Development of e-learning content in educational program evaluation courses

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Abstract This study aimed at developing learning products that can be used to overcome some of the problems that exist in the Education Program Evaluation course at the Masters level education, namely creating content that can be applied or applied to the e-learning platform of the Ganesha University of Education, so that learning activities can be assisted by the use of technology, and to find out the feasibility of the content that has been created. The method used in this research was the ADDIE model method which consists of Analyze, Design, Development, Implementation, and Evaluation. The type of data in this study was quantitative data or data presented in the form of numbers. The instrument used in data collection was a questionnaire in the form of a questionnaire. The percentage result of the evaluation of the content expert test of the learning material was 98.07% or stated “Very Good”. The results of the assessment by instructional media experts, e-learning learning content obtained a percentage of 93.05% which when converted states that the learning content applied to e-learning media was “Very Good”. The results of the target test assessment stated that the e-learning learning content was “Very Good” with a percentage of 93.2%. Based on the results of this assessment, the e-learning learning content is declared suitable for use.

1. Introduction
The Education Communication Technology Association (AECT) argues that learning resources are sources in the form of data, people, or various objects that can be used to provide facilities or provide learning convenience for students. The learning resources are components of an instructional system, both specifically designed and according to their nature, can be used or utilized in facilitating learning activities.

Learning sources can be obtained from anywhere, but currently there are things that hinder the learning process, especially in obtaining the necessary learning resources. The ongoing pandemic has resulted in restrictions on learning activities that must be carried out so that it is feared that it will hamper various searches for learning information sources. Likewise, learning activities in the Evaluation of Education Program Course, Research and Education Study Program, Postgraduate Program, Universitas Pendidikan Ganesha, are hampered due to current conditions. Students who are supposed to look for various learning resources are unable to carry out these activities due to the closure of a number of libraries and bookstores. So, it is necessary to use media a means to carry out learning activities and search for learning resources without having to meet face to face or leave the house.

Etymologically, the word media comes from Latin, namely mediatus, which when interpreted literally means “middle”, “intermediary”, or “introduction” [1]. In particular, media in learning activities is defined more as tools that can support learning, photographic, or electronic activities to capture, process and reconstruct visual and verbal information. In general, learning media is useful to facilitate and assist
the learning process of students in learning activities which in turn are expected to improve learning outcomes that must be achieved [18]. According to Sudjana and Rivai, there are various types of media that can be used to assist learning activities. Among them are graphic media, namely two-dimensional media such as images, photos, graphics, posters and others, this media can also be called two-dimensional media. Furthermore, three-dimensional media, namely in the form of stacking models, work models, mock-ups, dioramas, and various other media [18]. The third is projection media such as slides, films, strips, films, use of OHPs, and others.

Looking at the usefulness of learning media, the solution to problems that can be developed in learning activities in this course is by developing content that can be used as independent learning materials by utilizing learning media in the form of an e-learning platform belonging to the Ganesha Education University which is indeed provided to assist learning activities, as a medium of dissemination, and by varying the content (teaching materials) into more varied media according to the problems and needs and characteristics of students. So, a development research was carried out, entitled “Development of E-learning Learning Content in the Educational Program Evaluation Course”. E-learning is short for electronic learning. E-learning is the delivery of learning material to anyone, anywhere, anytime by using various technologies in an open, flexible, and distributed learning environment.

The expected objectives of this development research are (1) Developing media that can be used as a learning resource, (2) developing media that can help learning activities for the evaluation courses of postgraduate education programs at Ganesha University of Education during the pandemic.

2. Method
This study applied the ADDIE model method consisting of five development steps, namely: (1) analyze, (2) design, (3) development, (4) implementation, (5) evaluation.

![ADDIE Method Chart](image)

Figure 1. ADDIE Method Chart.

The Analysis stage is the stage for identifying the problem which is then raised in the study in order to find a solution. In the research entitled “Development of E-learning Learning Content in the Course of Design and Construction of Women's Clothin” it was expected to answer the problems that have been analyzed. Among them, there were several problems that are the main focus, namely, the difficulty of finding well organized learning resources, the difficulty of conducting face-to-face meetings due to the pandemic that has occurred, the existence of media that has not been utilized properly, namely the Ganesha University of Education e-learning platform, so that content development is needed can be applied to that platform.
The Design stage is a systematic stage that starts from determining learning objectives, designing scenarios or learning activities, designing learning devices, designing learning materials and learning outcome evaluation tools [24]. The design at the design stage was still conceptual and was the things that would underlie the next development. The learning material design refers to the syllabus. The learning material that the researchers took was about making a prototype of the Educational Program Evaluation material. The material contained various program evaluation models, application of evaluation models, application of evaluation, preparation of program evaluation proposals according to the model. The concept of presenting the material displayed on e-learning media included the presentation of text manuscripts which functioned to convey material in the form of a theory of stages of work. The material to be used in the media was made in the form of modules so that they were well organized and in accordance with the learning targets.

The Development stage at the ADDIE stage contains product realization. At this stage, the conceptual framework that has been prepared in the design stage was realized. Development at the development stage is intended to realize and prepare all designs, devices, and products at the design stage so that they can be used during the implementation stage. The Evaluation stage is the stage of observing products that have been implemented on the target, namely students. At this stage the authors measured the achievement of the targets that have been set.

The trial phase of e-learning content was carried out to determine the feasibility of the content that has been created. At the product trial stage using a questionnaire. Product testing was divided into 3 stages, namely testing by content experts in learning materials, testing by learning media experts, and testing by target targets. This research instrument was a questionnaire used to determine the appropriateness of the content in the form of assessments by learning content experts, instructional media experts, and target targets. In this study, the development of learning content used instruments to collect data, namely in the form of interviews and questionnaires. Data analysis is a method used to process data into information so that the characteristics of the data can be understood and are useful for problem solutions, especially problems related to research. Data analysis was carried out to obtain a concrete understanding of the successful development of the learning media that had been made.

In this development research the authors used two types of data analysis techniques including qualitative data analysis and quantitative data analysis. In qualitative data analysis, it describes data in the form of events or events or data that is descriptive in nature, not numbers. Broadly speaking, qualitative descriptive data analysis techniques were used to process interview data obtained through criticism of suggestions for improvement, as well as responses and input provided by test experts on the assessment questionnaire used by the author. The results of this analysis were then used to make improvements and make revisions to the products that have been developed.

Second, using quantitative data analysis, which is a way of processing data by systematically arranging data in the form of numbers and percentages, so that general conclusions can be obtained. In this study, quantitative descriptive analysis was used to process the data obtained through the use of a questionnaire in the form of a score. The formula used to calculate the percentage in the questionnaire is:

\[
\text{Persentase} = \left( \frac{\text{jumlah skor}}{\text{jumlah beban tertinggi} \times \text{jumlah butir soal}} \right) \times 100\% \tag{1}
\]

To see the level of achievement of learning content based on percentage counts, criteria are set according to the achievement level table as shown in the following table.
Table 1. Conversion of Achievement Level [21].

| Score       | Qualification | Remark          |
|-------------|---------------|-----------------|
| 90% - 100%  | Very good     | No revision needed |
| 75% - 89%   | Good          | No revision needed |
| 65% - 74%   | Sufficient    | Revise          |
| 55% - 64%   | Deficient     | Revise          |
| 0 - 54%     | Severely deficient | Revise    |

If the content developed has obtained a percentage greater than 75%, the resulting product can be said to be feasible and can be used without the need for revision.

3. Results and Discussion

The development of e-learning content used the ADDIE model. This method was used to analyze, design, develop, implement, and evaluate content (teaching materials), that would be applied to the Ganesha University of Education e-learning platform. The results and discussion of the development of e-learning learning content are as follows.

The results of testing by content experts on the given questionnaire show that the level of achievement of the content that has been developed is “Very Good” and deserves to be continued. The results of this study are supported by research conducted by Nailat Hidayat published in the repository journal of UIN Sultan Syarif Kasim Riau, which states that the use of handouts has an effect on learning outcomes by 56.1%. In testing by material experts, there are several suggestions and input given to make the content more perfect, namely by completing the material with the help of videos and supporting books. After the revision was carried out by the author, then it was tested by a media expert [8].

Based on the scores on the assessment questionnaire by media experts, e-learning learning content shows the qualification of "Very Good" and is worthy of being continued. The results of this study are supported by the research conducted by Meyta Pritandari and Triani Ratnawuri in the journal of the Economic Education Study Program of the Muhhamadiyah University METRO which states that the use of video in lecture activities has a positive impact on students, the use of videos also increases student enthusiasm as evidenced by the lack of The number of absences during learning varied with the use of video, so that the high interest in student learning would have an impact on the results and quality of their learning [14]. In addition to the previous study, a study on the effect of using video media on student motivation and learning outcomes was conducted by Ribawati. The study concluded that there was an influence on the use of video media on student motivation and learning outcomes. So, based on the results of testing and supporting journals, learning media in the form of videos is very good for use in learning activities. During the testing of video media on e-learning, there were several inputs and suggestions which were then used by the author as a reference for improving the appearance of content on e-learning media, namely the use of page features which according to media experts would make it easier for e-learning users to watch demonstration videos and the use of the activity completion feature, which requires students to do learning activities sequentially and according to schedule [16].

After the feasibility of the material content and media was approved by the expert judges, then the e-learning content that has been developed was tested on respondents majoring in Educational Research and Evaluation (PEP). They were 3rd semester-students. From the results of the questionnaire given to 15 PEP students, the average e-learning content in the Education Program Evaluation course obtained an assessment percentage of 93.2%, which indicates that the e-learning learning content is “Very Good” and feasible and does not require revision.

Overall it can be stated that the content developed e-learning purposes can be used properly and can solve problems found in learning activities of this course, and with this content, students can use it. Additionally, e-learning also functions as a learning medium. The results of this study are supported by several similar studies related to the effect of using e-learning media[9]. The author states that the use
of e-learning contributes 78.5% to the quality of student learning. Apart from this, the use of e-learning was also chosen based on the results of other research conducted focusing on “E-learning in Students” Perception. The study found that the perceptions of students who recovery activities are varied by using e-learning, the results of this study are 86.3% support the use of e-learning and 77% are satisfied with the use of e-learning. Therefore, in this study, content that can be applied to the e-learning of Ganesha University of Education is developed so that it can overcome problems during learning activities and can maximize learning activities.

The development of e-learning learning content in this course is oriented to help facilitate learning activities and help increase understanding of the students in Evaluation of Education Program Course. The content created certainly follows the development of the world of education which is currently following the development of the 4.0 industrial revolution, where learning activities are full of the use of technology. This is supported by a paper published in the Scientific Journal of Educational Technology related to education and the challenges of learning based on information technology in the era of the 4.0 revolution, which explains that to compete in the current digital era, Indonesia needs to increase the use of technology in every activity, and improve its resource skills through education. With the creation of E-learning Learning Content in the Education Program Evaluation Course, it can help the application of technology in accordance with technological advances in the era of the industrial revolution 4.0 while helping to facilitate independent learning activities in this course. This is also supported by the existence of a research study by Mutia and Leonard entitled “Study of the Application of E-learning in the Learning Process in Higher Education” which states that learning assisted by e-learning has several advantages, namely: (1) Students can easily take courses anywhere without being limited to institutions and countries, (2) Students can easily learn and discuss with experts or experts in their field of interest, (3) Course materials can be easily taken in various parts of the world without depending on the college where the student studies [13]. The final result of this study is in the form of learning content that can be applied to the Ganesha University of Education e-learning platform, which can be seen in the image below.

4. Conclusion
Based on the results of research and discussion on research on E-learning Learning Content Development in the Educational Program Evaluation Course, the authors can draw the following conclusions. The results of the design and implementation of E-learning Learning Content in the Education Program Evaluation Course using the ADDIE method which consists of five stages, namely Analyze, Design, Development, Implementation, and Evaluation. Testing is carried out in three stages, namely testing by experts in the content of learning materials, testing by learning experts, and ending with testing on target targets. The test results by the content expert of the learning material obtained a percentage of 98.07% which means “Very Good”. Furthermore, the test results by instructional media experts obtained a percentage of 93.05% which means “Very Good”. The average target response to the E-learning Learning Content of Educational Program Evaluation is 93.2%. Based on these results, the E-learning Learning Content in the Education Program Evaluation Course is very suitable for use in the e-learning platform to help distance learning activities (online) in the 3rd semester Education Program Evaluation course. This is evidenced by the results of the target response amounting to 93.2% when converted into a response table included in the “Very Good” category. In addition, several suggestions are also presented as follows. Development of E-learning Learning Content In this Education Program Evaluation Course, there are still things that must be improved due to technological developments that will continue to run according to the times. (1) E-learning learning content is developed according to the needs and characteristics of the target users, namely students, especially in the Educational Program Evaluation course in the 3rd semester. Readers can develop learning content for other courses. (2) Readers can develop this learning content research into experimental research. For implementation in other courses, it can be further adjusted to suit technological developments and target users.
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