Poodle

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Development of E-Learning Based Poodle (Portable Moodle) for Computer and Basic Network Subject at Vocational High School

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***Abstract*—The purpose of this study was to (1) develop E-Learning based Poodle (Portable Moodle) for Computer and Basic Network Subject (2) produce E-Learning based Poodle (Portable Moodle) on Computer and Basic Network Subject which is valid, practical and effective. In designing learning media, researchers using ADDIE development model. The resulting product is a developed media-based learning E-Learning Poodle (Portable Moodle) equipped with a guide book. This research conducted at SMK Negeri 1 Pangkep in Class X (Ten). The test subjects in this study consist of three students on one to one trial, Five students at the small group trial, twenty students on field trials, and a teacher and two observers in field trials. Instruments used in collecting the data are observational documents, questionnaire, documentation, and test. The results of this study, namely; (1) the process of learning development Poodle-based E-Learning refers to the ADDIE models that analyze, design, development, implementation, and evaluation; and (2) the product produced in the form of E-Learning based Poodle which is a valid, practical, and effective media of learning Computer and Basic Network Subject in SMK Negeri 1 Pangkep. The collected data were analyzed using descriptive techniques. Results showed that the products produced in the form of E-Learning based Poodle are valid, practical, and effective to be used as a medium of learning in computer and basic network subject in SMK Negeri 1 Pangkep.**

***Keywords*—E-Learning, learning, poodle (Portable Moodle)**

I. INTRODUCTION

Learning is basically a process of educational interaction between teachers and students. The purpose of the educational interaction involves three aspects, namely cognitive, affective and psychomotor. To achieve both goals, it requires the maximum role of a teacher in preparing the scenario of delivery of material, the use of methods of teaching, learning and teaching strategies, classroom management and teaching material or media to be used in the learning process. In addition, it is expected for teachers to be more creative in supporting learning activities in the classroom by using more interactive instructional media.

Media function in learning activities not only as property for teachers but also to deliver the learning material to students. Along with the rapid development of ICT (Information and Communication Technology), the use of learning media began to take advantage of ICT in the making process. In the last decade, the use of ICT in education has begun to popularize ranging from primary education, secondary to college, although they have variations and different utilization focus on each institution. The presence and progress of ICT in today's global communications era has provided opportunities and expansion of interaction not only between teachers and students but also among fellow students. The interaction through learning resources can happen anytime and anywhere without being limited by time and space. In addition, with the help of ICT, delivery process and presentation of learning materials and ideas can be more interesting and fun.

Vocational School (SMK) is one form of formal education unit which organizes vocational education in secondary level. SMK specifically prepare graduates to become skilled and trained workforce [1]. Multimedia skills program is one existing expertise program in the vocational high school. Graduates of this program are expected to master the basics of using ICT so that they can easily adapt to the environment and technological change and to develop themselves in order to meet labor market that has been growing in many sectors.

Based on interviews with teachers at SMK Negeri 1 Pangkep, data were obtained that from 31 students in class X Skills Program Multimedia, 18 students (over 50%) of them have a PC or laptop. This makes in the learning process; it is possible to use a PC or laptop as a media-based learning web or E-Learning. The E-learning can be made on the computer, and basic network subject which is a compulsory subject taught in class X on Multimedia Skills Program. In this course, students need to know more information about the latest information on the basic concepts of the computer, the computer operating system, and basic network because these subjects are the foundation of the subjects at the next grade level.

In the Multimedia class, in the existing situation, learning material has been delivered by using PowerPoint as an instructional media and displayed using LCD projectors. However, the use PowerPoint media in the learning process is less effective, due to it is still centered on the teacher and this is certainly not in line with the expectations of the 2013 curriculum which has already implemented student-centered learning process. In addition, the limited number of LCD projectors make the teachers must teach by using different

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lecture method as the material in the form of PowerPoint which has been prepared by teachers cannot be displayed. This causes the students only receive materials in verbal form, namely orally and in board-writing by the teacher. It makes students tend to be less interested, which can be seen from the response of students who are less active in the learning process. Availability of facilities such as a laptop/ PC which is owned by the students became not utilized properly so that the student's skills in using and utilizing the laptop cannot be developed well.

In order to overcome this, a media that can help students and teachers to maximize the resources available are needed. Therefore, the development of instructional media based Open Source LMS, Moodle which is portable, is essential in the school.

Poodle (Portable Moodle) is an open source software package that can run Moodle and their content (courses, resources, quizzes and so on) on PC or laptop offline. A poodle can be installed on a PC desktop/ personal laptops, and can also be installed on the flash / CD-ROM / Memory Card / Hard Disk. Furthermore, teachers can create course content (resource offline activity), to further taught and learned by the students. Students can also work offline on quiz activity and can do self-assessment offline anyway. Because it is offline, the Poodle does not automatically connect to the official website of Moodle. Even so, all needs related to Moodle has been available in this software [2].

II. METHOD

This type of research is the Research and Development in particular in the form of product-based learning using Portable Moodle to produce E-Learning which is applied to the computer and basic network subject. Development model used in this study is the ADDIE (Analysis, Design, Development, Implementation, and Evaluation) model [3].

The subjects were the students of class X Multimedia SMK 1 Pangkep on the computer, and basic network subject with the total amount is as much as 28 students. The sample in this study is a trial of one to one or individual, small group testing, and field trials. The following is the data subject in this study:

TABLE I. SUBJECT RESEARCH

Trial Type	Number of Subjects
Trial one to one	3 people
The small group trial	5 People
Field trials	20 People

Data collection techniques in this study using observation, questionnaires, testing, and documentation. The data obtained in the study will be analyzed using descriptive techniques [4] the following formula:

$$\text{Percentages} = \frac{\sum x}{\text{SMI}} \text{ x } 100\% \qquad (1)$$

Information :
$\sum x$ = Total score
SMI = Maximum Score Ideal

The range of percentages and criteria of validity media-based learning E-Learning Poodle presented in Table 2.

TABLE II. THE RANGE OF PERCENTAGE AND QUALITATIVE CRITERIA FOR THE VALIDITY OF THE PRODUCT

The range of the percentage (%)	Qualitative criteria
85.01% - 100%	Very Valid
70.01% - 85%	Valid Enough
50.01% - 70.00%	Less Valid
01.00% - 50.00%	Invalid
Source: Sung et.al [5]	

Analysis of the effectiveness of data obtained through the results of tests/ evaluations of students of class X Multimedia SMK 1 Pangkep in the second semester of the academic year 2017/2018. Poodle-based learning media is effective if 80% of the value of the test learners achieve minimum achievement standard or in Indonesia called as KKM [6], KKM standards is a minimum achievement standard of student that must be meet by students in every subject in every school in Indonesia. This standard can be different for each school as it is obtained by using several evaluation processes conducted by local educational office and schools. KKM value used in SMK 1 Pangkep is 75. Moreover, in using the instrument test, the effectiveness of the Poodle based learning media can also be seen on the enforceability of the whole process of learning to use the Poodle. Implementation was assessed by using an observation sheet that is carried out by two observers. The data obtained from the two observers were analyzed using descriptive techniques percentage formula.

The range of percentages and criteria for the effectiveness of media-based learning E-Learning Poodle is presented in Table 3

TABLE III. THE RANGE OF PERCENTAGE AND QUALITATIVE CRITERIA EFFECTIVENESS PRODUCTS

The range of the percentage (%)	Qualitative criteria
85.01% - 100%	Very effective
70.01% - 85%	Effective Enough
50.01% - 70.00%	Less effective
01.00% - 50.00%	Ineffective
Source: Sung et al. [5]	

III. RESULTS AND DISCUSSION

A. Learning Development Process E-Learning based Poodle (Portable Moodle) on the computer and basic network subject

In the previous section, it has been described that the development of learning E-Learning based Poodle used an ADDIE model which consists of five stages namely,(1) analysis (analyzing the learning needs),(2) design (planning),(3) development (4) implementation (field trial), and (5) evaluation.

1) Need Analysis: At this stage, the main activity is to analyze the need for the development of instructional media. It also analyzes the feasibility and the terms of the development of learning-based E-Learning Poodle. This stage includes the collection of preliminary information that includes a literature review, field or classroom observation. The data included existing information, especially the

theories and concepts that are relevant to the development of this learning media.

2) Stage Design: Based on the discussion at this stage of analysis, E-Learning Poodle based on computer and basic network subject were developed. The purpose of this stage is to prepare a lesson plan based E-Learning Poodle. This stage includes the steps of selecting media, preparing a format for learning devices such as syllabus and learning plan based curriculum 2013. The preliminary draft included the draft of syllabus, lesson plans, E-Learning based Poodle, user, and instruments. The instruments consisted of validation, an instrument for obtaining a response from teacher and student, instrument enforceability, and pretest-posttest instruments.

3) Stage Development: This stage aims to produce E-Learning based Poodle revised based on input from experts and feedback from the testing instrument. The steps in the development stages, namely: validation by subject matter experts and media specialists, one to one and small group test.

4) Stage Implementation: The result of developed media at this stage of development later will be tested to 20 students of class X Multimedia.

5) Stage Evaluation: This evaluation phase conducted at any stage of development, from the stage of the analysis, design, development, and implementation.

B. *Valid Learning Quality, Effective, and Practical computer and basic network subject using E-Learning instructional media based Poodle*

1) Validity: Based on the evaluation of two validators, all components of media are declared as valid but still need a minor revision. After being revised based on the advice of experts, the results of the validation analysis can be seen in table 4 below

TABLE IV. SUMMARY OF INSTRUMENT VALIDATION

No	Aspect of Validation	The result (%)	Category
1	Media	90.28	Very Valid
2	Material	94.23	Very Valid
3	Learning Plan	90.35	Valid
4	Guidebook	97.27	Very Valid
5	Teacher Response	86.11	Valid
6	Student Response	86.11	Valid
7	Poodle implementation	90.27	Valid
8	Pre-test & Post test	84.27	Quite Valid

2) Practicality: In general, the results of the trial process were eligible in practicality. All validators provide an assessment that the components can be used with little revision. To know more details about the practicality of E-Learning based Poodle, it is then tested to know the response of teachers and students. As for the students' responses can be viewed through three stages of trials that are : one to one or individual, small group and field test. To know more details about the trial results, it will be discussed in detail below.

a) Student Response: Based on the responses given by students in three stages, namely the trial of one to one involving three students, followed by a small group of test used a sample of 5 students. Students are given the opportunity to use the developed E-Learning. While field trials conducted after small group test finished and products had been revised based on input and suggestions given by students at the previous two tests. The field trials conducted using a sample of 20 or closer to actual learning conditions. There have been a significant improvement results from those three tests. These results can be summarized in Table 5 as follows:

TABLE V. SUMMARY OF RESPONSES STUDENTS

Aspect	Test 1	Test 2	Test 3
Application	80.00	89.00	90.19
display	68.75	87.50	88.75
Content	69.79	85.63	89.69
Language	72.92	82.50	92.81

b) Teacher Response: The data collection is done by the teacher's response involving a teacher of computer and network base. Teachers were given a questionnaire about the E-Learning-based Poodle. The teacher's response results in the category very good with an average percentage of 88.89%.

3) Effectiveness: Analysis of data obtained through observation to assess the effectiveness of the developed media through all activities of teachers and students conducted in the learning process. The effectiveness of the E-Learning instructional media based Poodle on the computer and basic network subjects also seen from the test results of class X student of SMK Negeri 1 Pangkep Multimedia academic year 2017/2018. The learning process will ultimately require the test. The results of those tests will illustrate the results of learners [7]. E-Learning instructional media based Poodle on the computer and basic network subject is effective if 80% of the value of the test learners achieve KKM [6], KKM standards used by the computer and basic networks subject in SMK 1 Pangkep is 75.

a) Implementation: Recapitulation of implementation Poodle use in teaching and learning obtained an average percentage of 92.01% which indicates that the observed aspects and criteria implemented as a whole are very effective.

b) Tests of Learning Outcomes: Test learning outcomes of students after using the E-Learning instructional media based Poodle on the subjects of computer and network Multimedia has been qualify with an average value of 77.5. Out of 20 students who have been tested, 18 of them have reached KKM which means media-based learning E-learning Poodle were effectively used.

IV. CONCLUSION AND SUGGESTION

Based on the results of research and development, it can be summarized as follows:

- The process of E-Learning based Poodle on the computer and basic network subject has been developed using ADDIE development model consisting of five stages namely, (1) Analyze; a needs analysis to determine the problem and the appropriate solution and determine the competence of students on the subjects of computer and basic network

subject.(2) Design; determine specific competencies, methods, teaching materials, and learning strategies, (3) Development; develop E-Learning based Poodle, (4) Implementation; implementing learning programs to apply lessons using E-Learning based Poodle, (5)Evaluation; This evaluation phase conducted at all stages, especially at the stage of design and development stage.

- Products produced in the form of E-Learning based Poodle which is valid, practical, and effective to be used as a medium of learning in computer and basic network subject in SMK Negeri 1 Pangkep. It can be seen from the results that all criteria have been categorized as valid. Moreover, effectiveness criteria are adherence to 92.01% in the excellent category and based on students' test results are from 20 students who tested, 18 of them have reached KKM which means E-learning based Poodle media is in the effective category.
- E-Learning Poodle can be developed based on the subjects either adaptive, normative, and productive which are compatible with the use of portable media. It can be used as a source of learners independently and perform self-assessment at school or at home.

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