

The Boarding University Strategy in Developing E-Learning Based Multimedia Instructional

¹Rila Setyaningsih
Communication Department
University of Darussalam Gontor
Ponorogo, Indonesia
rilasetya@unida.gontor.ac.id

⁴Hustinawaty
Information System Department
University of Gunadarma
Depok, Indonesia
hustina@staff.gunadarma.ac.id

²Abdullah
Communication Department
University of Darussalam Gontor
Ponorogo, Indonesia
abdullah@unida.gontor.ac.id

³Edy Prihantoro
Communication Department
University of Gunadarma
Depok, Indonesia
edipri@staff.gunadarma.ac.id

Abstract— The development of information and communication technology has a significant influence on the development of learning media and method. E-learning is a new way of teaching and learning using information and communication technology as a learning system. Interactive multimedia which is more popular as multimedia instructional, is one kind of the learning media that can be developed and implemented through e-learning system. This study aims to analyze the strategies in developing e-learning based multimedia instructional at the Islamic boarding university. This study has used the qualitative method for data collection and analysis. Data collection was carried out through observation and interviews with several stakeholders and lecturers. They were inquired about strategies in developing e-learning based multimedia instructional at Islamic boarding university. The results showed that the strategy in developing e-learning based multimedia instructional at the islamic boarding university was conducted through five processes. The five processes are composed of analysis, design, development, implementation, and evaluation. The contribution of this study is a strategy in developing e-learning-based multimedia instructional creatively and innovatively at islamic boarding university.

Keywords— *boarding university, ICT, e-learning, multimedia instructional*

I. INTRODUCTION

The development of information and communication technology has a very significant influence on the development of learning media [9]. The development of computer technology and the emergence of the industrial revolution 4.0 influenced the development of computer-based learning models and continued to evolve into online learning models. The online learning model arises because of challenges and demands from the development of the 4.0 industrial revolution that is Internet of Things and cyberphysics system. Adjustment of the learning model by utilizing online learning media is important so that educational institutions are able to compete in the midst of the development of the 4.0 industrial revolution era with its various demands. The online learning model is often referred to as e-learning.

E-learning is a new way of teaching and learning by

using information and communication technology as a learning system. E-learning has a function as a supplement that is of choice, complement, or substitution that replaces face-to-face learning models [1]. The e-learning learning model utilizes the internet as a means for knowledge transfer. E-learning in higher education is able to improve the ability of students to be more active and critical in the learning process. Interactive multimedia, better known as instructional multimedia, is one of the content that can be developed in e-learning based learning. Instructional multimedia is expected to increase students' interest in the learning process so that they can improve their learning achievement. Instructional multimedia is a system that uses more than one presentation media (Text, Sound, Image, Animation and Video) simultaneously and involves user participation to give orders, control and manipulate [2].

Universitas Darussalam Gontor is a boarding university starting to implement e-learning. The development of learning content in basic subjects in the Communication Studies Program at the University of Darussalam Gontor became the initial trial to implement the e-learning learning model. Learning content developed in the form of creative and innovative multimedia instructional. The development of e-learning based multimedia instructional at the University of Darussalam Gontor was developed because of three backgrounds. The three reasons are to improve students' understanding of lecture material, to better document teaching materials for lecturers, and because Universitas Darussalam Gontor has several campuses in different locations. The use of e-learning as a complement to learning is important to do. This is also an effort to answer the challenges and demands of the internet-based era of industrial revolution 4.0.

Besides that, one of the targets of learning at UNIDA Gontor is to provide independent learning that does not necessarily have to depend on the presence of lecturers in the class. The presence of Information and Communication Technology (ICT) can be used to facilitate and support the learning process. Some achievements on the integration of ICT into the organizational work structure are not yet established on a

strong foundations, Nurmandi, et. al (2018). In its efforts to achieve independent learning goals, UNIDA Gontor must be able to present active and innovative learning methods that involve all students and instructors. The e-learning based learning system is an important thing that needs to be done at Gontor's UNIDA. This is because it is one of the effective efforts to support lectures with different campus locations in different places and times. Learning that uses innovation and a touch of information and communication technology is expected to be able to help provide solutions to the barriers to learning that have occurred at Gontor's UNIDA campus.

The internet-based learning system or E-Learning developed at UNIDA Gontor aims to facilitate the learning process on campus for lecturers as instructors as well as students who are taught. Learning processes like this can be done anywhere, not necessarily on campus. Virtual interaction by utilizing information technology does not require teaching participants (students) to sit in one room to get material. Innovation and development of E-Learning-based teaching methods or processes can produce better levels of student understanding. Through E-Learning students not only get textual material, but material in the form of visuals such as images, videos and animations also clarifies understanding of the material.

E-learning-based instructional multimedia development at the University of Darussalam Gontor certainly requires a strategy. This is because face-to-face learning models have developed long ago as pesantren learning models. Therefore research on the strategy of Universitas Darussalam Gontor as a boarding university in developing e-learning based multimedia instructional is important to do.

II. LITERATURE REVIEW

To create a multimedia instructional, it needs some steps. The steps are designing instructional design model, choose and determine instructional media, and developing methods and strategies.

The first step is designing Instructional Design Model. In this E-learning system, the management of training, learning and development, is an important part that can help the training instructor and training specialist in the management of training, and learning is with the design of Instructional System Design Model or ISD. The existence of this model will serve as a guide in building the tools and infrastructure of effective, dynamic training programs and supporting the performance of the training itself.

ADDIE can be used to implement content development. ADDIE consists of analysis, design, development, implementation and evaluation [3].

1. Analysis

The training analysis phase, the instructional problem is explained, the instructional and objectives of the training are put forward. Also, the training environment and conditions of knowledge are included, as well as learner skills have been identified. The identification of the study program need for this course also needs to be presented, so that the target of learning will be right on target. The identification of the courses

chosen for the development of the content should be the priority of the study program.

2. Design

The Design Phase of the ADDIE model is the process of research, planning, identification and design specifications for training, lesson planning, training content, training methodologies, media, exercise examples, and assessment criteria. Usually, a prototype training model is built at this stage, and the shape, taste, design and content of the training will be determined.

3. Development

Development Phase is the stage where the training specialist, trainer, instructor or training officer create the contents of the training program and assemble the material that has been through the design phase (Design Phase). This stage can be through several tests performed separately by each party. The creator of the training program is the one who creates the program and integrates the program content. Subsequently tested by the Program Examiners conducting the test procedure, as well as reviewing the contents of the program. The training has been collected and is ready for launch.

4. Implementation

Implementation phase is the implementation stage of the training, which reflects the actual delivery of the training. This stage is the most important stage, because it is an implementation of all series of models of instructional design model of ADDIE.

5. Evaluation

The last stage of the instructional design model for learning is the evaluation stage. From the name, this stage is intended to find out how far the learning is done already, provide benefits or obtain results as expected. In the ADDIE model, evaluation can be divided into 2 types:

a. Formative stage: This is the evaluation stage performed on the process of Analysis, Design, Development and Implementation. It is useful to know if there is a need for revision in every process, so that the learning phase can be done better.

b. Summative stage: This is an evaluation stage consisting of a series of tests on some reference criteria or reference to the end result of the learning stage, in order to obtain better feedback from participants.

The second step to create multimedia instructional is choose and determine instructional media instructional media. According to Heinich, the instructional method is deliberately designed process to help students learn better, and achieve instructional goals. So, if described, the communication that occurs in the world of teaching and learning to be is as follows.

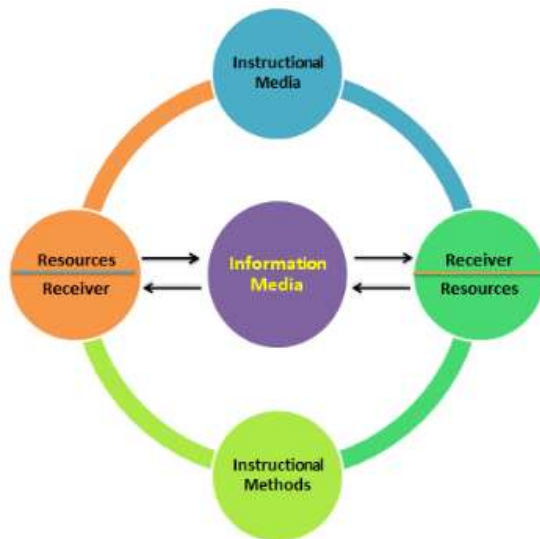


Figure 1. Communication in Teaching and Learning Process

In general, the benefits of media in the process of education is to facilitate the process of interaction between lecturers and students, and this in turn will help students learn optimally. But besides that, there are some other more specific benefits. There are various ways to classify media. Bretz (1971) divides the media into three kinds, namely voice media, visual form media and motion media.

The third stages to create the instructional media is by developing methods and strategies. In general, the improvement and development of the courses is aimed at the reconstruction of the course. This was done with the thought that a course has a high relevance to the progress and development of information, so there is need to pay attention and capture the trend or trend changes that occur. In addition to these objectives or reasons, the courses need to be reconstructed because of the considerations of less than optimal learning outcomes and the development of science and technology. This consideration is the reason for the lecturer to consider whether or not to reconstruct the course.

Course improvements are made based on decisions about course materials and methods that are considered satisfactory as well as changing needs. Broadly speaking, the course reconstruction procedure can be seen in Figure 2.

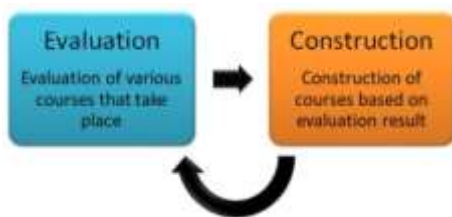


Figure 2. Course Reconstruction Outline

The process used for the reconstruction of the course

covers several things according to the Semester Study Plan:

1. Determine and formulate the achievement of the course lessons from knowledge.
2. Determining and formulating the achievements of course lessons from specific skills.
3. Developing lecture materials.
4. Developing instructional strategies.
5. Strategy for assessing learning outcomes.

Previous Research

Research on instructional multimedia development and the use of ICT in learning have been carried out with the title of History Learning Media Technology Through the Use of Interactive Multimedia Animation. The results of the study show that historical learning using learning media through the use of interactive animated multimedia can increase students' interest in historical subjects, so that it is expected to improve student learning achievement [4]. Nurryna also carried out research which suggested progress in the development of information and communication technology and learning activities with a variety of educational media [5]. In line with the two previous studies, this study aims to analyze the strategies in instructional multimedia development and the use of e-learning in learning especially at Islamic boarding university, University of Darussalam Gontor.

III. METHODOLOGY

This research uses a qualitative method to explore strategy of University of Darussalam Gontor in developing multimedia instructional based e-learning. The data in this research was obtained through direct observation and in-depth interviews. The observation was conducted in the Communication Studies Program of University of Darussalam Gontor as the place for the e-learning development. Interviews were conducted with stakeholders and lecturers in Communication Studies Program at University of Gontor as research subjects. The number of research subjects consisted of 5 subjects of basic subjects, i.e. Introduction to Communication Studies, Communication Theory, Communication Psychology, Contextual Communication, and Mass Communication. After conducting observations and in-depth interviews, the researcher then constructed the messages that were obtained from the informants. After exploring the University of Darussalam Gontor strategy in developing multimedia instructional, researchers then mapped the use of e-learning in basic course at University of Darussalam Gontor.

Data analysis techniques are based on Miles and Huberman's theory, using data reduction, display, and conclusions to gather results [6]. Reduction is conducted by summarizing, condensing the information, and then focusing on the key points. Presentation of data comes in the form of brief descriptions and analysis of relationships between

categories, etc. Summarizing conclusions from the data is the last step in data analysis. The validity of the research data is formulated through triangulation, in which the data is tested for validity [7]. Data collection techniques are combined with various existing techniques and data sources. Triangulation of data in this study combines observation and interview techniques, and source triangulation is accrued through data sources from several research subjects.

IV. RESULTS AND ANALYSIS

After the text edit has been completed, the paper is The general goal to be gained from this research is to develop core and/ or basic course content based on E-learning standards that can be disseminated and accessed through other E-learning applications and systems; and develop interactive content that is interactive, interesting, helpful, user friendly, and pedagogical, as well as a material and learning resource that enables students to learn more effectively, flexibly and independently.

In the analysis phase, the description of system requirements, description of system functions and the main features of the system is expected. The development of E-learning learning model is expected to be able to present different learning materials according to the type of lecture material. Thus, the system should be able to identify the diversity of lecture materials as well as the diversity of users and utilize the user data as a consideration for delivering material presentations. Different course materials have their own characteristics, and should be developed by taking into account the characteristics of each course.

The use of E-learning model is expected to obtain learning materials in accordance with the specifications of the lecture materials as the learning process is expected to be more optimal. Development of this E-learning Learning Model is by building a Virtual Class system in UNIDA Gontor. The functions of the Virtual Class system in UNIDA Gontor are as follows:

The system displays the front page where from this page the user can login and get the initial information.

Users can be students, lecturers or admin.

Admin users in charge of managing the system, admin lecturers and students, so that each lecturer and student will get their respective username and password from the admin.

When the user login is a lecturer, then the system will display the available courses in accordance with the taught, so that each lecturer can only upload or edit learning materials according to the taught courses.

When the user login is a student, then the system will provide a choice of list of courses per semester, then students can choose what learning materials will be studied.

The results of the analysis stage are used as the next stage of materials that is design and development. The design of this E-learning Learning Model begins by designing a training system based on the identification

of needs in order to conform to the stated objectives. The design is in the form of a flow diagram as follows:

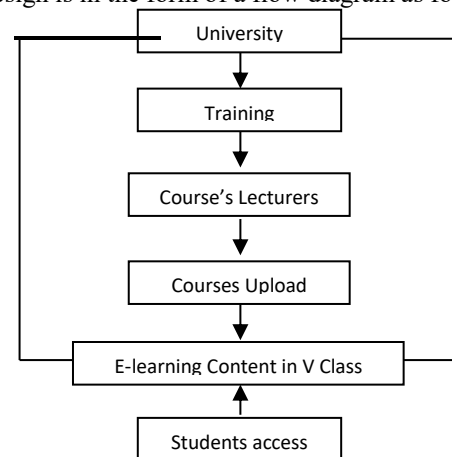


Figure. 3 Development Design of E-Learning Learning Model

The results of the design and development stage are realized in the implementation through the Creation of Core / Basic Lecture Material in the form of E-learning learning material. This E-learning Material is implemented with Virtual Class UNIDA Gontor device, which has been created by 5 lecturers. The faculty lecturers are given a briefing to develop the subjects they teach by TEAM Researchers from UNIDA Gontor and from Gunadarma University Jakarta. Brainstorming associated with the use of ICT in realizing innovation in every course into a very intensive discussion in order to produce better quality courses, without leaving the hallmark of the course.

Much of the information is submitted through this web, but the main point of this portal is to deliver an E-learning program from the 5 core / basic courses available at UNIDA Gontor. This portal provides a view of E-learning based on learning, with content that has been developed more interesting and accompanied by examples of images, photos, and even video. The result is not only the lecture material that is uploaded to the E-learning portal, but also the learning cd stored in the library. Each page of the course contains material, pre-test and post-test. The material is presented 14 times face to face, the problem of pre-test and post-test each has 5 questions complete with answers to questions. By reading the material, more interesting students are expected to understand the subject of the course. At the end of the material, there is an evaluation material to measure students' mastery of the material, and the questions along with the key answers.

Pre-test questions are displayed at the end of the discussion to the students, so that students can understand the material by doing the exercises. With the score that appears at the end of the problem is used to determine the level of understanding of students on the material being studied. If the score of the evaluation is still lacking, the student can repeat again so that they can better understand the lecture material and get a good final score. To know the success of the student in doing the test of pre-test online, student also provided sample of post-test problem

Formative evaluation was conducted to be able to measure how far the training of development of E-

learning model can reach the target. The evaluation was done by giving the questionnaire to the content lecturer when the development of the E-learning learning model for the core course has been fully implemented. From the results of the evaluation, it was found that almost all the lecturers enjoyed the training provided by their presence and responses during the training. Lecturers feel that they benefit greatly from this activity, proven they can finish the E-learning learning content in accordance with the time specified, meaning that the training activity is in accordance with the intended target. Table 1 below shows the success of the development of the E-learning learning model.

Table 1. Indicators of Success

Indicators of Success	Beginning	End
Lecturer's ability to develop standard E-Learning content	Not Capable	Capable
The amount of content developed	Not available	5 courses
The amount of content distributed	Not available	5 courses
Number of students accessing the content	Not available	100%

The results of the study are expected to increase the understanding of lecturers or learning. The rapid development of ICT must be followed by the provision of

interactive lecture materials that always use ICT-based learning media that students can easily access. Media such as smartphones owned by students must be optimized by providing material and tasks so that the learning process can be optimized. Lecturers begin to be motivated to create the good multimedia instructional and then upload them to the e-Learning program at University of Darussalam Gontor.

V. CONCLUSION AND RECOMMENDATION

This study analyzes the strategy of University of Darussalam Gontor as an Islamic boarding university in developing instructional multimedia based e-learning. The strategy that was conducted by University of Darussalam Gontor consist of five process. The five process are analyze the opportunities in e-learning-based instructional multimedia development, design the content material, development the e-learning system, implementation

the design and development system, and evaluation the process of development. Research recommendations are given to the policy maker at University of Darussalam Gontor to develop and implement the multimedia instructional based e-learning to all of teaching and learning subjects.

ACKNOWLEDGMENT

Ministry of Research, Technology and Higher Education, Director General of Development and Research Enhancement of the Republic of Indonesia.

REFERENCES

- [1] K. Khamidah and R. A. Triyono, "Pengembangan Aplikasi E-Learning Berbasis Web Dengan Php Dan MySql Studi Kasus Smpn 1 Arjosari," *IJNS-Indonesian J. Netw. Secur.*, vol. 2, no. 2, pp. 1-7, 2013.
- [2] M. Adri, "Strategi Pengembangan Multimedia Instructional Design," *Invotek*, vol. VIII, no. 1, pp. 1-8, 2007.
- [3] Nurmandi, A., Almarez, D., Roengtam, S., Salahudin, S., Jovita, H. D., Dewo, D.S.K., & Efendi, D. (2018). To Wgat Extend is Social Media Used in City Government Policy Making? Case Studies in Three Asean Cities. *Journal of Public Policy and Administration*, 17(4), 600-618.
- [3] R. M. Branch, *Instructional design: The ADDIE approach*. 2010.
- [4] I. E. Putra, "Teknologi Media Pembelajaran Sejarah Melalui Pemanfaatan Multimedia Animasi Interaktif," *Teknoif*, vol. 1, no. 20-25, 2013.
- [5] A. F. Nurryna, "Pengembangan Media Pendidikan Untuk Inovasi Pembelajaran," *J. Speed*, vol. 1, no. 2, pp. 1-5, 2009.
- [6] I. H. Tamin, "Peran Filantropi dalam Pengentasan Kemiskinan di dalam Komunitas Lokal," *J. Sociol. Islam*, vol. 1, no. 1, pp. 35-58, 2011.
- [7] B. S. Bachri, "Meyakinkan Validitas Data Melalui Triangulasi Pada Penelitian Kualitatif," *J. Teknol. Pendidik.*, vol. 10, no. 1, pp. 46-62, 2010.
- [8] Rosilawati, Y., Rafique, Z., Nikku, B. R., & Habib, S. (2018). Civil society organizations and participatory local governance in Pakistan: An exploratory study. *Asian Social Work and Policy Review*, 12(3), 158-168.
- [9] Salsabila, L., & Purnomo, E. P. (2018). Establishing and Implementing Good Practices E-Government (A Case Study: Indonesia and South Korea E-Government Implementation 2012-2016). *Journal of Asian Review of Public Affairs and Policy*, 3(3).