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# Utilization of E-learning in The Learning Process

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## *Abstract*

*The problem in this research is that e-learning has not been fully implemented by all lecturers of FT UNP, the low participation of lecturers in uploading lecture material using e-learning at FT UNP, the low participation of students in downloading lecture material using e-learning at FT UNP, there is a gap in take advantage of e-learning between students and other students at FT UNP and there has never been an evaluation of the implementation of e-learning at FT UNP. The purpose of this research is to explain the implementation of e-learning in terms of context, input, process and product components. The results obtained from this study can be concluded that the context, input, process, and results component on the implementation of e-learning in the Faculty of Engineering, Padang State University are in good category. Process and outcome components need to be improved, so that the implementation of e-learning can be carried out optimally. Based on the findings of this study, it can be recommended that the implementation of e-learning can be continued by making improvements to each of its components.*

***Keywords:*** *Evaluation Program, CIPP Model, Combination Method, E-learning Implementation*

## Introduction

Information and Communication Technology (ICT) in education is very helpful in the process of conducting lectures. Today, ICT has become an inevitable need and has been considered a support in the world of education to make education more advanced. ICT is not only a means of development, but also one of the benchmarks in determining the quality of the institution. The technology used to collect, process, organize, store and manipulate data in various ways to produce quality information. Relevant, accurate and timely information used for decision making. ICT is a field of study that uses technology to be able to do data processing, which is then disseminated so that it is useful in decision making (Edy Sutrisno, 2017).

One form of ICT in education is e-learning. The use of e-learning is expected to trigger an increase in the quality of learning and teaching materials, independence, and also communication between lecturers and students and between students. In an effort to improve the efficiency and effectiveness of learning by utilizing network-based ICT that is constantly growing, Universitas Negeri Padang (UNP) in this case also utilizes e-learning in its learning

as stated in Rector Regulation Universitas Negeri Padang No. 8 of 2018 concerning the implementation of lectures through e-learning (Riswanto, 2016).

The Faculty of Engineering (FT) is one of several faculties at UNP that has implemented the implementation of e-learning since the issuance of the Rector's regulations. This is a form of implementation as stated in Chapter III Article 3 of the Rector's Regulation Universitas Negeri Padang No. 8 of 2018 concerning the implementation of lectures through e-learning which states that e-learning is carried out by study programs at the faculty for all levels of the program. Research examining e-learning, one of which is in research conducted by (Suherli Kusmana, 2017) revealed that e-learning comes from 2 words, namely: e states that electronics and learning are learning. That e-learning in learning uses electronic devices. In addition, the implementation of lectures with e-learning also utilizes internet technology. In e-learning, lecturers don't just upload lecture material that can be accessed by students, but lecturers also evaluate lectures, communicate, collaborate, and manage other aspects of lecturing.

Based on preliminary observations made through interviews with lecturers and students of FT UNP, information is obtained that the obstacles / obstacles in implementing e-learning that is e-learning require time to prepare it compared to face-to-face lectures, there are some lecturers who are less able to use the content contained in e-learning, there has been no increase in learning outcomes through e-learning lectures (Source: Lecturer in the Faculty of Engineering).

Furthermore, several gaps in implementation were also found to be implemented at FT UNP. This condition was revealed in the initial survey conducted by researchers with the following findings: the use of e-learning has not been fully applied by all lecturers. This can be seen from the recapitulation of e-learning per study program at the Faculty of Engineering, Padang State University in the January-June 2020 period. This is due to differences in lecturers' views on learning face-to-face and online. So there are still many lecturers who still focus on face-to-face learning which is considered more effective.

The next problem that researchers found in the field was that participation from lecturers was still low in uploading lecture material using e-learning. With the limited number of material in the form of e-modules and files relating to lecture material owned by lecturers, the lecture material uploaded using e-learning is still minimal. So it takes motivation and increased lecturer creativity in making material that will be uploaded on e-learning.

Furthermore, problems found in the field in the form of student participation are also still low in downloading lecture material using e-learning. This happens because many students are lazy in learning and prefer to delay downloading the lecture material contained in e-learning. Often students wait for their friends to download the material, after that they only ask the material to friends who have downloaded the material.

In addition, problems were also found in the form of gaps in utilizing e-learning between students and other students. Through interviews conducted by researchers with students in the Faculty of Engineering, researchers obtained information that the majority of students were less eager to carry out learning through e-learning. The students are more enthusiastic about studying face-to-face / directly with the lecturer in question. For more details, it can be seen from the e-learning recapitulation data per study program at FT UNP for the period January-June 2020 below:

Table 1. E-learning Recapitulation

| No | Departments | Number of Courses | *E-Learning* | Percentage |
|---|---|---|---|---|
| 1 | Building Engineering Education (S1) | 24 | 11 | 45,85 |
| 2 | Civil and Building Engineering (D III) | 34 | 11 | 32,35 |
| 3 | Electrical Engineering Education (S1) | 68 | 12 | 17,65 |
| 4 | Electrical Engineering (D III) | 55 | 12 | 21,82 |
| 5 | Electronic Engineering Education (S1) | 31 | 8 | 25,81 |
| 6 | Electronic Engineering (D III) | 33 | 8 | 24,24 |
| 7 | Mechanical Engineering Education (S1) | 32 | 8 | 25,00 |
| 8 | Mechanical Engineering (D III) | 27 | 9 | 33,33 |
| 9 | Automotive Engineering Education (S1) | 29 | 11 | 37,93 |
| 10 | Automotive Engineering (D III) | 22 | 9 | 40,91 |
| 11 | Informatic Engineering Education (S1) | 35 | 15 | 42,86 |
| 12 | Mining Engineering (D III) | 29 | 8 | 27,59 |
| 13 | Industrial Electrical Engineering (D IV) | 71 | 16 | 22,54 |
| 14 | Mining Engineering (S1) | 44 | 12 | 27,27 |
| 15 | Technical Vocational Education and Training (S2) | 25 | 5 | 20,00 |
| 16 | Technical Vocational Education and Training (S3) | 14 | 2 | 14,29 |
| 17 | Electrical Engineering in Kab. Lahat ( DIII) | 23 | 1 | 4,35 |
| 18 | Civil Engineering (S1) | 29 | 9 | 31,03 |
| 19 | Mechanical Engineering (S1) | 13 | 6 | 46,15 |
| | Total | 638 | 173 | 27,12 |

*(Source: Data of FT UNP's E-learning, 2020)*

Based on the table it can be seen that the smallest percentage of e-learning utilization in the UNP engineering faculty is in the Electrical Engineering Department of Kab. Lahat (DIII) that is equal to 4.35%. While the highest percentage of e-learning utilization in lectures is in the Department of Mechanical Engineering (S1) which is equal to 46.15%.

Through the recapitulation above, it can be seen that overall the use of e-learning at the Faculty of Engineering, State University of Padang is 27.12%.

Based on the data of the low utilization of e-learning, it is necessary to evaluate the implementation of e-learning in the area of the Faculty of Engineering, State University of Padang. So far the evaluation of the implementation of e-learning has not been carried out, so I am interested in systematically identifying e-learning practices at FT UNP. Evaluation of the implementation of e-learning can be illustrated through lecture activities conducted by lecturers and students. This evaluation aims to identify problems in implementing e-learning.

This is in line with research conducted by (Riasty Purwandari, 2016) on "Evaluation of the Use of E-learning in the Learning Process on Mechanical Engineering Education Study Program Sebelas Maret University." The evaluation model used in this study is the CIPP evaluation model. The study concluded that the factors inhibiting the use of e-learning in the learning process are the low readiness of knowledge about e-learning, the lack of information about e-learning, the lack of socialization of the use of e-learning and the lack of knowledge of the use of e-learning features. So the use of e-learning in the learning process has not yet been reached.

According to research by (Elyas, 2018). The results showed that the learning model with virtual classrooms (e-learning) was a new breakthrough in the field of teaching and learning, being able to minimize differences in the way of teaching and material, thus providing a more consistent standard of learning quality. The e-Learning system is absolutely necessary to anticipate the development of the era with the support of information technology where everything goes to the digital era, both mechanism and content.

The same thing was also expressed by (Pujiastutik Hernik, 2017). The results showed that the application of web-based learning media elearning received positive responses from students, where the average percentage of 76%. The conclusion of this study is that web-based e-learning learning media are effective in improving learning outcomes of learning learning courses I. Then, research by (Islamiyah & Widayanti, 2016). The research results were successful, this is indicated from the results of the t test obtained that t arithmetic = 3.516 <t table = 1.725 which means that H0 is rejected. With the rejection of H0 this means that student learning outcomes on the subject of electrical circuits using learning that utilizes e-learning is no better than using conventional methods.

Other researchers who examined this, namely (Suwastika, 2018). She results of his study indicate that hypothesis testing with H1 hypothesis regression with a significance value of 0,000 and t count of 4,015 is proven, so it is concluded according to students STIKOM

Bali e-learning affects student motivation. Next research by (Mutia, 2013). The results showed that through e-learning learning can be implemented optimally. Then this research is in line with research conducted by (Silahuddin, 2015). The results showed that the expectation of the E-learning system in the future is the use of E-learning to be more effective along with the development of technology and learning methods used. The development of the E-learning system is also expected to not only take into account financial problems and profitability, but also pay attention to the psychological side of students and be able to accommodate the various personalities and ways of learning of each participant.

Teuku (Teuku Fadjar Shadek, 2017) state that the results showed that to analyze the quality of the process and learning outcomes in E-Learning Management in high school computer science, as a consideration to make policy on E-Learning, the readiness of high school computer science towards E-Learning, prepare lecturers who understand learning by using the E application -Learning and conveying to students about learning E-Learning technology, Preparing lecturers who understand and understand learning and can deliver to students, E-Learning infrastructure networks from Hardware such as Local Area Networks and Wide Area Networks then software and Brainware learning outcomes using the system E-Learning. Sudirman (Sudirman Siahaan, 2008) suggested that there were "pros and cons" regarding the use of e-learning. For schools that are not ready to use e-learning, the school does not need to force themselves to use e-learning. Conversely, schools that already have readiness to utilize e-learning, especially in urban areas, need to be supported to get started.

The next researcher, namely (Darmayanti et al., 2007). The results show that through e-learning, learning becomes more enjoyable and can be carried out anywhere and anytime, so as to provide convenience for lecturers and students in the learning process. Next research by (Cucus & Aprilinda, 2016). The results showed that learning content is the most important thing in the teaching and learning process, in distance learning, content must get important attention, because in distance learning, participants learn to get material with a greater proportion of reading content independently rather than face-to-face directly with the teacher's pollination, the application of multimedia to distance learning content will better help students to absorb more learning material, this is evidenced by the increase in learning outcomes of students who learn by using the concept of blended learning using multimedia rather than those who study independently. Then research by (Kuryanti & Sandra, 2016). The results showed that the use of e-learning can improve student learning outcomes. Then this research is in line with research conducted by (Hanum, 2013). The results showed that the

implementation of learning using e-learning at SMK Telkom Sandhy Putra Purwokerto was not yet fully effective, due to several factors that caused its application was not optimal.

There is research by (Pusvyta Sari, 2015). The results showed that in the era of rapidly developing communication and information technology, e-learning became an alternative choice to be applied in learning. Given the strengths and weaknesses of e-learning, this paper aims to reveal ways that can be chosen to maximize the benefits of e-learning in order to motivate students. Next research conducted by (Hartanto, 2016). The results showed that e-learning was successfully used as one of the learning media. Through learning using e-learning, can improve student learning outcomes. Then, research by (Ade Kusmana, 2011). The results of the study indicate that the alignment between e-learning technology is increasingly needed and the ability of teachers to utilize e-learning in learning. Furthermore, this research is in line with research conducted by (Yulita et al., 2018). The results showed that e-Learning developed had passed the validation stage with the acquisition of a percentage of 86.67% of the material experts, 92.39% of the media experts, and 94.47% of the learning experts. From the results of the feasibility test of the e-learning device, it can be concluded that the e-learning device that was developed was declared feasible as a learning medium that can help convey the material and structured tasks of students.

In line with that, stated by (Arifin & Herman, 2018). The results showed that e-learning model web centric course affects the understanding of concepts and independence of learning mathematics in elementary school students. Furthermore, this research is in line with research conducted by (Ariani, 2018). The results showed that e-learning requires all components in charge of supporting its development. Apart from the instructional side, it is also necessary to consider the obstacles that may arise from the implementation of an elearning. In addition, the infrastructure component and the Human Resources component are rarely considered in an e-Learning development process, this is unfortunate given that without the completeness of these components, the implementation of learning with e-Learning cannot be optimal. Next, (Tambunan, 2010). The results showed that the need for the preparation of educators and students to utilize e-learning in learning. Furthermore, this research is in line with research conducted by (R.W et al., 2017). The results showed that web-based E-Learning learning media can improve learning achievement while at the same time giving a big impact for Grade X of SMK Negeri 1 Sambirejo Sragen. These findings provide new insights about the role of teachers and different dimensions of student control in E-Learning with implications for the learning process and improvement in learning achievement. Considering that E-Learning has been widely used in various other types of

learning facilities, which are able to attract the attention of users to be more innovative and creative.

Similar research by (Ucu et al., 2018). The results showed that the presence of social media as a communication and information technology, in its application educational institutions also utilize social media as a learning media called E-Learning. E-Learning is learning that utilizes technology, which uses social media, where e-learning learning at De La Salle University, Nusantara University, and STMIK Parna Raya has also utilized social media such as Facebook, Line, and WhatsApp as learning media. Next research by (Buntoro et al., 2018). His results showed that to maximize face-to-face learning e-learning was needed as a complement. So the learning process can be carried out optimally. Furthermore, this research is in line with research conducted by (Hade Afriansyah, 2019). The results showed that through e-learning based learning teachers can upload learning videos and students can download them anytime and anywhere. So students have more material to deepen their knowledge.

Next research by (Ambarita et al., 2016). The results showed that to develop an e-learning system that did not yet exist in SMA Negeri 10 Bandar Lampung, the first thing to do was to choose a system that suited your needs. In addition, it is necessary to pay attention to supporting infrastructure that will later support the development of the chosen elearning system. For the right selection needed the right strategy as well, in the selection of the system can use ANP analysis.

In evaluating the implementation of e-learning at FT UNP researchers used a contex, input, process, and product (CIPP) evaluation model (Stufflebeam, DL, 1993). The CIPP model is used not to prove, but to improve. As stated by (Tayibnapis, 2008) that the CIPP evaluation model is considered suitable and complete in evaluating educational programs.

The reason researchers chose the CIPP evaluation model is because this evaluation method has a holistic approach to evaluation, aimed at providing a very detailed and broad picture of a project, starting from its context to the time of the implementation process. The CIPP evaluation method also has the potential to move in the area of formative and summative evaluation. So it is equally good in helping to make improvements during the program, as well as providing final information (Arikunto, 2010). This is in line with research conducted by (Bhakti, 2017) regarding the effectiveness of the CIPP method in conducting evaluations. The results showed that the CIPP method was effective in assessing the science learning process.

Based on the background above, the authors plan to conduct research related to "Evaluation of the E-learning Implementation of the Faculty of Engineering, Padang State University". It is hoped that through this research, it can provide constructive suggestions and various useful improvements going forward for the optimal implementation of e-learning at the Faculty of Engineering, Univeristas Negeri Padang.

## Method

This research is an evaluation research (evaluation research). The evaluation research method used is the CIPP (context, input, process, product) evaluation method (Stufflebeam, DL, 1993) relating to the implementation of e-learning at FT UNP. The method used in this research is Mixed Method with quantitative and qualitative approaches in the order of proof (sequential explanatory). The quantitative approach in this study uses statistical processing numbers and qualitative approaches to uncover phenomena that occur and are taken from facts fairly, not from controlled conditions or manipulation. This strengthen the description of quantitative data, qualitative data is obtained from the results of documentation, interviews, and observations to research subjects. This the study is used Mixed Methods Design, Explanatory Sequential Approach (Creswell, 2012).

The population in this study were all students in the faculty of engineering at the State Universitas Negeri Padang (UNP) totaling 1500 people, furthermore the sample in this study were students in the majors with accreditation A totaling 300 people. Furthermore, the instruments used in this study were questionnaires and interviews. Data was collected through the distribution of questionnaires to engineering faculties in majors with accreditation A. Data analysis was carried out through qualitative analysis through interviews and quantitative analysis through questionnaire processing results.

## Result and Discussion

Based on the evaluation research carried out regarding the evaluation of the implementation of e-learning at the Faculty of Engineering, Universitas Negeri Padang (UNP), the results show that the implementation of e-learning at the Faculty of Engineering, Padang State University in the context, input, process and product components are in good category, but there are a number of points need improvement. Based on qualitative analysis, it can be seen that not all students get satisfactory grades through e-learning and students are less active in implementing learning through e-learning. Furthermore, based on quantitative

analysis the results show that all four aspects of the evaluation are in either category. For more details about the evaluation results can be seen in the explanation below:

**Quantitave Results**

Evaluation of Contex

Indicators for evaluating the context of implementing e-learning with student respondents are presented in the following table.

Table 2. Data Description Aspect of Students' Respondent Contex

| No | Indicators | % | Category |
|---|---|---|---|
| **1.** | The aim of e-leraning implementation | 82% | Good |
| **2.** | Environment of e-learning implementation | 81% | Good |
| **3.** | Need of e-learning implementation | 80% | Good |
| **4.** | E-learning implementation related to curriculum | 93% | Very Good |

The average percentage value of the context evaluation with student respondents was 84% with a good category.

Evaluation of Input

Table 5 below shows the percentage of evaluation inputs from the implementation of E-learning.

Table 5. Data Description Aspects of Student Respondent Input

| No | Indicators | % | Category |
|---|---|---|---|
| **1.** | Lecturers | 84% | Good |
| **2.** | Students | 92% | Very Good |
| **3.** | Infrastructure | 95% | Very Good |

The average percentage value of the input evaluation with student respondents was 90.3% with a very good category.

Evaluation of Process

Indicators for evaluating the process of implementing e-learning with respondents are presented in Table 6 below.

Table 6. Description of Data Aspects of the Student Respondent Process

| No | Indicators | % | Category |
|---|---|---|---|
| **1.** | Implemnetation of *E-learning* | 70% | Enough |
| **2.** | Human Resources Training | 68% | Enough |
| **3.** | Utilization of E-learning in learning outcomes assessment activities | 68% | Enough |
| **4.** | Utilization of Infrastructure Facilities in the Implementation of E-learning | 80% | Good |
| **5.** | Obstacles in the implementation process | 82% | Good |
| **6.** | Solution | 83% | Good |

The average percentage value of the evaluation process with student respondents was 75.2% in the Fair category.

Evaluation of Result

Table 7 below is the result of evaluating the results of the implementation of E-learning with respondents.

Table 7. Data Description of Aspects of Student Respondent Results

| No | Indicators | % | Category |
|---|---|---|---|
| **1.** | Achievement Result of E-learning Implementattion Goal | 86% | Poor |
| **2.** | Effect of Learning Implementation Based on E-learning | 60% | Fair |

The average percentage of evaluation results with student respondents was 73% with the Fair category.

**Qualitative Results**

In addition to collecting data through questionnaires, researchers also conducted interviews, observation and documentation studies to support and complete quantitative data evaluating the implementation of e-learning at the Faculty of Engineering, State University.

The results of the interview data collection, researchers do data reduction that is taking, removing unnecessary, or selected each data relevant to the focus of the problem under study. The results of data reduction in the form of field notes interviews with several informants. After being reduced, the data is presented and conclusions drawn. The results of the data display and conclusions from the results of the interview are as follows:

Related to the context aspect, qualitative data were obtained from interviews with FT UNP lecturers. Based on interviews that have been conducted, it can be concluded that: a) the objectives of e-learning implementation have been achieved well, b) the e-learning implementation environment is sufficient. Related to the input aspects, qualitative data were obtained from interviews with lecturers. Based on interviews that have been done, it can be concluded that: a) Educator's background is appropriate as needed, b) educator's ability is okay.

Related to aspects of the process, qualitative data were obtained from interviews. Based on interviews that have been conducted, it can be concluded that: a) there are still many students who are less enthusiastic about attending online lectures, b) lack of interest in students learning through e-learning, c) good cooperation is needed between lecturers and students, so learning through e learning can be carried out optimally. Related to the aspect of results, qualitative data were obtained from interviews. Based on interviews that have been

conducted, it can be concluded that: a) not all students have received satisfactory grades through e-learning, b) students are less active in implementing learning through e-learning.

**Discussion**

In accordance with the results and discussions that have been carried out starting from the evaluation of aspects of Context, Input, Process and Product lectures based on e-learning at UNO engineering faculties, the results of this research and discussion need to be linked to the existing program evaluation theory. This was done to strengthen the analysis in taking the final conclusions of this study.

First, the research conducted by researchers has succeeded in seeing the success or failure of the implementation of e-learning based lectures such as the definition of evaluation (Arikunto, 2012), and this has provided researchers with special understanding of what happens in the implementation of e-learning based lectures. in the UNO engineering faculty in accordance with the evaluation objectives (Wakhinuddin, 2009). Where the results of this study indicate that the implementation of e-learning-based lectures has been quite successful, but still has less than the maximum implementation problems as discussed in the points above that need to be fixed.

Second, the research conducted by researchers has followed the evaluation concept (Wakhinuddin, 2009), including: (1) researchers have collected information related to the implementation of e-learning-based lectures from various sources namely lecturers and students (2) researchers have choose and use an appropriate evaluation model to evaluate educational programs, the CIPP model (Tayibnapis, 2008), and (3) researchers have compared the reality that occurs with the planning / expectations of the program contained in the implementation of e-learning based lectures and produce conclusions and recommendations for the program.

Third, looking at the theory of the benefits of program evaluation (Arikunto, 2013), it can be concluded that the implementation of e-learning based lectures can be continued with improvements because it is found that the parts are less than the maximum but can still be improved in each aspect of the indicator.

This research is in line with research conducted by Kapti, 2017 entitled "Evaluation of the Implementation of Edmodo E-Learning at STMIK Bina Patria". The results show that STMIK Bina Patria has applied e-learning based teaching techniques using moodle, but starting this year many lecturers have switched to edmodo e-learning, the use of edmodo cannot be said to be successful if it has not been tested, and the use of edmodo has not always

been successful, the factors that determine success or not, namely the attitude of users who use the technology, it is very necessary to evaluate the use of edmodo. Therefore the UTAUT method is used in the discussion of acceptance of edmodo elearning for students. The final results in this study indicate that the variables PE, EE, HM, BI and FC have a significant positive effect. This variable is proven to be able to influence the acceptance of the system quite large, so that the variable can be corrected according to the recommendations obtained from the analysis fix according to the recommendations obtained from the analysis (Kapti, 2017).

Furthermore, this research is in line with the research conducted by Divayana, 2017. The results of his research indicate that the level of quality of e-learning utilization in terms of the system assessment component includes good criteria with a percentage of 89.93%, program planning components including good criteria (87.47%), program implementation components including good criteria (88.13%), the improvement program component includes good criteria (89.80%), and the program certification component includes good criteria (89.13%) (Divayana, 2017).

Based on the results of the study showed that the implementation of e-learning-based lectures in UNP's engineering faculty was in the good category. For this reason, it is necessary to improve and enhance understanding of the implementation of e-learning-based lectures. These improvements and improvements include all components of the learning process implementation based on e-learning.

Lecturers and students who are involved in implementing e-learning based lectures need to increase their insight and knowledge about technological developments. The implication of this research is the need for the campus to complete and renew campus facilities and infrastructure, provide motivation for lecturers and students to be more active in the implementation of e-learning-based lectures. In addition, the campus also needs to provide training related to lectures based on e-learning to lecturers and students and need to work together in implementing e-learning.

## Conclusion

Based on the research conducted, the conclusion can be drawn, namely: the implementation of E-Learning at the Faculty of Engineering, Universitas Negeri Padang in terms of context has been classified as both lecturer and student respondents. Furthermore, it is seen from the input aspect of the Implementation of E-learning at the Faculty of Engineering, Universitas Negeri Padang, which is classified both from lecturer and student

respondents. Furthermore, it is seen from the aspect of the process of implementing E-learning at the Faculty of Engineering, Universitas Negeri Padang that is not optimal. Furthermore, seen from the aspect of the use of the implementation of E-learning at the Faculty of Engineering, Universitas Negeri Padang has not been well achieved. So as a whole it can be concluded that the implementation of e-learning is good.

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