
Available from Deakin Research Online:

http://hdl.handle.net/10536/DRO/DU:30018312

Reproduced with the kind permission of the copyright owner.

Copyright: 2008, Deakin University
Designing Ethical Systems for Online Systems

Shona Leitch and Matthew Warren

School of Information Systems, Burwood,
Deakin University, Australia,

E-mail: shona@deakin.edu.au and mwarren@deakin.edu.au

Abstract

Ethics is an important element in all aspects of Information Systems (IS), from the design, operation and delivery of such systems. Most research has focused upon traditional IS system design and the associated ethical issues.

There are many aspects of ethics that can impact the design and operation of Information Systems, but online system design is often overlooked. The paper will focus upon a design approach that allows for the design on online systems and considers the ethical issues. The approach was developed and validated in regards to a tertiary environment.

Keywords: Online design, Ethics, framework.

Introduction

The internet and Internet based information systems have a global impact upon business and society, but has this impact had an impact upon the design of information and especially the ethical issues. Much of the research performed over the past two decades regarding requirement elicitation for software systems has been focused primarily on the development, implementation and evaluation (Coulin and Zowghi, 2005), on what can be assumed as traditional IS systems, this does raise the question, what about online IS systems?

One concern that needs to be considered is that the ‘systems’ part of an ‘information system’ represents a way of seeing the set of interacting components, such as:

- People (e.g. systems analysts, users)
- Objects (e.g. computer hardware devices)
- Procedures (e.g. those suggestions made in an IS development methodology) (Avison, 1999)

Often in systems design, the developers focus on the objects, i.e. making the most technologically advanced system. In the case of this paper, this poses a problem, since we are focusing upon people and particularly in an educational context. The reason for focusing upon an educational example was:

- Online learning systems are complex systems and have to fulfil needs for a magnitude of different users;
- Online learning systems are an example of a system where user focused design is a major consideration e.g. student focused;
- The users of online learning systems are varied group of users e.g. on campus and off campus, local and international students, various ages, etc.
The authors have previously defined a conceptual framework for the design of E-commerce systems (Leitch and Warren, 2002), but wanted to build upon this research to deal with the complexity of online learning systems.

The aim of the research was to produce a method which allow for the design of online system, this approach would encompasses the needs and requirements of users with that online environment. This approach would allow the consideration of ethical issues in the design of such a system.

Implementation of Approach

Deakin University is one of Australia’s largest universities (Deakin University, 2007), with five campuses located in Melbourne, Geelong and Warrnambool. It was established in 1974 with one campus located in Geelong. Deakin University was one of the first Australian universities to introduce off-campus learning, first through traditional paper methods and then through Internet technologies. Since 2004, all new undergraduate students have been required to undertake at least one wholly online unit as a part of their degree (Deakin University, 2007), and most units have an online teaching and learning presence. Deakin University currently uses software called Deakin Studies Online (DSO) a part of the WebCT brand of software. This software is used in almost every unit at Deakin University with a “required” amount of information (unit guide) to be provided to students, however most units have a much wider DSO presence, supplying various learning materials, lectures, tutorials, discussions etc.

The authors developed the method - MEAD (Method for Educational Analysis and Design) which could be used for the design of on-line systems, focusing upon user requirements. The MEAD method was based upon Soft Systems Methodology (SSM) (Checkland, 1981). This allowed for the use of a number of key mechanisms such as the use of rich pictures to incorporate the users of a system, as well as providing an easy to understand and relate to method of eliciting and discussing information between the designers and other stakeholders.

The issues of ethical design can be resolved by ensuring that users are key stakeholders in the design of the systems that they will be using. The following describes the implementation of the MEAD method:

Stage 1 and 2

Stage 1 requires that there is recognition that there is an issue with the current online teaching and learning system and therefore some action is required to improve the situation. Usually there is at least one person that recognises the possible problem situation and takes action to improve it. In the case of the online teaching and learning system, this is likely to be an academic staff member who has been informed by students as to problems or limitations of the current system, or has noted through their own teaching, problems with the current system in terms of its design or lack of content and functionality.

In this case of this practical application informal student comments and the staff member’s awareness of issues and limitations were the initiation for an investigation into the situation.

The work completed in this stage of the MEAD method was a combined effort guided by the designer but with a large amount of input and consensus by focus group participants.

Data was collected through a survey, gauging student’s opinions and attitudes to numerous areas of teaching and learning online at Deakin University. The responses were collated and used to form a consensus opinion as to their attitudes towards these elements. These opinions were then used to create the initial rich picture and problem themes and used within the next stage of the method in the focus group sessions.

Focus groups are very similar to interviews except they are conducted in a group rather than just with an individual participant. Generally, like an interview, the researcher has constructed some basic broad questions for the facilitator to use in encouraging and eliciting discussion in the group. The facilitator helps the group understand their objectives and moderate the discussion without taking a
particular position (Greenbaum, 2000). These focus group interviews are an effective method for bringing together a group of people in a similar situation to discuss their attitudes and opinions to a particular issue (Kumar, 2005).

The first focus group was conducted with a group of students from Deakin University, Australia, who indicated in the returned questionnaire that they were willing to be interviewed. From this list a sample of students were selected. The first was a group discussion of students’ attitudes, experiences and opinions of Online Teaching and Learning systems (specifically DSO).

Discussion on the positive and negative aspects of online learning systems layout, content and design took place.

The final major part of the focus group session involved the presentation of a Rich Picture (Checkland, 1981) and the associated Problem themes and were offered up for discussion, a sample rich picture from the validation process can be found in figure 1. Students were asked to comment on each theme and identify any other problems that had not been identified.

The outcome of the first focus group session was to be able to validate and update the rich picture and problem themes that were developed from the survey responses. This stage also identified a number of ethical issues that the students identified, these will be discussed later in the paper.
Figure 1 - MEAD Method for the Analysis and Design of Online Teaching and Learning
Stage 3 and 4

These outcomes allowed the researchers to proceed to stage 3 of the method and formulate the SSM root definitions and conceptual models of the ideal online teaching and learning situation.

Stage 5

When reaching stage 5 of the method (comparing the ideal situation with the current situation) a online teaching and learning designer from Deakin University was approached and an interview was conducted, during which the researchers models were discussed and feedback was given by the designer. This feedback was then included in the models before the comparison was conducted.

Stage 6

From the research that has been conducted in the application of this method (from focus group sessions, questionnaire feedback and analysis using the method) there are a number of changes to online teaching and learning system at Deakin University that have been discussed and proposed by the researcher, the participants and the e-learning designer.

Within this stage another area to be assessed was the limitations of Technology involved. The limitations of the online teaching and learning software (DSO) used by Deakin University had to be addressed. WebCT the development company that produced DSO provides a generic standardised package, which is then adapted for use at individual institutions. Even with Deakin University, different templates and styles are used within different Faculties. Some of the limitations faced when developing the DSO example site included:

- Limited selection of integrated communication tools;
- No standard method for social interaction;
- Database style of DSO (would be difficult to alter);
- Overall style of DSO site.

Stage 7

The feasible changes that were identified through the SSM analysis were then applied to the specific online teaching and learning system that is used at Deakin University. Along with these feasible changes the specific opinions of the focus group participants (and the survey participants) were also applied to the design and the content inclusions.

A second focus group session was conducted; the participants where presented with the example online teaching and learning system that was produced from the “feasible and desirable changes” that were identified in stage six of the method. This part was presented in the style of a walkthrough, showing the participants the different elements and features that had been included, this included content ideas as well as some different layouts.

Ethical Outcomes

The MEAD method as well as being a user focused design approach, also allows for the consideration of ethical issues. The use of focus groups at stage 2 of the MEAD method allows for ethical considerations to be discussed. In terms of the validation process of the MEAD method, the following ethical considerations were identified:

- Implement a social networking and interaction aspect to online teaching and learning;
- Provide more useful information resources;
- Provide varied resources for students that include both audio, visual and interactive mediums;
• Larger Internet download limit for student to access materials suggested by staff on DSO for students to access;

• Wholly online units to be removed from the curriculum and online teaching and learning to be used as a supplemental resource to traditional face-to-face teaching;

• Online questions posed by students to be replied to by a staff member within twenty-four hours;

• Lecture theatres to be fitted with adequate power outlets for students to be able to use laptops to take notes during classes (outside the realm of online teaching and learning system design);

• Users (students) of online teaching and learning systems should have input into the design of said system.

As Stage 7 of the MEAD method, through the second focus group the feasibility of the considerations were discussed.

Without the user focus of MEAD, these ethical considerations would not have been highlighted and considered as part of the design process.

Conclusion

This MEAD method has been developed as an alternate way of developing online learning systems. The approach allows for high levels of user involvement at specific stages of the method (stage 2, 5 and 7 has the most user participation). This is to endeavour to improve the planning and analysis of online learning systems and try to achieve a system that works for the user and also considers ethical issues as well.

The application of this MEAD method took place in a tertiary institution (Deakin University) in Australia but the method could be applied within other tertiary institutions or used to design business online systems.

References


