ATLANTIS PRESS

Advances in Social Science, Education and Humanities Research, volume 512

Proceedings of the 1st International Conference on Folklore, Language, Education and Exhibition (ICOFLEX 2019)

Evaluation of e-Campus-Based e-Learning Implementation by Mathematics Education Study Program Students at the University of Muhammadiyah Jakarta

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ABSTRACT

E-Learning could be interpreted as a form of information technology applied in the field of education. E-learning used was an e-campus system. Because learning resources had been packaged in digital form and could be accessed by students through the network, students could communicate anytime and anywhere. This study aimed to determine the level of readiness of students in participating in e-Campus-based e-Learning. The research method used was the descriptive quantitative method. The research sample studied was 106 students of mathematics education at FIP UMJ. Data collection of this study used questionnaires for students based on evaluation models Context, Input, Process, and Product (CIPP). Data collection was distributed twice to see data consistency. Based on the CIPP model, the results of the study obtained were students readiness scores in participating in e-Campus-based e-Learning, namely: (1) Context aspects of 96.3%, (2) Input Aspects of 98.3%, (3) Process Aspects amounted to 99.5%, and (4) Product aspects were 98.8%. The results of the analysis showed that the readiness of students was categorized very high in every aspect of the context, input, process, and product.

Keywords: *E-Learning, E-Campus, CIPP model, Mathematics education*

1. INTRODUCTION

The era of globalization cannot be separated from Information and Communication Technology (ICT). According to *Puskur Diknas Indonesia*, ICT covers two aspects, namely information technology and communication technology. Information technology includes everything related to the process, utilization, manipulation, and management of information. Communication technology is everything related to the use of tools to process and send data from one device to another.

The use and development of ICT are increasingly rapid nowadays, this is characterized by the increasing need for information systems in the education sector. Conventional education or face-to-face learning will be transferred by utilizing information technology, especially using the internet. The application of the internet in the field of education now is the use of e-learning to disseminate information and communicate. The concept of e-learning is an internet-based education system that is well received and widely used today. E-learning is a learning tutorial or learning practice delivered using electronic technology including the Internet, intranet, and extranet [1].

E-Learning can be interpreted as a form of information technology applied in the field of education. E-learning used on campus is currently using the e-Campus system. Learning resources in e-Campus have been packaged in digital form and can be accessed by students through the network, so students can communicate anytime and anywhere. The implementation of e-learning by students requires readiness for both knowledge, understanding, and use of ICT. Many e-learning implementations fail even though they have been supported by large funds, therefore it is necessary to analyze the level of readiness of students in implementing e-learning. Mature readiness is needed to get the results and objectives of e-learning as expected. Therefore, it is necessary to make an effort to determine the level of readiness of students for the implementation of e-learning so that the utilization of e-learning can be maximized.

Research related to e-learning was conducted at Muhammadiyah 3 Vocational School of Yogyakarta by Wisnu Rachmad Prihadi. The study uses an evaluation model Context, Input, Process, and Product (CIPP). From the results of their research, it was found that teacher readiness from the aspect of context and input are high category and the aspects of the process and product are low category, while the readiness of students from context, input, process aspects are high categories and product aspect is low category [2]. Therefore, it is necessary to research to find out the implementation of e-Campus-based e-Learning in the Mathematics Education Study Program UMJ regarding the level of readiness of students to conduct e-learning based learning. The purpose of this study was to examine the level of student readiness in participating in e-Campus based e-Learning based on the CIPP model. The difference from the results of previous research is the learning method where previous researchers implemented it in the school environment while e-Learning based on e-Campus was carried out in the university environment.

The benefits of this study for the campus areas input in evaluating activities on campus related to e-learning-based learning, while for the repertoire of science and technology, as a reference related to the development of e-learning-based learning and its development. The discussion of the theory regarding this research is explained as follows.

2. LITERATURE REVIEW

2.1. E-Learning

E-Learning or online learning is a learning process that is supported by technology services such as telephone, audio, videotape, satellite transmission, or computer [3]. The characteristics of e-learning include (1) Utilizing electronic technology services, where lecturers with students, students with students, and lecturers with lecturers can communicate relatively easily with no limitations, (2) Using independent teaching materials stored on computers so they can be accessed by lecturers and students anytime and anywhere, and (3) utilizing learning schedules, curriculum, learning progress results and matters relating to educational administration that can be seen at any time on the computer.

The use of e-Learning cannot be separated from internet services. E-learning improves students' performance, knowledge, and skills [4]. E-learning can also reduce the cost of education and can increase access to quality education [5]. The benefits of internet use, especially in education, are: (1) the availability of e-moderating facilities, where lecturers and students can communicate easily through internet facilities at any time without being limited by distance, place, and time, (2) Students and lecturers can using teaching materials through the internet, so that both can assess each other how far the teaching material is learned, (3) students can study or review teaching materials at any time and anywhere, (4) If students need additional information related to the material being studied, students can access on the internet, (5) both lecturers and students can carry out discussions through the internet which can be followed by a large number of participants. Thus they broaden their knowledge and insights, (6) changing the role of students who are usually passive and active (7) more efficient.

2.2. E-Learning-based Learning Readiness

The readiness of e-Learning based learning is the ability of users to prepare themselves to be able to do e-Learning based learning by providing themselves with the knowledge needed. One of the goals of learning is to do the planned stages for student development. Minimum standards of competence must be mastered so that the use of e-Learning can be as expected.

Competencies that must be mastered by students are operating computers with Windows operating systems and their applications, using computers for browsing, chatting, e-mail, attaching files in an e-mail, downloading files on the internet, and operating office program applications, including saving, editing, typing, and another simple task.

2.3. Evaluation Model Context, Input, Process, Product (CIPP)

Evaluation is a process of determining how far the ability of the object is. Expected abilities have been established so that an assessment can be obtained. The Context, Input, Process, Product (CIPP) evaluation model is one of the program evaluation models developed by Daniel Stufflebeam et al in 1976 at Ohio State University [6-8].

The CIPP evaluation model is divided into four evaluation activities, namely: (1) Context evaluation; Assess needs, problems to help set goals. Suharsismi arikunto and Cepi Safrudin explained that context evaluation is an attempt to describe and specify the environment of unmet needs, population and sample served, and project objectives, (2) Evaluation of inputs; consists of a) Human resources, b) Facilities and supporting equipment and other resources, c) Funds or budget, and d) Various procedures and rules needed, (3) Process evaluation; process evaluation is called monitoring, so monitoring is an effort to evaluate the process of implementing a program, and (4) product evaluation; Evaluation related to the benefits and impact of a program after careful evaluation [9-11].

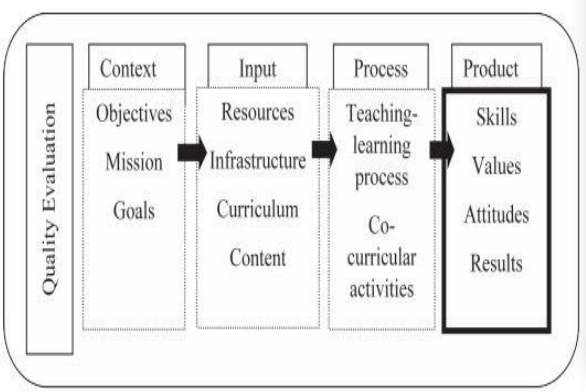

Figure 1. Conceptual framework of the implementation of CIPP [12].

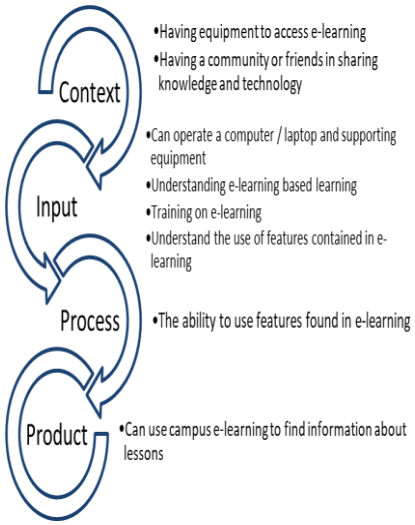

Figure 2. The Evaluation Model CIPP

3. METHOD

This research used a descriptive quantitative method about evaluating the readiness of the application of e-Campus-based e-learning in the Mathematics Education Study Program. The evaluation model used was the CIPP evaluation model (Context, Input, Process, and Product) related to e-learning based learning.

The location of this study was the Mathematics Education Study Program Faculty of Education in Universitas Muhammadiyah Jakarta with research time from February to March 2019. The instrument used was a questionnaire for students totaling 27 statements based on the CIPP evaluation model. The sample in this study was 54 Mathematics Education Students from 106 students.

Table 1. E-Learning Learning evaluation instrument grille

Aspect	Variable	Indicator	Question
Context (Plan decisions, determine needs)	ICT learning and culture environment	Having equipment to access the e-learning	1. I have ICT facilities such as computers, laptops, or other facilities for learning 2. I have facilities in the form of internet subscription for learning activities
		Having a community of friends in sharing knowledge and technology	3. I have a friend to discuss ICT issues 4. I have a friend to discuss with me e-learning issues
Input (Manage decisions, determine resources, and strategies for achieving goals)	The readiness of student competencies towards information technology in learning	Can operate a computer/laptop and supporting equipment	5. I can operate a computer/laptop 6. I can operate a computer/laptop support device in the form of a printer 7. I can operate a computer/laptop support device in the form of a speaker 8. I can do computer file management 9. I can type and save files on the computer.
	Knowledge readiness about e-learning	Understanding e-learning based learning	10. I know about e-learning. 11. I know how to use e-learning on campus.
		Training on e-learning	12. I attended training in using e-Learning on campus with a lecturer.
		Understand the use of features contained in e-learning	13. I know that in e-Learning there is a feature to collect / upload tasks. 14. I know that in e-Learning there is a feature of downloading lecture material provided by lecturers. 15. I know that in e-Learning there is a test/quiz feature. 16. I know that in e-Learning there are features of student assessment by lecturers.

Aspect	Variable	Indicator	Question
			17. I know that in e-Learning there is a discussion forum feature. 18. I know that in Learning there is a learning resource feature that is used as a reference by lecturers.
Process (How is the implementation in the field, what things need to be improved)	Student ability and readiness	The ability to use features found in e-learning	19. I can do the collecting/uploading of tasks in my e-Learning. 20. I can download the course material provided by the lecturer in e-Learning. 21. I can do the exam/quiz feature in e-Learning. 22. I can see the assessment given by the lecturer in e-Learning, 23. I can use the discussion feature in e-Learning. 24. I can use the learning resource feature which is used as a reference by lecturers in e-Learning.
Product (what results have been achieved and what is done after the program runs)	Can search for learning support learning materials	Can use campus e-learning to find information about lessons	25. I can use campus e-Learning to study. 26. I can explore the lecture material contained in e-Learning 27. I can ask lecture material via e-Learning to the lecturer.

On the questionnaire, the researchers used a Likert scale so that students gave a checkmark (√) to the answer choices. The scores used were 1 (no) and 2 (yes) for each assessment in each statement. The CIPP evaluation model questionnaire was distributed twice to see data consistency.

4. RESULTS AND DISCUSSION

4.1. Design of the Context Aspect Evaluation Model Category

In the context aspect, there is one variable that is made, namely learning environment and ICT culture. In this aspect, there are 4 statements. We create a category table for the context aspects as follows.

Table 2. Score Categories for Context Aspects

Number	Score Range	Category
1	$x < 62,5$	Very Low
2	$75 > x \geq 62,5$	Low
3	$87,5 > x \geq 75$	High
4	$x \geq 87,5$	Very High

4.2. Design Category for Input Aspect Evaluation Model

In the input aspect, two variables are made, namely the readiness of student competency towards information technology in learning which consists of 5 statements, and readiness of knowledge about e-learning which consists of 9 statements. We could use table 1 for the input aspect category table.

4.3. Design Category for Process Aspect Evaluation Model

In the process aspect, there is one variable that is made, namely the ability and readiness of students. In this aspect, there are 6 statements so that the calculation can be seen as follows. We use table 2 for the process aspect category table.

4.4. Design Category for Product Aspect Evaluation Model

In the process aspect, there is one variable that is made, namely being able to find learning materials supporting learning. In this aspect, there are 3 statements. We use table II for the process aspect category table.

4.5. Data Results

Based on the calculation of data processing, the results of the evaluation of the implementation of e-Campus-based e-Learning are categorized as good, this can be seen in Table 3 below.

Table 3. Result of the Evaluation

Aspect	Score (%)	Category
Context	96,3	Very High
Input	98,3	Very High
Process	99,5	Very High
Product	98,8	Very High

Table 3 shows that 96.3% of students already have facilities such as laptops or computers and the internet, this can be seen from the score results in the context aspect. The rest who do not have facilities such as laptops or computers and the internet can discuss with friends. But there are 0, 98% who do not have these facilities and do not have friends to be discussed. These students cannot use e-Learning based on e-campus for learning such as not knowing the learning resource features that are used as references by lecturers, so they cannot explore the lecture material contained in e-learning based on e-campus.

In the input aspect, 98.3% stated that students could operate laptops, printers, speakers, and manage computer files. The rest are some who can operate a laptop or printer or speakers or manage computer files. But there are 0.98% who cannot operate even if the student has internet. These students use the internet to download lecture material provided by lecturers in e-Learning. However, due to the inability to operate the device, the student was unable to explore lecture material.

The aspect of the process shows that 99.5% of students can collect assignments in e-Learning, download course material provided by lecturers, use discussions in e-learning, and use other features contained in e-Learning. In the process aspect, there is 0.98% which can only download the course material provided by lecturers in e-Learning. However, these students also cannot explore the lecture material contained in e-Learning based on e-Campus. This is because these students can only rely on the internet without being able to operate the devices needed.

The product aspect shows that 98.8% stated that students can use e-Learning. There are 26.5% who have not fully achieved the use of e-learning based on e-Campus to find information about lectures.

5. CONCLUSION

Student readiness scores in participating in e-Campus-based e-Learning, namely: (1) Context aspects of 96.3%, (2) Input Aspects of 98.3%, (3) Process Aspects of 99.5%, and (4) Product aspect is 98.8%. The results of the analysis show that the readiness of students is categorized very high in every aspect of context, input, process, and product. This shows that the learning environment is very supportive in supporting e-Learning learning, the readiness of students towards technological knowledge especially e-Learning is very good and the ability to utilize e-Campus-based e-Learning is very good.

ACKNOWLEDGMENT

We thank our respective institutions, Muhammadiyah University Jakarta and Bina Nusantara University for funding this research.

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