

Using SoDIS for Target Audience Analysis: a Fresh Field Application

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ABSTRACT

A target audience analysis is an important part of a multimedia project yet it is often poorly performed by students. This often stems from a lack of awareness of the risks associated with an incomplete or an incorrect target audience analysis. The process for target audience analysis is a similar to that for stakeholder analysis and the author felt that the use of software stakeholder impact analysis might improve the students' performance. The SoDIS Project Auditor™ was selected as the software to use.

The SoDIS Project Auditor is a decision support tool for software development projects. It was developed by Don Gotterbarn of East Tennessee State University and Simon Rogerson of DeMontford University. Although the SoDIS process consists of three phases: a feasibility phase, a requirements phase and a detailed phase, only the requirements phase was used for target audience analysis.

The suitability of SoDIS as a tool for target audience analysis is investigated in this paper. The process of adapting SoDIS is described. The results of the analysis for a project whose multimedia elements have attributes that were similar to those used by students indicate that the software can be successfully used for target audience analysis.

1. INTRODUCTION

Multimedia development methodologies normally include target audience analysis (Vaughan, 1996; Villamil and Molina, 1997) yet this task is, at best, often poorly performed by students at the tertiary educational institutions

where the author has taught. At worst, the students have no idea of where to begin. The author felt that the analysis could be better performed with the aid of an appropriate software. An initial trawl of the internet proved unsuccessful. In 2002, the author attended a SoDIS workshop at the NACCQ Annual Conference in Hamilton. The SoDIS Project Auditor is a decision support tool for software development projects. The SoDIS process consists of three phases: a feasibility phase, a requirements phase and a detailed phase (Gotterbarn, 2001). A stake holder analysis is performed during the requirements phase. It occurred to the author at that time that the stake holder analysis is similar to a target audience analysis in many respects. It was then decided to carry out an investigation into whether the SoDIS software could be adapted for target audience analysis. The adaptation of any software for a purpose for which it is not designed is a process that is fraught with difficulties. The problems encountered and the solutions devised in the process will be described in this paper.

2. SODIS PROJECT AUDITOR

The SoDIS Project Auditor is used in all three phases of the SoDIS process. In the feasibility phase, the software is used to determine if a project is ready to begin. In the requirements phase, an analysis is carried out to identify the risks in the requirements of the project. Finally, the risks in the project's management plan are identified in the detailed phase.

The SoDIS software would be useful just for identifying the risks and to track a multimedia development project. However, for the purpose of this investigation, only the analyses that will assist in identifying the target audience needs will be considered. As a result of this decision, the first and the last phase in the SoDIS process would not be

relevant and only the requirements phase will be used to identify the target audience.

2.1 The Requirements Analysis

In the Requirements phase of the SoDIS process, the analyst is required to perform the following tasks:

- ◆ Identify stakeholders
- ◆ Create requirements
- ◆ Fill in details of requirements
- ◆ Analyse the requirements

3. THE ADAPTATION METHODOLOGY

In this investigation, a two-step methodology was used. The first step was the establishment of the equivalence of terminology used in a target audience analysis and SoDIS. The second step was to apply the SoDIS requirements phase to a multimedia project used as an example in lectures to a multimedia class. The project contained 5 classes of multimedia elements with attributes similar to those typically selected by the students in the class.

3.1 Terminology Equivalents

The process of adaptation required the establishment of the equivalents of three key terms used in the SoDIS Project Auditor. The first is the term “stakeholder” who, in a target audience analysis, is clearly a segment of the target audience. The second is the term “requirement”. The requirements of a multimedia development project are the multimedia elements which will be created. The last term is “requirements analysis” which is the target audience analysis.

3.2 Identification of the Stakeholders

Stakeholders have a defined role in SoDIS. They may be, for example, community, instructor, developer or vendor. For target audience, only two of the roles are relevant: user or customer.

One way of segmenting a target audience is by age. Behavioural patterns may be classified in 5 age bands. These are:

- ◆ Child (5 – 12 years)

- ◆ Teenager (13 – 17 years)
- ◆ Young adult (18 – 25 years)
- ◆ Adult (26 – 64 years)
- ◆ Pensioner (65 years and over)

These segments are by no means definitive. They may be modified depending on the nature of the multimedia project.

3.3 Requirements

The allocation of multimedia elements to the requirements of a multimedia development project can be quite arbitrary. As a starting point, 5 broad classes of multimedia elements can be defined. These are:

- ◆ Text
- ◆ Graphics
- ◆ Animation
- ◆ Sound
- ◆ Video

Each of these classes can contain sub-classes. For example, the text class can be subdivided into banner text, title text and body text. These sub-classes need to be elaborated further before the analysis can be performed. Attributes such as the font, style, size and colour are specified to complete the description of the sub-classes. The elements used in the example of a multimedia project are shown in Table 1.

3.4 Requirements Analysis

In SoDIS Project Auditor, the requirements analysis is performed by answering a series of questions relating to ethical issues about the requirements identified for the project. For example, one of the questions is “Might the requirement require approval of software that may not fulfil the requirements of the contract?” The Project Auditor screen consists of 3 sections. The first section lists requirement information. The second lists professional or ethical information under 5 categories and the last section holds stakeholder information. The Project Auditor generates a question by combining the information from the first, second and third section. The 5 categories of ethical or professional information are:

- ◆ Project and requirement concern
- ◆ Cause harm to
- ◆ Unreasonably restrict
- ◆ Involve deception of

Table 1. List of multimedia element requirements for a multimedia project.

Requirement ID	Requirement
1.1	Banner text; Impact, bold, 24 pt, white on blue background
1.2	Title text; Arial, bold, 18 pt, black on white background
1.3	Body text; Arial, normal, 14 pt, black on white background, reading level 12 years
2.1	Cartoon graphics; 8 bit colour depth
2.2	Photographic image; 24 bit colour depth
3	Cel animation; 8 bit colour depth
4.1	Light classical background music; 44 kHz sampling rate
4.2	Female Kiwi English narration; 22 kHz sampling rate
5	Video; 320x240, 15 fps

◆ Conflict with your responsibility toward

Each category comprises 2 to 10 phrases embodying an ethical or professional issue. For example, the category “unreasonably restrict” consists of the following 2 phrases:

- ◆ fail to offer provision for any disability of the stakeholder
- ◆ favour ease of development at the expense of the stakeholder

During the process of adapting SoDIS for target audience analysis, the categories of ethical or professional issues and the individual phrases were assessed for relevance. Three of the 5 categories were considered relevant for target audience analysis and in the three categories, only 4 phrases were relevant. The results are summarised in Table 2.

The 4 phrases found to be relevant to target audience analysis were:

- ◆ fail to take into consideration the needs of the stakeholder
- ◆ discriminate against the stakeholder
- ◆ fail to offer provision for any disability of the stakeholder
- ◆ require the use of software that is obtained illegally by or for the stakeholder

Table 2. Categories of ethical or professional issues and number of phrases that are relevant to target audience analysis.

Category of ethical or professional issue	No of phrases that are relevant for target audience analysis
Project and requirement concern	0/6
Cause harm to	2/10
Unreasonably restrict	1/2
Involve deception of	1/5
Conflict with your responsibility toward	0/8

4. TARGET AUDIENCE ANALYSIS USING SODIS

The aim of a target audience analysis is to check the suitability of the multimedia elements used in a project for all the segments of the target audience. The precision of the analysis is dependent on the granularity of the target audience segments and the level of specification of the multimedia elements. Both are set rather broadly for this test analysis using SoDIS. The project used to test the classification of the multimedia element requirements was also used for this test. The analysis was carried out by answering the questions generated by SoDIS in the Requirements Analysis section.

The first question generated was:

Might 1.1 Banner text; Impact, bold, 24 pt, white on blue background cause loss of information, loss of property, property damage, or environmental impacts that affect Child (5 – 12 years)?

As this ethical issue was assessed as not relevant in a target audience analysis, the “no” radio button was selected.

The first question that was relevant was:

Might 1.1 Banner text; Impact, bold, 24 pt, white on blue background fail to take into consideration the needs of Child (5 – 12 years)?

As this font may not be sufficiently attractive to a young child, the “yes” radio button was selected and the concern was entered in the pop-up dialogue box.

A total of 200 questions were considered in carrying out this analysis as there were 4 relevant questions per target audience segment per multimedia element.

Table 3. Types of reports generated by SoDIS

Type of Report
Active Concerns Summary Report
Completed Concerns Summary Report
Active Concerns Details Report
Completed Concerns Details Report
Active Requirements Analysis Summary Report
Completed Requirements Analysis Summary Report
Stakeholder Summary Report
Stakeholder Detail Report
Requirements Not Relevant for Stakeholder Report
Stakeholder Listing Report
Single Stakeholder Detail Report
Principle Summary Report
Single Issue Report
Single Requirement Detail Report
Software Development Impact Statement
Modified Concerns

4.1 Reports

The results of the analysis are provided in the form of reports that SoDIS generates. There are 16 types of reports available, arranged in 5 groups. The first group report on concerns and requirements. The second focus on the stakeholders. The next group deal with ethical principles and issues. The fourth group report on requirements and the last group deals with modified concerns. The types of reports are shown in Table 3.

The report that is most useful for target audience analysis is the first report, active concerns and summary report. This report lists the number of concerns followed by the requirements where the concerns were expressed and the stakeholders affected. The critical concerns are listed first, then the significant ones and lastly, the minor concerns.

If the target audience analysis reveals no critical or significant concerns, the multimedia developer can proceed to the development stage with the original design of the application. However, if there are critical or significant concerns, then either the design needs to be modified in the light of the concerns or the target audience needs to be restricted to the segments where there are no concerns or only minor concerns exist.

5. RESULTS

The multimedia project used in the analysis was similar to a typical student project. The multimedia elements had attributes similar to those typically selected by students. Despite the coarse granularity of these attributes the analysis revealed that there were 2 critical, 3 significant and 2 minor concerns. The concerns related to text, graphics and sound and are listed below.

Critical concerns: 2

Requirement: 1.3 Body text; Arial, normal, 12 pt, black on white background, reading level 12 years

Issue: to take into consideration the needs of

Stakeholder: Child 5-12

Concern: Reading level may be too advanced

Stakeholder: Pensioner 65+

Concern: Font size too small for a pensioner who may have poor eyesight

Significant concerns: 3

Requirement: 1.1 Banner text; Impact, bold, 24 pt, white on blue background

Issue: to take into consideration the needs of

Stakeholder: Child 5-12

Concern: Font may not be attractive to a child

Requirement: 1.3 Body text; Arial, normal, 12 pt, black on white background, reading level 12 years

Issue: : to take into consideration the needs of

Stakeholder: Child 5-12

Concern: Font size too small for a child

Requirement: 2.2 Photographic image; 24 bit colour depth

Issue: fail to offer provision for any disability of

Stakeholder: Pensioner 65+

Concern: Photographic images need to be large enough or a zoom facility provided as this target segment may have poor eyesight

Minor concerns: 2

Requirement: 4.1 Light classical background music; 44 kHz sampling rate

Issue: to take into consideration the needs of

Stakeholder: Teenager 13-17

Concern: Genre of music does not appeal to a teenager

Stakeholder: Young adult 18-25

Concern: Genre of music may not appeal to a young adult

6. DISCUSSION

The results show that despite the coarse granularity of the attributes of the multimedia elements, the SoDIS analysis clearly showed that there were critical and significant concerns. The solutions to the critical concerns are quite simple. The reading level can be lowered and the font size can be increased. However, there are ramifications in changing the design. Lowering the reading level as the solution may become a cause for concern with the other target audience segments. Increasing the font size may also alter the layout of the screen. The three significant concerns also have simple solutions. The font type can be changed to a more attractive one for the first concern and the font size can be increased for the second. The last significant concern can be addressed by providing a zoom-in option. Instead of looking for solutions to the concern, the target audience can also be made more restrictive by excluding the child and pensioner segments.

The results obtained for the above example show that the SoDIS Project Auditor is a suitable software to use for target audience analysis. The success of this experiment has encouraged the author to make the software available to students to use. Initial feedback from a student indicate that using SoDIS has enabled her to understand the process better. The author intend to require his multimedia students to perform a target audience analysis using the SoDIS Project Auditor after the storyboards for their project have been submitted. The impact of the use of SoDIS will then be evaluated.

There is also scope for refining the attributes of the multimedia elements used as requirements. The finer the granularity, the more useful the analysis will become. One of the impediments that will limit the use of SoDIS is the inability to alter or to add principles or issues to those specified in the software. If it were possible to include issues such as colour blindness or the loss of hearing acuity, SoDIS would become a much better tool for target audience analysis.

7. CONCLUSION

The SoDIS Project Auditor can be used for target audience analysis provided the stakeholders and the multimedia requirements are defined. The software is constrained by its inability to allow the addition of new principles and issues.

REFERENCES

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HADEN'S APPENDIX A

(from page 63)

unit USimpleAgent;

interface

uses

Windows, Messages, SysUtils,
Variants, Classes, Graphics, Controls,
Forms,
Dialogs, StdCtrls, OleCtrls,
AgentObjects_TLB;

type

TForm1 = **class**(TForm)
 PeedyButton: TButton;
 Agent1: TAgent;
 MerlinButton: TButton;
 procedure PeedyButtonClick(Sender:
TObject);
 procedure FormCreate(Sender:
TObject);
 procedure MerlinButtonClick(Sender:
TObject);
 private
 { Private declarations }
 public
 { Public declarations }
end;

var

Form1: TForm1;
var MyAgent1: IAgentCtlCharacter;
var MyAgent2: IAgentCtlCharacter;

implementation

{ \$R *.dfm }

*// Load the Agent Component, and
initialise the two Agent Variables*

procedure TForm1.FormCreate(Sender:
TObject);
begin
 Agent1.Characters.Load('peedy',
'peedy.acs');
 MyAgent1 :=
 Agent1.Characters.Item['peedy'];
 Agent1.Characters.Load('merlin',
'merlin.acs');

 MyAgent2 := Agent1.Characters.Item['merlin'];
end; //FormCreate

//Code to execute when Merlin's button is clicked

procedure TForm1.MerlinButtonClick(Sender:
TObject);

begin

with MyAgent2 **do**

begin

 Show(0);

 Play('Announce');

 MoveTo(200,200,10);

 Speak('I am Merlin the magician,');

 GestureAt(300,0);

end;

end; // MerlinClick

//Code to execute when Peedy's button is clicked

procedure TForm1.PeedyButtonClick(Sender:
TObject);

begin

with MyAgent1 **do**

begin

 Show(0);

 Play('Announce');

 MoveTo(400,300,10);

 Speak('I am Peedy the Parrot,');

 GestureAt(400,0);

end; // PeedyClick

end;

end.