Chapter 7
Design and Evaluation of a Web–Based Learning Module on Computer Networking

Sulaiman Hashim
Aminudin Baki Institute, Malaysia

ABSTRACT
The Malaysian Secondary School Information Technology (IT) curriculum introduced in 1999 was developed based on the Smart School’s framework which emphasised on the use of self-directed, self-access, self-assess and self-pace learning methodologies. However, the introduction of the online IT self-learning module that was supposed to help teachers in adopting this methodology has not been implemented well. As a result, teachers tend to revert to their traditional teaching approaches which could jeopardize the success of the IT curriculum’s objectives. This study was carried out to design, develop and evaluate a new web-based learning module which the researcher hopes could improve or possibly replace the existing module.

The module was developed in accordance to the developmental research approach which employed different types of evaluation method depending on its stage of development. The methods included peer review, expert review, cooperative evaluation and experimental design. The first three methods were used to address both the design and the development objective of this study while the latter is to address its evaluation objective. The result of this evaluation shows strong corroboration between all data sources (achievement test, survey and interview). In addition, the result also indicates that students who used the module have more positive perception toward the IT subject. This finding not only established the effectiveness of the module, but also the positive effect of using such module on students’ achievement and their perceptions towards the subject.

This finding has two direct implications. First, the empirically proven design principle used in the design and development of the web-based learning module in this study can be used as a reference model for those who are interested in developing a similar module. Second, the finding of this study suggests the potential of integrating the use of a web-based learning module in the IT classroom.

DOI: 10.4018/978-1-61350-198-6.ch007
INTRODUCTION

Since its introduction as one of the elective subject at the SPM level in 1999, Information Technology has been one of the favourite subjects among students. However, since the number of computer which can be accommodated in school’s computer lab is limited to 20 and the fact that most secondary schools only have one lab, schools that offer Information Technology subject at the most can only offer two classes of form 4 and another two of form 5. Theoretically, up to 40 students can learn Information Technology at any one time if two students can share a computer as allowed by the Curriculum Development Centre (PPK, 2001). However, due to the concern that any delay in repairing the computer, should they break down, could disturb students learning, most school limit the number of students in the Information Technology classes to not more than 30 students.

The Information Technology curriculum is developed based on the smart school framework. As such, its implementation should be inline with the methodology and the pedagogy associated with the smart school vis-à-vis the self-directed, self-access, self-assess, and self-pace learning or better known among teachers in the smart schools as “SeDAAP”. Its learning environment requires students’ active participation in various learning activities failure which will cause them to fall short from achieving the objectives of the curriculum. To ensure smooth implementation of the curriculum, all four periods per week of the IT classes is held in the computer lab. In addition, various resources have been developed to assist teachers in the implementation of “SeDAAP” approaches in their classroom which includes the use of the Information Technology self learning module (PPK, 2001).

The use of the learning module however, has not been received as well as it is hoped to be. The feedback from the IT teachers which the researcher had received as the officer in charged with the implementation of the subject was that while the teacher acknowledge the prospect of using the module, the presentation, the confusing instruction, the dead links, and the unrealistic problems found in the module had kill off their interest as well as that of the students to use the module (Sulaiman, 2000).

Since the failure to implement the IT curriculum in the smart school framework as it is envision will jeopardized the objective of its implementation, the researcher feel appealed to carry out this study, with the purpose to design, develop, and evaluate the effectiveness of a web-based learning module on computer networking which conforms to the Malaysian SPM level Information Technology curriculum.

In Malaysia, the Internet was only officially introduces in school beginning 1995 through the Jaringan Pendidikan project (KPM, 2001). However, the facility then was too basic, and the Internet link was too slow for full integration of the Internet in teaching and learning. It was only after the introduction of the Smart School project 1999 that the Malaysian school have adequate physical infrastructure to fully implement a web-based teaching and learning. As such, studies in the area of web-based learning conducted at the primary and secondary school level in Malaysia is scarce. In his searching for studies in the area of web-based learning which has been conducted at the school level, the researcher have came across only two studies, that of Rohaidah (2003) and Abtar (2001). While the earlier focused her study on the acquisition of science process skill in a web-based learning environment at a primary level, the later discussed the design and development of a web based learning environment based of the constructivist learning paradigm at secondary school level. Alas, none on the topic of Information Technology.

Aim of the Study

This study seeks to design, develop, and evaluate the effectiveness of the web-based learning
13 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the product's webpage: www.igi-global.com/chapter/design-evaluation-web-based-learning/61265?camid=4v1


Related Content

Evaluation of a Hybrid Mathematics Methods Course for Novice Teachers
Christopher J. Johnston (2013). International Journal of Online Pedagogy and Course Design (pp. 33-52). www.igi-global.com/article/evaluation-hybrid-mathematics-methods-course/75540?camid=4v1a

Exploring Applications for Using Video Podcasts in Online Learning
Robin H. Kay (2014). International Journal of Online Pedagogy and Course Design (pp. 64-77). www.igi-global.com/article/exploring-applications-for-using-video-podcasts-in-online-learning/114997?camid=4v1a

Using Learning Objects for Rapid Deployment to Mobile Learning Devices for the U. S. Coast Guard

Instructional Conversations: Designing Dialogue to Deepen Learning