried out using the Requirements Analysis component of the SoDIS Project Auditor (Koh, 2004). The target audience is specified in the Stakeholder Identification section. Multimedia elements that need to be developed are listed in the Create Requirement section. The analysis is then performed in the Requirement Analysis section using the default principles and issues. However, using these defaults required the analyst to use adapted terminology which increased the complexity of the software. Furthermore, as only four of the 31 issues were relevant and as they were distributed among three principles, this made the software even more difficult and tedious to use.

3. DISABILITY AWARENESS IN MULTIMEDIA DESIGN

It was decided that the common issues in the Project Auditor could be used to raise the awareness of disability in the design stage of a multimedia development project. Dyslexia, epilepsy and colour blindness have been discussed in the Introduction. One of the reasons for poor eyesight is the onset of presbyopia among older adults around the age of 50. Loss of hearing acuity is also common among older people. These disabilities become significant for a target audience consisting of older people. The disabilities that are customised as common issues in the Project Auditor are listed in Table 1.

These issues exist in all multimedia projects and should always be considered when designing multimedia applications. The list is not exhaustive and other issues may be added in the future. As a starting point, these issues were made available in the Requirement Analysis section of the Project Auditor.

4. CUSTOMISING SODIS

The Requirement Analysis component of the SoDIS Project Auditor is able to be customised through an option available under Tools on the menu bar. There is an Analysis Maintenance option which can be used to customise SoDIS. This is described in the SoDIS User's Manual (Software Development Research Foundation, Inc., 2002, p. 71).

4.1 Adding a priniciple

The first step is to add a new principle which can either be Common or Project-level. The addition of a principle is described in the User's Manual (ibid., p. 72). A suitable principle for the issues in Table 1 is "be inappropriate for". This principle was entered together with the guidance text: "The inappropriate choice of multimedia elements for a project may result in inconvenience, loss of information, loss of interest or even distress to certain users."

4.2 Adding issues

Issues added can also be either Common or Project-level. The addition of new issues associated with a specific principle is also described in the User's Manual (ibid., p. 74). The issues in Table 1 were attached to the principle "be inappropriate for" through the verb "cause". These are shown in Table 2.

5. USING THE CUSTOMISED PRINCIPLE AND ISSUES

The SoDIS Project Auditor was offered to a new group of multimedia students together with an unpopulated Microsoft Access database file with the customised principle and issues for target audience analysis. About half a dozen of students used the software for performing the target audience analysis for their multimedia application. Compared to the previous group of students who used the default principles and issues, the new group of students submitted

Table 2. Issue Information for Target Audience Analysis

Issue Information For "be inappropriate for" Principle	
Verb	Issue Text
cause	loss of information because of colour blindness of
cause	loss of information because of dyslexia of
cause	distress because of epilepsy of
cause	difficulty due to poor eyesight of
cause	loss of information because of loss of hearing acuity of
cause	boredom to
cause	annoyance to

analyses that took into account the generic issues included in the database file.

6. CONCLUSIONS

The improved quality of the target audience analyses submitted by the students is an indication that the inclusion of principles and issues that are directly relevant to the analysis is a method to accelerate the use of SoDIS by students creating multimedia applications. This is an encouragement to the author to continue to identify new relevant principles and issues which can contribute to a more comprehensive target audience analysis.

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