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THE 8th INTERNATIONAL CONVENTION OF INDONESIAN ASSOCIATION
OF TECHNOLOGICAL AND VOCATIONAL EDUCATION (APTEKINDO)
AND 19TH INDONESIAN CONGRESS OF FT/FPTK-JPTK

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Regional Association for
Vocational Teacher Education
in East and Southeast Asia

EDUCATIONAL TECHNOLOGY AND VOCATIONAL IN ASEAN ECONOMIC COMMUNITY, INTERNATIONAL CONFERENCE PROCEEDINGS

3-6 August 2016

Auditorium State University of Medan, Medan, North Sumatera, Indonesia

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**FACULTY OF ENGINEERING
STATE UNIVERSITY OF MEDAN
NORTH SUMATERA, INDONESIA**

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Preface

We feel thankful to Allah for the blessing so that the book of proceeding of National Seminar completely compiled in relating to the 8th National Convention of Indonesian Association of Technological and Vocational Education (APTEKINDO) and 19th Indonesian Congress of FT/FPTK-JPTK 3 - 6 August 2016 in State University of Medan.

The main objectives of the seminar is to improve the capability in vocational technology in theme: **The role of educational technology and vocational in Asean Economic Community (AEC)** which is adopted from the researches in order to upgrade the graduates to be International standard so that the output of LPTK-PTK be able to compete in AEC. Therefore, the National seminar, convention and workshop of Indonesian LPTK-PTK may emerge the thoughts how to strength the role of LPTK to improve the quality of the vocational teachers in Indonesia.

Hopefully this proceeding book will be useful to develop technology, art, and culture. This book also can be as a reference to intensify the National development.

The committee would express our gratitude to all participants and stakeholders in supporting the National seminar, convention and workshop of Indonesian LPTK-PTK

Medan, 6 August 2016
Chairman,

Prof. Dr. Abdul Hamid K, M.Pd.
NIP. 195802221981031001

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EI-02-013

DEVELOPMENT OF MODULAR DYNAMIC OBJECT ORIENTED LEARNING ENVIRONMENT AS AN EFFORT TO E-LEARNING AT SMK IN SOUTH SULAWESI

Mustari S. Lamada

Universitas Negeri Makassar
(mustarilamada@gmail.com)

Sugeng A. Karim

Universitas Negeri Makassar
(sugengakarim@yahoo.co.id)

ABSTRACT : *This study aims to find models of Using MOODLE to improve student SMK achievement in South Sulawesi. The research was conducted at SMK in South Sulawesi, with the object this research is the students of SMK at Computer Engineering and Network Departement. This study was designed in the two phases . The first phase, conducted a survey of Learning Process (PBM) using a conventional approach. The second phase of this research is to create a module Free MOODLE then tested in the field. Based on the results of research on the average results of the needs assessment MOODLE at SMK TKJ South Sulawesi is known that 90 % of respondents agreed with the use of MOODLE as e-learning. Furthermore, to test MOODLE Guide found that (a) aspects of the format used on the module MOODLE in category 3.25 (good); (B) aspects of language use in the MOODLE modules known to be in the category of 3.27 (good) ; (C) aspects of the illustrations used in MOODLE modules are in the category of 3.27 (good) ; (D) the aspect of clarity that is used on MOODLE modules known to be in the category of 3.25 (good). This research method testing carried out by conducting surveys, discussions with stakeholders, Conducting small group , large group, as well as in SMK TKJ desimination stage in South Sulawesi.*

Key Word: *MOODLE, E-Learning, SMK*

I. INTRODUCED

With facilities and computer capabilities, subject matter that has been manipulated through the application program will be more easily understood by learners, further enhance the interest of learners, as well as giving a boost stronger learners to follow the lessons that ultimately improve learning outcomes of students (James, 2005).

E-Learning System as a learning concept that is considered effective and efficient in order to utilize information technology to the world of education has been judged necessary to anticipate the changing era in which all leading digital era both the mechanism and content. Development of e-Learning system should be preceded by an analysis of the needs of users.

According to the development of systems and software, the needs of these users have the highest position and the implementation of e-Learning system that is mainly caused that the developed system does not correspond to what is actually needed by the user. MOODLE is one application of the concepts and mechanisms of learning that utilizes information technology. MOODLE is a name for an application program that can transform an instructional media into a web form. MOODLE is an application Course Management System (CMS) which can be downloaded free, used or modified by anyone under license GNU general



public license that is distributed by the free software foundation. MOODLE provides a complete software package.

The demands of study at Vocational High School requires students to improve their academic achievement by mastering the theories related to voting and skilled majors to process the information it receives, so ready to enter the real working world after completing the study. Observations in the field has highlighted that in general the learning process of vocational students in the province of South Sulawesi, particularly in applications Modular Object-Oriented Dynamic Learning Environment for teaching and learning process still low level.

The purpose of this paper is to describe the results of the development of a learning model based on e-learning using MOODLE Department of Computer Engineering and Network of vocational schools in South Sulawesi.

This research is important to be implemented mainly to: (1) Efforts to update the learning model and learning materials for vocational students; (2) Efforts to develop a learning model based on e-learning in a structured and innovative vocational; (3) The integration of media technology (IT) systems in vocational learning by learning to use e-learning built from Modular Object-Oriented Dynamic Learning Environment.

II. RESEARCH METHODS

A. The Model Development

Model application of e -learning instructional system development model adopted by Dick & Carey arguing that should software developers in the field of education and teaching using one of the development model that has been used by experts in the field of education (Dick & Carey, 2001).

Components of instructional models Dick & Carey (2001) are: (1) identify the purpose of teaching, (2) analysis of teaching, (3) identify entry behavior, (4) to formulate the purpose of performance, (5) developing the test items the reference benchmark, (6) develop teaching strategies, (7) develop and establish modules or teaching guides, (8) design and conduct formative assessment, (9) revising the teaching and (10) develop and conduct summative evaluation.

B. The Procedure Development

Procedures planned research done through the following stages:

1. Pre-development

The first phase development procedure, is to conduct a survey of the learning process and its relation to student academic achievement. This includes the motivation to learn , problem-solving, collaborations teacher-student, and independent learning class student of SMK South Sulawesi addition do conceptual analysis aimed at the assessment of the principles, concepts and rules associated with student achievement study of literature, journals, research reports , internet , as well as discussions with experts and peers.



b. Development

In this development , the activities carried out are :

1) . Develop Research Instruments

The instrument used in this study namely The questionnaire. The questionnaire used for the information of the students related to the teaching and learning process in the classroom .

2) . Developing Learning Materials

Develop training materials are complete write all of the materials obtained in the preceding stage , into a prototype e -learning that has been intact .

3) . Evaluation

The evaluation is intended to determine the quality of the implementation of e-learning by expert testing , test a small group (teachers) as well as a large group test (the student) . For more details of the evaluation can be seen in the post- development activities

C. The Data Collection Technique

Collection Techniques Data various types of information from various sources, will be used data collection techniques are techniques of data collection questionnaire. Questionnaire data collection techniques is done by providing a set of questions or a written statement on the implementation of EL -MOODLE. Questions in the questionnaire given to respondents to gauge the effectiveness of the use of EL - MOODLE at vocational schools in South Sulawesi.

D. The Source Data

Furthermore, the source of the data from this study is derived from: (1) The teachers of Computer Engineering and Networks , (2) Students of vocational schools Expertise Computer Engineering and Networks ; (3) Expert Learning ; (4) Expert E - Learning ; (4) document on MOODLE .

III. RESULTS AND DISCUSSION

A. Format

Based on the results of the assessment from the aspect of MOODLE module format used on the module MOODLE that the average score ratings of the respondents were in the category of 3.25 (good) . In detail 5 grains indicators are indicators of clarity modules rated with a mean score of 3.09 (good) , the appeal of which is owned modules rated respondents with a mean of 3.27 (good) , the numbering system used was rated by respondents with a mean of 3.27 , the system the layout / space got a score of 3.23 , and the type and font size gets the value of 3.41 .

B. Syntax

Based on the results of the assessment module MOODLE review of aspects of the language used on the module MOODLE note that the average score ratings of the respondents were in the category of 3.27 (good) . In detail 4 grains indicators are indicators of the use of terms of the EYD rated respondents with a mean value of 3.36 (good) . Clarity Indicator instructions / directives rated respondents with a mean value of 3.36 (good) . Simplicity



indicators sentence structure of respondents rated their mean of 3.23 (good) . The language used indicators are communicative respondents rated their mean of 3.14 (good) .

C. Illustration

Based on data in Table 4.3 on the average assessment MOODLE modules from the aspect of illustrations used on the module MOODLE note that the average score ratings of the respondents were in the category of 3.27 (good) . In detail 3 point indicator is an indicator of support illustration rated respondents with a mean value of 3.09 , the indicator has a clear display assessed respondents with a mean value of 3.50 , easily understood indicator of 3.27

D. The Clarity

Based on the data in table 4.4 on the average assessment MOODLE modules from the aspect of illustrations used on the module MOODLE note that the average score ratings of the respondents were in the category of 3.25 (good) . In detail 4 grains indicators are clear indicators that will be implemented rated aspects of the respondents with a mean value of 3.23 , the indicator linkage content with learning problems in class rated respondents with a mean value of 3.41 , the indicator attract students 3,18 . Indicators of material are grouped in sections corresponding rated respondents with average grades of 3.18 .

IV. CONCLUTIONS

Based on the results of this study concluded that :

Based on the results of the Pre - assessment module MOODLE terms of aspects format used on the module MOODLE that the average score ratings of the respondents were in the category of 3.25 (good) . With clarty indicator modules rated with a mean score of 3.09 (good) , the appeal of which is owned modules rated respondents with a mean of 3.27 (good) , the numbering system used was rated byi respondents with a mean of 3.27 , system layout settings / space got a score of 3.23 , and the type and font size gets the value of 3.41 .

Results of Pre - assessmentmodule MOODLE review of aspects of the language used on MOODLE modules are in the category of 3.27 (good) and aspects of the illustrations used are in the category of 3.27 (good) as well as aspects of the illustrations used in MOODLE modules known that the mean score assessment of the respondents were in the category of 3.25 (good)



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