

**DEVELOPMENT AND EVALUATION OF WEB-BASED LEARNING
MANAGEMENT SYSTEM: A SYSTEM PERSPECTIVE**

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ABSTRACT

This study presented the development of a Web-Based Learning Management System (WBLMS): A System Perspective with the evaluation of its features and effectiveness in the Philippines, particularly at Isabela State University (ISU) - Cauayan Campus, College of Computing and Information Technology (CCIT). In the development phase, it employed the experimental method of research while in the evaluation phase it utilized the descriptive evaluation method. The use of e-learning success model was used to guide the design, development, and acceptance delivery of the WBLMS. Findings showed the validity of e-learning success model in the evaluation of the six dimensions of success factors, namely: system quality, information quality, service quality, system delivery use, user satisfaction, and net benefit. The developed WBLMS examined what it means to use the Internet as a substitute for classroom/face-to-face learning and teaching without compromising its advantages.

Keywords: *web-based learning management system, e-learning success model, College of Computing and Information Technology, Isabela State University*

INTRODUCTION

The first step in developing a learning management system of web-based instruction is to determine the needs of students. Assessing student needs provides instructors with information necessary to select appropriate technology and instructional strategies to develop an online learning environment that is appropriate, responsive, and beneficial for the learners, the professors and the academe as well.

Web-based learning in the Philippines or the term e-learning is used synonymously with online learning and concerns the online delivery of instructional content as well as associated support services to students (Ahamer, 2010). For learners, it provides access to information and knowledge sources that are practically unlimited, enabling a number of opportunities for personalized learning, tele-learning, distance-learning, and collaboration, with clear advantages of classroom independence and platform independence (Barker, 2002). On the other hand, teachers and authors of educational materials can use numerous possibilities for web-based course offering and tele-teaching, availability of authoring tools for developing Web-based courseware, and cheap and efficient storage and distribution of course materials, hyperlinks to suggested readings, digital libraries, and other resources relevant for the course (Devedzie, 2003).

Bill Gates announced “Five years from now on the web for free you’ll be able to find the best lectures in the world. It will be better than any single university.” His argument as to why this will happen are two-fold. On the one hand university has become far too expensive for students with little funding to attend. Therefore, it is harder to achieve an education at university level. On the other hand, Bill Gates believes that textbooks in the West are far too intimidating for many students (Hatzilygeroudis et al., 2005).

This paper developed and evaluated a WBLMS. Details were documented on the development and pilot testing of the prototype designed. The prototype system was designed to enhance traditional classroom learning. The use of e-learning success model was used to guide the design, development, and acceptance delivery of the WBLMS

(Keegan, 1996). Overall, this research evaluates a developed learning management system. It details the validity of e-learning success model in the evaluation of the six dimensions of success factors, namely: system quality, information quality, service quality, system delivery use, user satisfaction, and net benefit (Keegan, 1996).

Paradigm of the Study

There were two (2) phases involved in the study, these are the following:

Phase I: Development Phase

The WBLMS was developed in this phase using a PHP as a development tool and SQL for database purposes.

Phase II: Evaluation Phase

The WBLMS was evaluated by the IT professionals in this phase using a questionnaire adapted from e-learning success model (Lee-Post, 2009).

Figure 1
e-Learning Success Model

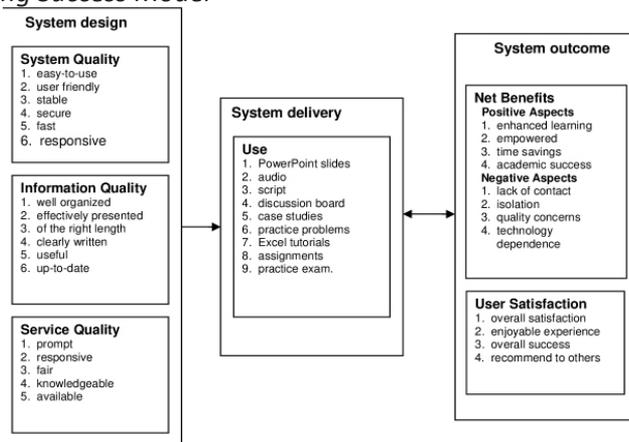


Figure 1 shows the e-Learning Success Model. This study adapted the model of Lee-Post (2009) which was derived from the models of Delone and McLean's (2004) extended model, and the re-specified IS success models developed by various scholars (Chen, 2010; Cheng, 2012; Floropoulos et al., 2010; Landrum & Prybutok, 2004; Sedd).

Statement of the Problem

The study aimed to develop and evaluate a WBLMS for the ISU - Cauayan Campus, CCIT. Specifically, it sought to answer the following:

1. What learning system can be developed to substitute classroom/ face-to-face learning and teaching without compromising its advantages?
2. What is the evaluation of the Information Technology (IT) professionals on the developed WBLMS in terms of system quality, information quality, service quality, system delivery use, user satisfaction, and net benefit?

METHODOLOGY

Research Design

The study employed the descriptive developmental research design. The study involves two (2) phases which are the development phase and the evaluation phase.

Participants of the Study

This research was conducted at ISU - Cauayan Campus, CCIT during the academic year 2014-2015. The study utilized the purposive sampling technique to determine the participants of the study which consisted of ten (10) IT professionals who were currently teaching in the campus.

Instrumentation

Interview Guide. The researcher conducted an interview to

determine the needs of ISU - Cauayan Campus, CCIT in the learning system and what system can be developed to substitute classroom/face-to-face learning and teaching without compromising its advantages. Also, to identify the components, features and design of the system.

Survey Questionnaire. The researcher adapted the questionnaire from the e-learning success model of Lee-Post (2009) to evaluate the developed WBLMS for ISU - Cauayan Campus, CCIT.

Data Gathering Procedure

The researcher sought the permission from the administrators of ISU - Cauayan Campus, CCIT to conduct the study. The researcher interviewed ten (10) IT professionals to determine the needs of ISU - Cauayan Campus, CCIT in the learning system and what system can be developed to substitute classroom/face-to-face learning and teaching without compromising its advantages and also identified the components, features and design of the system. After the development of the WBLMS for ISU - Cauayan Campus, CCIT, the ten (10) IT professionals evaluated the developed system using the adapted questionnaire from the e-learning success model of Lee-Post (2009).

Data Analysis

Weighted Mean. This was utilized to describe the evaluation of the participants on the developed WBLMS for ISU - Cauayan Campus, CCIT in terms of system quality, information quality, service quality, system delivery use, user satisfaction, and net benefit. The following five-point Likert Scale was used to interpret weighted mean of the participants' evaluation on the developed system.

Mean Range	Descriptive Interpretation
4.20 - 5.00	Excellent
3.40 - 4.19	Very Satisfactory
2.60 - 3.39	Satisfactory
1.80 - 2.59	Fair
1.00 - 1.79	Needs Improvement

RESULTS AND DISCUSSION

Evaluation of the IT Professionals on the Developed Web-Based Learning Management System

Results showed that the evaluation of the IT Professionals on the developed WBLMS for ISU - Cauayan Campus, CCIT in terms of: system quality was rated as “excellent” with a mean of 4.25; information quality was rated as “excellent” with a mean of 4.28; service quality was rated as “very satisfactory” with a mean of 4.19; system delivery use was rated as “very satisfactory” with a mean of 4.10; user satisfaction was rated as “very satisfactory” with a mean of 4.10; and net benefit was rated as “excellent” with a mean of 4.20. Further, the developed system was rated as “very satisfactory” with an overall mean of 4.19.

CONCLUSION

Based on the findings of the study, the overall evaluation of the IT professionals of the WBLMS was “very satisfactory” in terms of service quality, system delivery use, and user satisfaction and “excellent” in terms of system quality, information quality, and net benefits. Therefore, this study shows that the developed learning management system is skillfully developed and highly acceptable. It is highly reliable in terms of system quality, information quality, service quality, system delivery use, user satisfaction, and net benefit.

RECOMMENDATIONS

On the basis of the findings and conclusions, the developed WBLMS can be recommended to be widely used by every faculty member in the campus to acquire the benefits of the learning management system which includes:

1. Helping teachers diagnose an individual student’s skill deficiencies and prescribe lessons and activities to help that student reaches skill level mastery.
2. Extending learning time to before and after school, or at home - where a child can learn virtually at anytime.

3. Motivating students and supporting diverse learning styles through a variety of learning modalities.
4. Providing one-to-one tutoring in a self-paced learning environment.
5. Providing a network of people, valuable information, interaction and resources to tap the education community around the globe.
6. Supplementing the teachers' efforts and provide coverage of skills commonly found on standardized tests.
7. Providing outstanding opportunities for distance learning and continued instruction for students.
8. Utilizing web-based learning tools to help students prepare for the information age they now live in.
9. Adhering to the maintenance of the system for maximum utilization for the benefits of the university and its people.

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