

## Development of E-Learning for Millennial Students

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**Abstract.** This study aims to produce a design for developing e-learning in Learning Theory courses as an alternative to innovative learning based on the characteristics of millennial students. Development of e-learning using the ADDIE model. The stages of development are as follows: Analysis, Design, Development, Implementation Evaluation. At each stage an evaluation and revision is carried out. Evaluation is used to determine the achievement of each stage then revised. The results of the development are in the form of feasibility of e-learning design that has gone through validation tests of material experts and media experts in a good category. The results of student evaluations in the good category.

### 1. Introduction

The development of science and technology has developed so fast that it demands human resources that can respond to these developments. Technological developments in the field of education greatly influence the learning model based on existing learning theories. Educators in this case lecturers as one of human resources certainly plays an important role in the success and effectiveness of education. The success of a lecturer in delivering materials are not only influenced by the competence of the lecturer in mastering the material presented, but there are other factors that must be mastered so that he is able to deliver the material professionally and effectively. These competencies are pedagogical competencies. Pedagogic competencies can be seen in the learning process. The components of learning that influence the learning process include lecturers, students, learning media, learning methods, learning evaluation.

The Effort to improve the learning process continue, including lecturers making more innovative learning to encourage students to learn optimally both in independent learning and in classroom learning. Like what has been done in class learning only through face-to-face learning, then along with the times that are entering the era of industrial revolution 4.0, the development of the implementation of learning must be done. Millennial students are students who use technology more often in their lives. E learning is a solution that can be used as a variation of classroom learning. E learning is learning that uses internet facilities as the main instrument. That is, having the perception that e-learning must use the internet, namely computer facilities connected to the internet. students in accessing learning materials are not limited to distance, space and time, bias anywhere and anytime. Students who are familiar with the use of gadgets and supporting applications also become the strength of the implementation of e learning in the classroom. Millennial students are more interested in learning with a variety of media and learning activities.

Learning Theory courses are compulsory subjects in the course that must be taken by students. This course examines the theory of learning and teaches someone. This course is a further subject of learning theory. Students are demanded with the final achievement of learning "Students master about (1) concepts, principles, and characteristics of learning theory,(2) learning with behavioristic, cognitive, and constructivist approaches, (3) student characteristics which include learning style, cognitive style, developmental aspects (cognitive, physical, language, emotional), demographic and socio-cultural, (4) characteristics the learning process which includes interactive, holistic, integrative, scientific, contextual, thematic, effective, collaborative, and student-centered learning; and (5) innovative learning models such as collaborative learning models, cooperative learning, project-based learning, problem-based learning or other learning models through various methods such as group discussions, simulations, case studies that can effectively facilitate learning outcomes.

Based on the above explanation, in this Learning Theory course e learning through learning will be developed which can display learning resources in the form of visual, audio-visual, text and multimedia so that it can provide a variety of learning resources to students and make learning more enjoyable.

## 2. Method

In this study the research approach used was Research and Development (R & D). Research and Development is a process used to develop educational products that can be justified. The model chosen is the ADDIE (Analysis-Design-Develop-Implementation-Evaluate) model. The ADDIE model is a systematic model used for the development model. The application of ADDIE to design instructional systems facilitates the complexity of an intentional learning environment by responding to many situations, interactions in contexts, and interactions between contexts (Branch, 2009: 2).

According to Branch (2009: 2) Making a product using the ADDIE process remains one of the most effective tools today. Because the ADDIE model is a process that functions as a guiding framework for complex situations, it is appropriate to develop educational products and other learning resources. The ADDIE model can be described as follows.



Figure 2. ADDIE models

### 2.1 Analysis

At this stage the researcher identifies the learning objectives. Analysis can also be done to analyze goals which are other important steps. Development of e learning will be influenced by the main characteristics of the target in this case are students (eg their previous knowledge and skills, geographical considerations, learning contexts and access to technology). At the analysis stage it is also necessary to find out learning content including, (1) Identifying material characteristics that must be learned and improved for students including skills that need to be developed or strengthened. Identify specific skills that must be achieved by students. (2) Topic analysis is carried out to identify and classify learning content. This analysis is done to determine the topic of learning.

### *2.2 Design*

The design phase includes the activities carried out as follows: Formulate the learning objectives needed to achieve learning outcomes. Learning objectives are statements that describe the abilities or competencies to be achieved by students. (1) The specified purpose must contain activity. (2) Determine the sequence of sequences to be achieved (sequencing). (3) Choosing learning, media, and evaluation strategies.

### *2.3 Development*

At this stage, the development of e learning content was developed. Content can vary greatly depending on available resources. Content / material can be developed based on the purpose and breadth of the material that has been previously set. At this stage when the content has been compiled it is then evaluated by the material expert. In the development phase also formative evaluations included individual trials, small group trials and field trials.

### *2.4 Implementation*

At this stage e learning can be used by students. Students carry out learning activities. These activities include reading references in the form of e-books, chatting through discussion forums, working on quizzes.

### *2.5 Evaluation*

At this evaluation stage evaluating includes 4 levels namely perception, learning, behavior, result.

## **3. Result**

The results of this study are the outputs of the stages based on the ADDIE model as follows.

### *3.1 Analysis*

The results of the analysis phase are identifying learning outcomes / subject competencies, identifying material characteristics that must be studied in the form of course descriptions, as well as topic analysis to identify and classify learning content.

### *3.2 Design*

At the design stage the researcher formulates learning activities including: final abilities, indicators, study material, approaches / models / methods / strategies of learning, learning resources / media, time, and learning experience. At the design stage the output produced is the learning plan.

### *3.3 Development*

At this stage the development of learning and trial design was carried out. Design development on the display of e-learning by determining initial activities, core activities and closing activities. Next is content development. The content includes, among other things, references from various sources in the form of e-books, articles, material content with video formats, quizzes and discussion forums. The trials that have been conducted include the test of material experts, individual trials of small group trials and field trials. The material expert test was conducted to obtain assessment data and responses in the form of comments and suggestions on aspects of usability, accuracy and feasibility. The material test results are as follows.

Tabel 3.3 expert judgment

No.	Aspects assessed	Expert
1.	The accuracy of the preparation of learning outcomes	3
2.	The accuracy of mapping and organizing material	4
3.	The accuracy of the selection and determination of synchronous learning	4
4.	The accuracy of the preparation of synchronous learning designs	4
5.	Clarity of synchronous learning flow	3
6.	Use of e learning system design for student	4
7.	Practicality design e learning system	4
8.	Compliance e learning system design needs and characteristics of students	4
	<b>Amount</b>	<b>30</b>

Material expert's assessment of the overall e-learning design as found in table 3.3.1 shows a total score = 30. The percentage of the overall subject can be calculated using the formula:

$$\frac{\text{score answer}}{n \times \text{high score}} \times 100\%$$

$$P = \frac{39}{10 \times 4} \times 100\%$$

$$P = 97,5\%$$

Based on the interpretation criteria,  $P = 97.5\%$  including the criteria for "very good" and obtaining alternative decisions "used". Furthermore, after the design of e- learning is validated, the next step is the development of an online class.

### 3.4 Implementation

E- learning in the subject of Learning Theory is applied to students. Students carry out learning activities based on instructions. Learning activities carried out include studying references, working on questions in the form of quizzes, conducting discussions, gathering assignments.

### 3.5 Evaluation

The evaluation results based on evaluation instruments were adapted from Branch (2009) with 14 statement items and adapted to languages that were easily understood by users (students).

No.	Pernyataan	Persentase Tertinggi	Kriteria
1	The learning objectives listed in the RPS are well implemented	47%	Agree
2	Learning material is relevant to the needs of students	50%	Agree
3	Learning activities enhance my knowledge	53%	Agree
4	An adequate explanation is available for the application of the knowledge that I have obtained	59,1%	Agree

No.	Pernyataan	Persentase Tertinggi	Kriteria
5	Learning material can support my learning	51,5%	Agree
6	Audio / visual presentation supports learning	59,1%	Agree
7	Online learning methods are in accordance with the learning objectives	48,5%	Agree
8	Learning material according to my learning needs	59,1%	Agree
9	Learning material provided	50,7%	Good
10	How to deliver material	53,7%	Good
11	The ability of lecturers in communication and delivering material	53,7%	Good
12	Giving feedback (feedback) and directives for the implementation of learning	46,3%	Good
13	My participation during learning	61,2%	Agree
14	Contribution of online learning to the overall effectiveness of learning	56,7%	Agree

Based on the recapitulation above, it can be concluded that 92.86% of evaluation instrument items were assessed on a scale of 3 with agreed / good criteria. This indicates that students feel the benefits of e-learning.

#### 4. Conclusion

Based on the results and discussion above, it can be concluded that the development of online learning Learning Theory courses meets acceptability criteria covering aspects of usability, accuracy, and feasibility. The results of the material expert test showed that all indicators obtained score 3 and 4 so that they were considered accurate and did not need to be revised including the criteria of "very good" and obtained an alternative decision "very feasible".

#### 5. References

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