QUALITY ASSURANCE IN DISTANCE AND OPEN LEARNING

By

MOHAMMED HASAN MAHAFZAH

Faculty of Information Technology, Computer Science Department, Philadelphia University, Amman, Jordan.

ABSTRACT

E-learning has become an increasingly important teaching and learning mode in educational institutions and corporate training. The evaluation of E-learning, however, is essential for the quality assurance of E-learning courses. This paper constructs a three-phase evaluation model for E-learning courses, which includes development, process, and product evaluation, called the DPP evaluation model. Development evaluation includes, course material design, E-learning platform, course Web site design, learning resource, interactivity, assessment, and tutor support. Process evaluation includes technical support, Web site utilization, learning interaction, learning evaluation, learning support, and flexibility. Product evaluation includes student satisfaction, teaching effectiveness, learning effectiveness, and sustainability. This research uses the DPP model to evaluate a purely E-learning course in Distance and open Learning, developed by Philadelphia University. According to summative evaluation through a student E-learning experience survey, the majority of students were satisfied on all E-learning dimensions of an E-learning course. The majority of students thought that the learning effectiveness of this course was equivalent, even better, than face-to-face learning because of cross-border collaborative learning, sufficient learning support, and learning flexibility. This study shows that a high quality of teaching and learning might be assured by using the systematic DPP evaluation procedure. It is hoped that the DPP evaluation model can provide a benchmark for establishing a wider E-learning quality assurance mechanism in educational institutions.

Keywords: E-Learning, Quality Assurance, Evaluation, Moodle, Learning Management System (LMS), E-learning Platform, Pedagogical Model.

INTRODUCTION

E-learning has become widely used in conventional education, continuing education, and corporate training because of its flexibility, richness, and cost-effectiveness. United Nations Educational, Scientific and Cultural Organization (UNESCO) statistics show that over 455 million people around the world received education and training through the Internet in 2008, UNESCO Institute for Statistics (2011). Over 70% of universities in the USA were providing E-learning courses, and more than 6.1 million university students were taking at least one e-learning course, which accounted for over 31% of the total number of university students in the USA, Allen and Seaman (2011).

With the rapid development of information technology, student attitudes towards E-learning are becoming more positive. According to the Survey on the Demand for Continuing Education in Hong Kong 2007-2008, 40.4% of the respondents showed positive attitudes to e-learning when they considered pursuing a continuing education program, while 83.9% of them hoped to try the blended learning approach.

With the rapid development of e-learning, there is also an increasing interest in e-learning research. Among all the research topics, quality assurance of e-learning has attracted the greatest concern. Jung, Wong, Cheng, Baigaltugs and Belawati (2011) found that various national, regional, and international initiatives have been undertaken with regard to quality assurance in E-learning. Endean, Bai, and Dui (2007) stated that those concerned about online learning have been developing and publishing ideas for over a decade about how to manage the quality of the learning experience of those trying to study through the Internet.

However, Jung and Latchem (2007) found that most institutions apply the same quality criteria for E-learning as for the other modes of delivery. Endean, Bai, and Dui (2010)

pointed that new entrants to the e-learning field were unlikely to have existing internal procedures to cover quality assurance of this new mode of operation.

Course quality is assured by a series of evaluations, and e-learning should be no exception. In this paper, the author proposes an e-learning course evaluation model, called DPP model, for quality assurance and analyzes its concrete application using an E-learning course developed by Philadelphia University-Jordan.

Construction of an E-learning Course Evaluation Model

Referring to the real experience in producing e-learning courses at Philadelphia University, the author proposes a system for evaluating E-learning course that consists of three evaluation activities: development evaluation, process evaluation, and product evaluation; in short, the DPP model. Based upon the proposed DPP model and in line with the components and E-learning characteristics, the e-learning evaluation model consists of 17 items as shown in Table 1.

Development evaluation of E-learning courses involves analyzing every component of course development, including the course material design, E-learning platform, course website design, learning resource, student-student interactions, Assessment, and Tutors. Evaluating of e-learning teaching process should include the following six dimensions: technical support, website utilization, learning interaction, learning evaluation, learning support, and flexibility. Product evaluation measures the learners' satisfaction, teaching effectiveness, learning effectiveness, and sustainability, which depend on the results of the abovementioned analyses.

Development Evaluation

The first step in e-learning development evaluation is to analyze the course material design according to the Pedagogical Model used in E-learning course development, which is compiled and prepared by the Faculty Council. The Course material design deals with the formation of the course team and its members' roles, course background, course introduction, course objectives, learner analysis, requirements for learning facilities and skills, course modules/units, learning materials, assessment and examination, communication and collaboration in learning, learner support services, teaching model, course materials writing schedule, and quality assurance.

When the course material design "Pedagogical Model" evaluation has been completed, it is followed by learning resources, interactivity, assessments, analyzing the construction of the E-learning platform, course website, and the training of tutorial staff, which is implemented by the deanship of distance learning at the Philadelphia University. Table 2 lists the e-learning course development and evaluation steps.

Since this course was developed by the Deanship of Distance Learning at Philadelphia University-Jordan, the evaluation of the material design, learning resources, interactivity, and assessments procedures, followed by the course development procedures of the Deanship of Distance Learning at Philadelphia University-Jordan. Outside experts were invited to do an external evaluation. The requirements for external experts were professors in education with at least 8 years experience in distance education research and teaching.

The principle of six types of interactions was also emphasized, including the interactions between students and interface, between students and teachers, among students, between students and learning content, between

Development Evaluation	Process Evaluation	Product Evaluation
Course material design E-learning platform Course website design Learning resources Interactivity Assessment Tutors	Technical support Website utilization Learning interaction Learning evaluation Learning support Flexibility	Student satisfaction Teaching effectiveness Learning effectiveness Sustainability

Table 1. The DPP Evaluation Model for E-Learning Courses

Course content	Responsible Organization	Evaluation
Course material design "Pedagogical Model". Learning resources Interactivity Diagnostic and Formative Assessments	Deanship of Distance Learning Philadelphia University Jordan	Course development team "Faculty Council And Quality Assurance team"; Distance Learning Council.
Using E-Learning platform "Moodle" Course Website Tutors Training	Avicenna center for E-Learning Philadelphia University Jordan	Avicenna Center for E-learning; Multimedia designer and producer; Module external assessor.

Table 2. E-Learning Course Development and Evaluation

students and learning objectives, between students and multimedia learning resources, and between students and time management, Zhang (2009).

The Moodle e-learning platform was used on Learning Management System (LMS). The LMS functions could be classified into five categories: course content functions, communication and collaboration functions, feedback and evaluation functions, assignment and assessment functions, and administration and management functions.

Process Evaluation

Process evaluation refers to evaluating the process of course delivery, including the technical support, website utilization, learning interaction, learner support, and flexibility. Process evaluation mainly uses three approaches: survey of students' learning experience and feedback; survey of tutors' opinions; and the deanship of distance learning council's monitoring of the e-learning tutorials.

The approach to understanding students' learning experience and feedback is as follows: establishing a special feedback area on the course website, establishing email communication between tutors and students, and internal reviewer's interviews with tutors and students. For example, the students were asked to familiarize themselves with various functions of the e-learning platform in the first week, referring to the course website guidance. The students needed to report to their tutor their degree of familiarity and time spent for this purpose. It was found that all the students learnt to use this course platform in three to five hours.

In the middle of this course, the reviewers and the deanship of distance learning council conducted formative evaluation. At the fourth week of this course, individual interviews were conducted and a virtual classroom was organized for evaluators to gather students' learning feedback, including overall evaluation, learning experiences, difficulties, and suggestions so that timely adjustments could be made.

Monitoring e-learning tutorials is one of the most important tasks for the distance learning council, who needs to log into the course website at least once every two weeks to observe students' learning progress and difficulties. If students' questions are not answered promptly or only ambiguous answers are provided, or if there are not many posts in the discussion forum area, the distance learning council would take immediate action to contact the tutors and solve the problem and inspire student's learning enthusiasm.

Process evaluation is an accurate process, which involves continuous evaluation throughout the course. Tutors need to plan carefully to maintain students' learning enthusiasm and help them achieve the final learning objectives.

Product Evaluation

Product evaluation of an e-learning course is mainly conducted through quantitative research, supplemented with students' feedback and suggestions. For the first intake of the proposed E-learning course, the online questionnaire method was used and all 80 students were surveyed. Sixty valid data sets were received; the response rate was 75%.

Tables 3 to 5 shows the students' evaluation of course effectiveness, teaching effectiveness, and learning effectiveness. Table 3 shows the results of overall feedback on course effectiveness; such feedback is required for all E-learning courses at Philadelphia University. The results of students' evaluation of various E-learning components of the course are shown in Tables 4 & 5.

In order to understand these results relative to those of the face-to-face teaching mode, we adopted the evaluation statistics labels used for face-to-face teaching in Philadelphia University and calculated the average percentage of each item in the questionnaire survey on a Likert-type scale, Norman (2010). The scale of the grades is explained as follows: 0% – 49.9%, Fail; 50.0% – 59.9%, Pass; 60% – 67.9%, Satisfied; 68% – 75.9%, Good; 76% – 83.9%, Very Good; 84% – 100%, Excellent .

Overall Feedback	Strongly Agree	Agree	Un decided	Disagree	Strongly Unsatisfied	Average
The course has been effective in helping me learn.	21%	70%	9%	0%	0%	85%
The teacher has been effective in helping me learn.	48%	46%	6%	0%	0%	8
Attending the course has been worthwhile.	80%	18%	2%	0%	0%	93%

Table 3. Overall Feedback on Course Effectiveness

Table 3 shows that students' evaluation of learning effectiveness, teaching effectiveness, and course worth reached the level of "Excellent" using the same evaluation statistics method for face-to-face teaching at Philadelphia University.

It can be seen in Tables 4 and 5 that student evaluation of degree of satisfaction, teaching products and learning products in e-learning components reached the level of "Excellent" based on the course evaluation criteria used at Philadelphia University. Table 4 shows that satisfaction with tutors was highest with an average score of 90.4, but interactivity was lowest with an average score of 77.8. In this course, the tutors were required to answer student questions within 48 hours and it was very much appreciated by the students. However, there were no requirements for students to respond to other students' enquiries in discussion forums. Therefore, interaction between students was not so active compared with the interaction between tutors and students.

	Strongly Satisfied	Satisfied	Un decided	Un satisfied	Strongly Unsatisfied	Average
Web site design	31%	49%	12%	8%	8%	78.6%
Video material	59%	41%	0%	0%	0%	89.3%
Tutors	70%	30%	0%	0%	0%	90.4%
Interactivity	29%	59%	12%	0%	0%	77.80%
E-learning study sessions	38%	57%	5%	0%	0%	80.5%
Flexibility of learning	47%	43%	10%	0%	0%	85.7%
Assessment	44%	45%	11%	0%	0%	79.6%
E-learning environment	40%	47%	13%	0%	0%	81%
Course quality	46%	50%	4%	0%	0%	83%

Table 4. Students' Degree of Satisfaction with the E-learning Course (%)

	Strongly Agree	Agree	Un decided	Disagree	Strongly Disagree	Average
Teaching pace was appropriate video program	51%	40%	9%	0%	0%	87.7%
The lecture was knowledgeable about the subject	77%	23%	0%	0%	0%	94.9%
The tutor was knowledgeable about subject	660%	24%	10%	0%	0%	88.7%
The tutor explains clearly	69%	30%	1%	0%	0%	85.2%
The tutor has been effective in helping me to learn	38%	55%	7%	0%	0%	81.6%

Table 5. Students' Evaluation of Teaching Effectiveness (%)

Conclusion

The DPP model for evaluating E-learning courses was designed and proposed based upon the real experience in producing E-learning courses at Philadelphia University evaluation model (i.e., development evaluation, process evaluation, and product evaluation.) In line with the characteristics and process of E-learning teaching and learning, 17 evaluation items were identified within the DPP model. Using the DPP model, the author took an E-learning course, which was produced by Philadelphia University as a case study to describe and analyze the series of evaluation activities. The research results show that this DPP evaluation model could effectively ensure the quality of the E-learning course in terms of both teaching and learning effectiveness. However, the use of the DPP model in this study measures only one purely E-learning course and further studies are needed. The author hope that this model could be one reference in establishing E-learning quality assurance models for other educational institutions.

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ABOUT THE AUTHOR

Dr. Mohammed Mahafzah is Associate Professor of Computer Science. Since 2009, he has been the Dean of Distance Learning at Philadelphia University, Jordan. He graduated from the Yarmouk University, Jordan with a BSC in a Computer Science and gained an MSC and a PhD from the George Washington University, USA, both in Computer Science. As an academic, he continued an interest in Computer Algorithms, Data Compression, Parallel Computer Architectures, and Fault-tolerant Computing. He was awarded a Chair in Computer Science by Mu'tah University, Jordan in 1999. In 2003, he was the Dean of Computing for Graduate Studies by Amman Arab University, Jordan, for one year. In 2007, he was the Dean of Information Technology Faculty at Philadelphia University for two years. Since 2005, he has been a Member of Supreme Accreditation council at the Ministry of Higher Education and Scientific Research, Jordan. Since 2010, he has been a Member of trustee's council at Al-Balqa Applied University, Jordan. He has chaired, programme chaired and been a member of the programme committee of many major conferences in different areas in Computer Science and Distance and open learning. He is the author of more than 20 scientific papers in refereed Conferences and Journals.