Available online at www.sciencedirect.com

ScienceDirect

Procedia Social and Behavioral Sciences 18 (2011) 295–300

Procedia Social and Behavioral Sciences

Kongres Pengajaran dan Pembelajaran UKM, 2010

Conceptual Design Innovation of SPIN Interface

Tengku Siti Meriam Tengku Wook*, Hazura Mohamed, Noraidah Sahari @ Ashaari, Hairulliza Mohamad Judi

Faculty of Information Science and Technology, Universiti Kebangsaan Malaysia, 43600 UKM Bangi, Malaysia

Abstract

This research focuses on the development of conceptual design which describe the mental model of designer and user to organize information in Interactive Teaching and Learning Management System (SPIN) at UKM. Sequences of instruction in SPIN are not displayed clearly. It does not take into account user requirements and needs from various backgrounds and level. This will cause a difficulty among user to access SPIN interface due to dissimilar of interaction and application. Thus, this research develops a conceptual design which covered the interaction issue for SPIN interface innovation. Design method use is participatory design (PD), which involves user as a design partner to increase the usability of existing SPIN interface. Once a right conceptual design was created, the interaction style and user interface can be designed according to real user requirement. The output of this research is an accurate user interface that represents a conceptual design and a guide to create a high usability level of content and interface of SPIN.

Selection and/or peer-review under responsibility of Kongres Pengajaran & Pembelajaran UKM, 2010

Keywords: conceptual design; interface innovation; mental model; SPIN;

1. Introduction

The conceptual design in this research involves an explicit idea or user interface display concept for Interactive Teaching and Learning Management System (SPIN) in Universiti Kebangsaan Malaysia (UKM). SPIN is an online learning system (www.spin.ukm.my/) for students and lecturers in UKM. SPIN offers an interactive online learning environment between students and lecturers. SPIN functions are: upload / download learning material such as tutorial, quizzes, exercises, paper works and lecture notes, communication through email, talk and discussion, announcement and information. SPIN interfaces are relatively linked to each other and a lot of learning features that involves two way user interactions. The only design that is not created to fulfill SPIN application objective is, that the interface design does not meet the real user requirement.

Objective of this research is to develop a conceptual design model of SPIN interface that involves style of interaction. Table 1 describes the interaction issues and description of SPIN interface. This interaction issue is already discussed and becomes a measure to the usability of interface system by Fetaji *et al*. (2007).

* Corresponding author. Tel.: +0-603-8921-6665; fax: +0-603-8926-7950
E-mail address: tsm@ftsm.ukm.my

1877–0428 © 2011 Published by Elsevier Ltd. Open access under CC BY-NC-ND license.
doi:10.1016/j.sbspro.2011.05.042

Table 1. Interaction Issue

Interaction Issue	Task
Command line languages	User interacts with computer through inserting the key function, keyword or instruction based on language used by SPIN application.
Menu	Use of menu on SPIN interface as of; pull down menu, pop up menu or hierarchical menu.
Direct Manipulation	User controls the icon, object or graphic by using drag and drop and cursor direction.
Form fill-in	User utilizes a forum, discussion and notice board to communicate.
Question/answer and query dialogue	User communicates with SPIN by typing a query in a search box that retrieves information from a database.
WIMP Interface	User feels more comfortable using WIMP (windows, icon, menus and pointers/menu pull down) during accessing SPIN.

2. Study on interface design

According to Cho. *et al*. 2009, an interface design is a feature that supports instruction in information system. Therefore, usability is a major attribute in the interface design research because it becomes a measure to a success system (Bevan 2001). User interface that have a high usability is important in information search process, especially system which provides information from web based system such as an online learning system. Mental model explains user perception on a system, which shows how user and designer conceptualize and understand the system (Preece 1994). A high usability interface system based on a correct mental model. Usability that relies on a correct mind map leads to an action on an application (Preece 1994).

Collaboration among users at every phase during research is important to develop an efficient mental model. It starts with a preliminary survey, analysis, design, development and assessment. With this, a precise mental model that fulfill user requirements can be developed (Abras et al. 2004). According to Muller (1991), participatory design (PD) method is suitable to gather user requirements and response back to a system design. It requires user to involve actively in the design process. This is a philosophy that emphasis on human, creative and effective relationship among those who involved in the design technology. This study uses PD method to develop a conceptual design that increases the usability of SPIN interface.

3. Participatory design method

PD method is used to develop a conceptual design of SPIN interface which involve lecturers and students as a designer partner iteratively. It involves two phases, which are:

i. Initial exploration of idea
ii. Discovery process

3.1 Initial exploration of work

The initial exploration idea phase involves six users, who are three lecturers and three students. The objective of this phase is to get user reaction and opinion on SPIN application usage. An observation and interview were conducted and took about 15 to 20 minutes for each participant. Before the session commence, users were given a briefing and explanation on the objective of the research and their role as design friend. They were assigned by tasks, which are:

Lecture Task:

1. upload the lecture notes
2. convey announcement or instruction