Conference Paper

E-Learning Implementation as a Support Teaching Learning Processes for Lecturers and Students in Universitas Pembangunan Nasional " Veteran" Jawa Timur

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Abstract

Current technological developments are increasingly advanced and sophisticated both in education and business. With the development of these technologies, it is expected that in the University of East Java's National Development in the teaching and learning process can also implement by following the development of these technologies. In the environment of UPN "Veteran" East Java, the campus management has provided a web-based or online learning system, namely E-learning. With the E-learning system, the researchers want to know how much the E-learning system is used among lecturers and students. To find out about this, researchers conducted research using the PIECES method with the instruments used were Performance, Information, Economic, Control, Efficiency, and Service. From the results of the PIECES method it was found that the use of the E-learning system in the teaching and learning process in the environment of UPN "Veteran" East Java can still be said to be less used by lecturers and students by looking at the average value of all aspects in the PIECES method of 67.36 %. It can be said that the lack of socialization to lecturers and students about the benefits of using E-learning systems in the world of education, especially for the teaching and learning process.

Keywords: E-learning, PIECES method

INTRODUCTION

The era of globalization has had a significant influence on the development of information and communication technology. Technological sophistication has offered learning transformations, from conventional learning to IT-based learning. Various information displayed in e-learning for education is a very strategic breakthrough in applying new technology to information systems activities in the world of education. With the existence of e-learning for this education, the need for information is always available and can be accessed by students easily and quickly. E-learning for education will make service for students better. (Baharuddin & Wahyuni, 2008; Bahri, 2002).

According to Rosenberg Utomo (2010) E-learning is the use of internet technology to distribute learning materials so that students can access from anywhere. With the rapid development of technology and information, it can encourage educational institutions to utilize E-learning media to increase the flexibility and effectiveness of learning. Students become more flexible in choosing a time and place of learning because they do not have to come somewhere at a certain time. Besides that, educators can also renew learning materials flexibly starting from material

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based on text and media such as pictures and videos. The use of E-learning can be measured from the frequency of using E-learning in learning such as accessing learning material, interacting with students and educators, sending assignments, participating in discussion forums, chatting, working on quizzes, seeing the achievement of learning outcomes, and so on.

In this study, an E-learning system will be produced by applying the concept of the PIECES method to support and as a web-based learning tool. Feedback shows that students who take part in learning activities using E-learning facilities provide positive responses to the system developed. Researchers evaluate the web-based E-learning system at the University of National Development "Veteran" East Java using the PIECES method which uses six evaluation variables (Performance, Information, Economic, Security, Efficiency, and Service) (Hamzah, 2010).

The problem in the study is to find out the factors that influence the implementation of e-learning systems in the teaching and learning process in the UPN "Veteran" East Java environment using the PIECES method.

Based on the background above, the researchers are interested in conducting research entitled E-learning Implementation in Supporting the Teaching and Learning Process for Lecturers and Students at UPN "Veteran" East Java.

Literature Review

a. Instructional Media

Organizational culture as a set of values and norms that control members of an organization interact with others and with suppliers, consumers, and others outside the organization. The organizational culture consists of the final state that the organization seeks to achieve (terminal value) and the model encourages organizational behavior. The term media comes from Latin which is the plural form of the word "medium" which means intermediary or introduction. Media is an intermediary or messenger of the message from the sender to the recipient. National Education Association (NEA) revealed that media is both printed and audiovisual forms of communication and equipment. The media should be manipulated, can be seen, heard and read. Media is a tool that has a function to convey messages. Aside from being a tool, the media also functions as a channel for learning messages or information.

b. Benefits of Learning Media

According to Furchan (1992) learning media has the following benefits:

1. Learning media clarifies the presentation of messages so that they are not too verbalistic (in the form of written or verbal words).
2. Media will make learning more interesting.
3. With the media can overcome the ease of the teacher in overcoming student learning styles.
4. Can overcome the limitations of space, time and sensory power. for example:
   a. Objects that are too large can be replaced with picture realities, frame films or models.
   b. Small objects can be assisted with a micro projector, film or image.
   c. A movement that is too slow or too fast, can be helped by time-lapse or high-speed photography.
5. Appropriate use of media can overcome the passive nature of students. Media can arouse students' enthusiasm for learning and enable direct interaction between students and the environment. Learning media is an important component of learning. Learning media is very useful when the learning process takes place, so learning will be more diverse and not monotonous. This will increase learning motivation which in turn can improve student learning outcomes.

c. **E-Learning Implementation**

The implementation of e-learning here is related to learning, so how to implement e-learning in learning. Because in the Law the teacher and lecturer no. 14 of 2005 there are 4 teacher competencies namely pedagogic competence, personal competence, social competence, and professional competence, which are obtained through professional education. Professional competence is the teacher or lecturer required to apply various learning methods and use various tools, media, and relevant sources.

d. **E-Learning**

E-learning stands for electronic learning. Electronic learning is a new way of teaching and learning that uses electronic media that is connected to the internet as a learning system. E-learning is the basis of the development of information and communication technology. Many word usage has a meaning similar to E-learning, namely web-based learning, online learning, computer-based learning, distance learning, and computer-aided instruction.

METHODS

PIECES Analysis Method According to Priyatno (2009) the method uses six variables, namely Performance, Information / Data, Economic, Control / Security, Efficiency and Service. PIECES method uses six evaluation variables namely Performance, Information / Data, Economic, Control / Security, Efficiency, and Service. The following is a brief explanation of each variable:

a. Performance: assessing whether the existing process or procedure may still improve its performance. In this case the performance is measured by throughput, namely the number of jobs / outputs / deliverables that can be done / generated at certain times and response time, which is the time needed to complete a series of activities to produce certain outputs / deliverables.

b. Information (information): assess whether the current procedures can still be improved so that the quality of the information produced becomes better. The better quality of information is what is more relevant, accurate, reliable, and complete and presented in a timely manner.

c. Economics (Economics): assessing whether the existing procedures can still be improved (use value) or reduced the cost of implementation.

d. Control / Security: assess whether the current procedures can still be improved so that the quality of control is getting better, and its ability to detect errors / cheats is getting better too.

e. Efficiency: assess whether the current procedures can still be improved, so that an increase in operating efficiency is achieved.

f. Service: assess whether the current procedures can still be improved in their ability to achieve improved service quality.

RESULT AND DISCUSSION

a. Evaluation of UPN "Veteran" East Java web-based E-Learning system using the PIECES method

The questionnaire was designed using the PIECES method which was modified and shared with personalities related to the use of e-learning in the environment of the National Veteran Development University of East Java using the Guttman scale and with cross-sectional methods and sample random sampling with a total of 70 personal, details as follows: lecturers of 40 people and students of 30 people. Comparison of gender from resource persons, namely: men numbering 45 people and women numbering 25 people. Faculties participating in the questionnaire

included 10 people from the Faculty of Economics and Business, 20 people from the Faculty of Computer Science, 25 people from the Faculty of Engineering, 14 from the Faculty of Political and Social Sciences and 1 from Postgraduate.

In this evaluation will be produced an E-learning system by applying the concept of the PIECES method to support and as a web-based learning tool. Reciprocity shows that students who participate in learning activities by utilizing E-learning facilities provide a positive response to the system developed, the authors evaluate the web-based E-learning system at UPN "Veteran" East Java using the PIECES method which uses six evaluation variables (Performance, Information, Economic, Security, Efficiency, and Service). This method is used to evaluate various operational procedures in an organization, institution related to a company, or government institution.

b. Validity test

In this study, the validity testing was carried out on 70 respondents. Decision making is based on the ratio of r count with r table. Where the table value is 0.444, with the value of df = 20, α = 0.05. Question items are said to be valid if r count> 0.444, otherwise, if the question item is said to be invalid if r count <0.444. Then the validity test results in table 1 are as follows:

Tabel 1. Validity test

Inquiry item	Corrected Item Total Corelation	I'tabel	Information
A1.1	0,959	0,444	Valid
A1.2	0,905	0,444	Valid
A1.3	0,835	0,444	Valid
A1.4	0,458	0,444	Valid
A1.5	0,487	0,444	Valid
A1.6	0,513	0,444	Valid
A1.7	0,470	0,444	Valid
B1.1	0,959	0,444	Valid
B1.2	0,461	0,444	Valid
B1.3	0,574	0,444	Valid
C1.1	0,470	0,444	Valid
C1.2	0,470	0,444	Valid
D1.1	0,470	0,444	Valid
D1.2	0,470	0,444	Valid
E1.1	0,470	0,444	Valid
E1.2	0,470	0,444	Valid
F1.1	0,959	0,444	Valid
F1.2	0,473	0,444	Valid
F1.3	0,453	0,444	Valid

Source: data processed

Based on the results of the validity test shows that all item values are questions for the Corrected Item-Total Correlation of 20 question items for the 5 indicators that exist all the values show that r count> 0.444, it can be said that all the question items are said to be valid and can be used to measure the variables studied.

c. Reability test

Instrument reliability test results in this study can be seen in Table 2.

Tabel 2.Result of reability test

Reability Statistics	
Cronbach's Alpha [a]	N of Items
814	20

Based on Table 2 shows the value of a variable alpha PIECES above 0.80 it can be said entry on the classification of high reliability. Based on the validity and reliability, it can be concluded that the research questionnaire PIECES instruments are not eligible to be used as a research instrument.

d. Reability test

Data obtained from the questionnaire evaluation of the implementation of e-learning systems using web-based PIECES method is as follows:

Tabel 3.Result of calculation of PIECES method

Indicator	Operational Definition / Questions	Yes	No	Average	On average every aspect	Average all aspects
Performance						
Throughput	The resulting system in the process of e learning very much	95,7%	4,3 %	97,85 %		
Respon Time	E learning system is in the process of working very quickly	92,9%	7,1%	92,9%		
Audabilitas	The function of the work done by e learning system is in conformity with the standards established	90%	10%	55%		
Prevalence Communications	The use of e learning as a means of interface is very easy to understand by the user	90%	10%	55%	58,07 %	67,36%
Completeness	The work function performed by the e learning system has adequate completeness	100%	0%	50%		
Consistency	The use of design and engineering documentation on e learning system has been consistent	91,4%	8,6%	54,3%		
Error Tolerance	The existence of fault tolerance or if the damage occurs while	97,1%	2,9%	51,45%		

the system is making a mistake

Information

Accuracy	The presence of the accuracy of the computational accuracy of e learning system	95,7%	4,3%	97,85%	
Relevance	Information - information produced according to / relevant to needs	94,3%	5,7%	97,15%	
Presentation of Information	Presentation of information / display the information on the e learning as needed	97,1%	2,9%	98,55%	98,02%
Data Flexibility	Data flexibility is easy to access or use	97,1%	2,9%	98,55%	

Economisc

Resuabilitas	Programs that can be reused in many other applications	100%	0%	50%	
Resource	The amount of resources needed to develop this system	100%	0%	50%	50%

Control/Security

Integritas	Integrity or limit access to the system used by the operator to specific programs are in accordance	100%	0%	50%	
Security	The presence of an existing security system to ensure data security	100%	0%	50%	50%

Efficiency

Usabilitas	Enterprises users to learn and operate the system is very easy e learning	100%	0%	50%	
Maintabilitas	Finding and correcting errors in this e learning system is very easy	100%	0%	50%	50%

Service

Akurasi	In the process of e learning system works is meticulous	95,7%	4,3%	97,85%	
Reliabilitas	E learning system to do the job required highly reliable	94,3%	5,7%	97,15%	
Simplicity	E learning system that there has simplicity in accessing and tampila so easily understood by users	98,6%	1,4%	99,3%	98,1%

Based on the results of calculations using the average PIECES method for each user or user has a score or suitability value of user or user needs of 67.36%, this means that the web-based e-learning system using the PIECES method is sufficient to meet the demands of all users or user. From the application of the system of e-learning that exist in the environment UPN "Veteran" East Java when seen since 2016 among faculty and students less hoodwink the system as a means of learning and also when seen from the system campus management has not been seen to make changes in the system of e-learning and the absence of continuous socialization among lecturers and students.

Implementation can be seen from the calculation methods PIECES on each instrument there is, if viewed on Instrument Performance is shown by the average yield amounted to 58.07%, amounting to 98.02% Information, Economy, Control / Security, Efficiency have the same value that is equal to 50% and for instruments Service has a value of 98.1%. Each of these results can be interpreted that in performance e-learning system less attractive to users that lecturers and students.

While the instrument of information for users of the existing system of e-learning environment UPN "Veteran" East Java already provides or allows users to obtain information about learning. In the Economic, Control, and Efficiency instrument, the average value of the three instruments is the same so that it can be concluded that there are still few lecturers and students who use e-learning systems. Instrument service has a sufficiently large value of 98.1% means that the e-learning system that is easy to use and understandable by the user or the user.

CONCLUSION

The conclusion we got after observing, we saw that in UPN "veterans" East Java had implemented learning using Web-based E-learning systems, including:

1. Implementation of E-learning, in this case, the use of Learning Management System (LMS) software, sometimes there are those that mention it as a Course Management System (CMS) or Virtual Learning Environment (VLW), which can be integrated with face-to-face activities themselves (not replace face-to-face activities. This can change the learning paradigm that is currently student-centered (student-centered-learning) enabling students to more easily access all learning resources that are available and accessible with the use of ICT.

2. Learning with the teacher-centered paradigm, currently only challenged by theories of teaching that are right for the 21st century, "old" and "new" social-cultural environment. This is done by bringing learning to students, giving them access to course information, learning materials, assignments, and assessments, as well as encouraging them to work individually and together. In this way student-centered, group-based, collaborative and project-based learning can be developed, where the facilitator can function both as a lecturer and as a facilitator, even as a counselor.

3. An important function of E-learning is that it does not attempt to replace lecturers, but strives to make learning more effective. Instead of eliminating the teacher-centered paradigm, learning continues to open space for essential (face-to-face) lectures in its traditional form. So that the ongoing learning will be a combination of face-to-face activities and online activities, which in the 2003 National Education System Law are referred to as a dual mode. The dual-mode model is widely referred to as blended learning, multi-channel learning or multi-access learning, etc.

4. From the results of research on system evaluation of Web-based E-learning university that, E-learning itself is used as a facility to improve student learning activities. and To get information about activities and forums that are available in the E-learning system.

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