

E-Learning Development as A Blended-Learning Learning to Support Interactive Learning Multimedia Development Course

Ariyawan Agung Nugroho

*Department of Educational Technology
Universitas Negeri Yogyakarta
Yogyakarta, Indonesia
ariyawan@uny.ac.id*

Sugeng Bayu Wahyono

*Department of Educational Technology
Universitas Negeri Yogyakarta
Yogyakarta, Indonesia
sugeng_bw@uny.ac.id*

Abstract— The use of E-Learning as one of the complementary learning tools can help in learning activities. Its use with appropriate planning and methods is expected to help students improve their understanding of lecture activities. Therefore, the development of e-learning and blended-learning based content is needed to enhance the effectiveness of PMPI lectures. This research is development research with development procedures including design, development, evaluation, and revision. In this first year, the focus of the study was on the design stage, where the purpose of the study was to identify lecture competencies and the objectives of the lecture and the profiles and characteristics of students and products developed. Data was obtained through an open questionnaire distributed to all students taking courses in Interactive Learning Multimedia Development (PMPI). The results of the study show that students fully state that e-learning is very necessary and that the e-learning platform currently used, namely Be-Smart has not been considered sufficient to accommodate the learning needs of students. The product features developed are expected to have interesting, complete content and present not only tutorial videos but also written guidelines or guides in the form of completion steps, up to e-book and audio learning. The e-learning interaction developed needs to enable interaction between lecturers and students or fellow students. It can be synchronous or asynchronous, besides being able to be applied in gadget devices and having a storage capacity that is capable of storing and downloading large amounts of files. In addition, the expected PMPI competencies cover aspects of knowledge, skills, and attitudes. Output results in the form of scientific articles published in proceedings and different outcomes in the form of Model, Prototype, Design, Artwork, Social Engineering, Appropriate Technology, or Policy

Keywords— *e-learning; blended learning; interactive multimedia learning*

I. INTRODUCTION

E-Learning is an education system that uses electronic applications to support the development of teaching and learning activities with the internet, intranet, or other computer network media. With e-learning, it is possible for the education process to occur without going through face-to-face meetings and the development of knowledge to students can be done

easily. In particular, the use of e-Learning has become a necessity in the lecture process of Interactive Learning Multimedia Development (PMPI) courses due to several reasons. The first, PMPI lecture, which incidentally is a practice course, requires a forum or forum for students to directly experience the use and development of interactive multimedia that can be free, where and whenever accessible to students through the use of e-Learning. Secondly, in PMPI lectures, students and lecturers can interact synchronously or asynchronously through forums or forums that have been specifically designed to meet the learning needs of students to achieve the competencies targeted at the lecture. Finally, providing virtual containers in PMPI lectures allows students to be able to show their work in the development of interactive multimedia learning as well as being used or utilized by other students through PMPI's e-learning lectures.

Unfortunately, the full implementation of e-Learning is often constrained by the lack of facilities from a less stable internet network, software that is not always available for free to access the features available in an e-Learning system. This motivates researchers to develop blended learning programs that utilize e-Learning systems such as LMS (Moodle) that are already available. Blended learning is believed to be the middle ground in utilizing e-learning in lectures. Blended learning is also in line with the academic regulations that apply at UNY to meet the minimum number of face-to-face meetings. At the same time, blended learning is the catalyst for the emergence of interactions between educators and students who encourage the process of critical and creative thinking given that blended learning provides unlimited learning resources and a variety of interaction variations, of course, by designing a syllabus or course grid that has been designed in such a way as to accommodate both types of learning models, both face to face and blended learning. Therefore, this paper describes the process of developing e-learning for PMPI lectures specifically related to the identification of competencies and lecture objectives, profiles, and characteristics of students and e-learning material content products needed to be implemented through a blended learning strategy.

A. *E-learning*

E-learning is learning that is structured with the aim of using an electronic or computer system so that it can support the learning process [1]. E-learning offers many advantages. Submission of material is made by utilizing the internet network, intranet, or other computer media so as to enable the repetition of the material provided without reducing information and learning experience given to the provision of material on the first iteration. In addition, E-learning is a learning system that is used as a means for the teaching and learning process that is carried out without having to meet face to face directly between the teacher and students [2]. By using e-learning, time, and place are no longer a problem. E-learning is often also understood as a form of web-based learning that can be accessed from the internet on local networks or the internet [2]. The rapid development of LMS (Learning Management System) and supported the availability of widespread internet access, encouraging the use and dissemination of material in the e-learning corridor is not done on local computers, but is done by utilizing websites that are connected to the internet network.

B. *Interactive Learning Multimedia Development Course*

The interactive learning multimedia development course is one of the practical subjects held by the Education Technology Study Program, Faculty of Education, Yogyakarta State University. This course aims to provide provision and experience for students in developing interactive learning multimedia in accordance with the rules of Educational Technology. Students not only try, but also are given provisions in developing multimedia, both from pre-production to post-production handling.

C. *Blended Learning*

The definition of blended learning is presented as three things, namely a) combining instructional modalities (or delivery media); b) combining instructional methods; and c) online combining and face to face instruction [3]. Of the three definitions, the description of blended learning by utilizing e-learning is more precisely reflected in the latter sense, namely the incorporation of online and face-to-face instructions. Blended Learning has two types of learning environments, namely the traditional face to face learning environment that is still used around rural areas; and a distributed learning environment that has begun to develop along with new technologies that allow expansion to distribute communication and interaction [4].

Initially, face-to-face and distributed learning in blended learning was utilized separately, both in media, methods, and different participants. For example, the face to face learning type occurs in a teacher-directed environment with person-to-person interaction in live synchronous (time-dependent direct learning) and a wide and dense environment. At the same time, distance learning systems emphasize self-paced learning and learning with the interaction of materials that occur in asynchronous (not time-dependent) and low-fidelity environment (text only).

At present, the use of the term Blended Learning is not referring to different materials and methods, especially to different students, but it is already in the "blended" stage, which means combining everything. At present, face-to-face learning is still part of the blended learning, but it does not rule out the possibility, along with the development of technology, in the future the use of face-to-face methods can be completely eliminated. Graham, Allen, and Ure, [3] suggested the reasons for using blended learning in learning, namely, (1) improved pedagogy; (2) increased access and flexibility; and (3) increased cost-effectiveness [3]. The use of e-learning supported by internet technology by utilizing the web clearly answers the three things mentioned above. Therefore web-based learning is considered an effective instruction method [5].

Therefore, in utilizing blended learning, there is a need for an effective learning tool to display subject matter online in learning with e-learning. Many platforms are sold that have been tested for effectiveness, such as WebCT, Blackboard. In addition, there is also an open-source platform, namely Moodle [6]. Moodle is more famous in Indonesia that can be designed for local internet or online. Moodle (Modular Object-Oriented Dynamic Learning Environment) is a Learning Management System (LMS) or Virtual Learning Environmental (VLE). This LMS uses internet technology to regulate interactions between users and learning resources, namely the web [7].

Blended learning is designed because there are times when students need face to face learning in addition to web-based learning. It is not surprising why students do not choose distance learning, because according to Mayer, "... teaching with discovery models is not the only way to make it easier for students to construct their own knowledge. Direct methods that have been well designed can also help them develop knowledge [8].

Blended learning allows both learning characteristics, namely synchronous (dependent on time) and asynchronous (not dependent on time). Synchronous learning corresponds to face to face learning, namely the time when students and teachers meet directly in the classroom.

Asynchronous learning corresponds to web-based learning, where students can learn anywhere, regardless of time and place, using the LMS Moodle that has been developed by the UNY IT Team, Besmart, which can be accessed using the URL <http://besmart.uny.ac.id/v2>.

II. METHODS

This is a research and development study that using four steps consist of design, development, evaluation and revision [9]. The data collection technique is in the form of an open questionnaire with the technique of determining the sample, namely purposive sampling, where the researcher distributes questionnaires to students who take PMPI courses taught by researchers. Data analysis in the first year was carried out qualitatively, considering the data were qualitative.

III. RESULT AND DISCUSSION

As mentioned earlier, this paper aims to describe the results of the identification of competencies and objectives of the lectures and the profiles and characteristics of students and products developed, whose data obtained through open surveys used six open questions that explore students' perceptions related to a) The urgency of developing material content, b) Characteristics or Content Features that Need to be Developed, c) Student Readiness & Infrastructure, and d) Competence and Expected Learning Objectives.

From the survey results, it is known that the need to use e-learning in the PMPI lecture process is very high where the majority of students or 75% of the population, state that e-learning is very necessary, and 8.3% consider e-learning needs to depend on the situation or ongoing activity learning, even though 16.7% of all students said they did not need it.

To find out the characteristics or features needed from e-learning to be used, students are asked to answer open questions in the form of "What kind of e-learning should be developed to facilitate learning for PMPI courses?" From these questions, some input can be grouped to become content, interaction, capacity, and compatibility. Content aspects related to the quality and coverage of e-learning material content developed, which among them must be complete, detailed, contain exercises or assignments and provide e-books, interactive videos, and even audio learning and written modules. The interaction aspect indicates that students want a user-friendly and sophisticated User Interface such as Google classroom and can facilitate communication between lecturers and students and fellow students. In terms of capacity, students hope the product can upload large files and is compatible for use on mobile phones,

Regarding the expected competencies and objectives of the lecture, it can be identified that the competencies and/or objectives of PMPI lectures can be categorized into three domains, such as knowledge, skills, and attitudes. Knowledge competencies expected by PMPI students are a) able to understand and explore the nature of interactive learning multimedia and b) the process or stages of interactive multimedia development. From the aspect of skills, the expected competencies are developing interactive multimedia that is interesting, quality, learning, useful, and able to compete in the market. Finally, the attitude competencies expected by PMPI students are a) independent in carrying out the process or stages of developing interactive multimedia learning, b) skilled in developing interactive learning multimedia, and c) having an

entrepreneurial spirit in selling or marketing interactive multimedia products developed

IV. CONCLUSION

The development of e-learning especially material content that can be applied through a blended learning strategy to support the PMPI lecture process, has proven to be very necessary for students and in line with the competencies or objectives of the lectures, which are divided into the realms of knowledge, skills and attitudes. The expected product features or advantages need to include aspects of content, interaction, capacity, and compatibility. Content aspects, complete criteria, interesting and detailed are expected and reach out to the types of material such as VCD tutorials, task completion guides, modules, e-books to learning audio. The expected aspect of interaction is the interaction between lecturers and students as well as fellow students who have a user-friendly user interface. The capacity of e-learning products developed needs to provide features to upload files in large size and compatible when used through device devices such as smart-phones.

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