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Electronic module development of audio processing techniques subject to twelveth multi media graders in vocational high school.

Lamjan H. Susarno
Universitas Negeri Surabaya, Surabaya, Indonesia

Abstract: Electronic modules are packaged teaching materials systematically in the form of presentation of learning materials in a digital or electronic format that is Self Instruction, Self Contained, Stand Alone, Adaptive, and User-Friendly containing a learning material. Students are expected to be major in the use of electronic modules. Subjects that require independent learning is the subject of audio processing techniques.The model used is a model development Research and Development (R & D). Based on the analysis of questionnaires by subject matter experts and media concluded that the media very well. And proved also by the results of a questionnaire testing small groups categorized splendidly with the acquisition of a percentage of 96%, and the test results are categorized questionnaire large group very well with the acquisition of a percentage of 96,9%. So that the results of the value of the pre-test and post-test performed on a control class and experimental class using test data analysis test obtained was 8,098 and the distribution table t-test with the significance level of 5 % was obtained = 2,68. the Ho rejected and Ha accepted.

1. Introduction

According to Wahano (2015: 1), secondary vocational schools is prepared to print School graduates who are competent in the field in order to directly enter the workforce. Secondary vocational schools are also important to prepare students who excel in knowledge, attitudes, and skills.

The results of observations conducted at SMK Surabaya. The school is equipped with supporting facilities to improve the competence of learners such as; Computer Lab, Language Lab, Library, Smesa Mart, and the Internet 24 hours. And interviews with subject teachers techniques audio processing class XII Multimedia 3 is of 33 students found 10 students who have not been able to understand the software/ the understand in addition to the operation of the audio editing software that is the audio recording process.

Media which students need is a medium that can be used study independently at home or at school. During school hours teachers give more practice than the theory that the basic theory of the material cannot be delivered to students. Therefore, the required electronic modules are aimed to aid the learning process. With the electronic module, students can study at home or at school with help or without the help of a teacher. Electronic modules can be studied anywhere and anytime using the laptop.

Media electronic module is a packaged media digital modules containing multimedia. Inside, there is a basic material processing techniques and audio or video tutorial theory or practice examples that can be seen, students. The subject matter of the audio processing techniques are explicit materials tutorial/procedural require audiovisual material shaped to be accommodated by the students. This electronic module contains media contents print modules and loads the video tutorial that had students get from YouTube internet media. Thus, students can learn in a very practical media. With electronic media this module, students have learning media practical and efficient. In addition, with this electronic module students can learn independently and be able to complete the task subjects this audio processing independently for all students in the class XII Multimedia 3 have their own laptop.

2. Methodology

Development model used in this study is a model of the development of Research and Development (R&D) from Borg and Gall (2003), has the objective to develop and validate the product. According to Sugiyono (2013: 298) the steps of research and development there are to ten steps as follows: a) the potential and problems, b) data collection,c) the design of the product, d) validation of design, e) revision of the design, f) test products, g) the revision of the product, h) utility testing, i) the revision of the product, and j) mass production. In this study, the products will be tested on the two subject matter experts and two media experts, to review the results of the product, after review of products will be revised based on feedback from both expert content and media expert. And the next will be tested to the students to see the results of student responses.

Data obtained from the subject matter experts and media as well as the responses of the students will be analyzed using questionnaires. The questionnaire is to subject matter experts, media experts, and students. To analyze the questionnaires using the following formula:

$$PSA = \frac{\sum \text{Alternative answers selected in every aspect}}{\sum \text{Alternative ideal answer in every aspect}} 100\%$$

Assessment criteria:
81% - 100% = Excellent
61% - 80% = Good
41% - 60% = Fair
21% - 40% = Poor
0% - 20% = Very poor
(Arikunto, 2010: 57)

The data were taken in this study there was another group that did not receive an experiment but get their hands observations. With the other group is a control group or a control group. It is obtained from the treatment are already known with certainty as compared to the untreated. The design of the study is a Control group pre-test-post-test and is described as follows:

E	O_1	X	O_2
K	O_3	X	O_4

Description:
E is the experimental group
K is a control group
O1 is the experimental class pretest
O3 is a pre-test on the control class
O2 is the posttest in the experimental class
O4 is posttest in control class
(Arikunto, 2010: 125)

In this design the developer to compare the pre-test and post-test between the experimental group and control group by using the following formula:

$$t = \frac{M_y - M_x}{\sqrt{\left(\frac{\sum Y^2 + \sum X^2}{N_y + N_x - 2}\right)\left(\frac{1}{N_y} + \frac{1}{N_x}\right)}}$$

Description:
M: The average value per group results
N: Number of subjects
X: Deviation of each value and
Y: Deviation of each value and
(Arikunto, 2010: 86)

3. Results and Discussion.

In this chapter, the developers will present media development activities that have been adapted to the development of model development procedure Research and Development (R & D) by Sugiyono (2010), and the data obtained with the results of product development Electronic Modules media. Following is a description of steps Electronic Modules media development:

a. Potential and Problems

Early stages of development of electronic modules media are done by direct observation in State Vocational Schoo Surabaya. Based on observations made in class XII. Multimedia 3, there are real conditions of learning have been identified, namely: 1). Lack of instructional media on audio processing techniques subjects to the curriculum in 2013. 2). Results of interviews with subject teachers XII class audio processing techniques Multimedia 3 is students cannot understand the software/digital tool used in giving effects audio tracks, students seem less understand buttons and usability of the software. 3). It takes the form of audiovisual media for Audio Processing Technique Lessons eye is the subject to productive consisting of theory and practice. 4). Based on the analysis of class XII students Multimedia 3 SMK Surabaya, all students have laptops that are used in learning.

b. Data Collection

Once the potential and problems can be shown subsequently to be collected various data that can be used as the material for a particular product planning are expected to tackle the problem, the data obtained by means the (1). Interview. To gather preliminary data include characteristics of students, media and learning methods used, as well as difficulties in the learning process in class, 2). Documentation. Documentation used to find data on the form planning for learning, worksheets, a list of values and a list of student names.

c. Product Design

In the design phase of electronic modules media products using three designs that material product design, product design media electronic modules, and design of electronic compact disk (CD) modules.

1). Product design material. This stage is informationgathering activities or materials from various sources, both from the teacher of audio processing techniques, modules, and the internet

2). Media product design electronic module: a) Make a Storyboard, Format b) Development of Electronic Media Module. The next step after creating a storyboard is entered at step developers realize the storyboard into a medium of electronic modules using Corel Draw X4 and Adobe Flash CS3.

3). Compact Disk product design Electronic Modules. At this stage, the developers made the cover of the CD media created using Corel Draw X4 software.

d. Validate Design

The design validation process is to assess the activities of the product design. This aims to find flaws in the product. Validation addressed to two people 2 people matter experts and media specialists by means of a structured interview. Here's an explanation of validation of subject matter experts and media experts

e. Improved Design

1). Revision Expert Content. After getting the results of the validation of input materials experts about the material contained media in the electronic module media

2). Revised Media Experts.After getting the results of the validation of the media expert input on the media are electronic modules

f. Test Product

After conducting the production of electronic modules media subjects audio processing techniques through the revision of the material and media experts. The next step is testing a small group of products which amounted to 10 students in the class XII SMK 1 Surabaya Multi Media.

g. Revision of Products

After testing on a small group, there are revisions that change the font and give a color change on the navigation button. The results of these tests are used to improve the final result of the product before the test in a large group in the class.

h. Trial Use

After revising further product trials testing the use of a large group aimed at MM XII grade students SMK Surabaya amounting to 23 students. The trial is over emphasized for students to learn independently. As a comparison to the results of a study, taken control classes where the class is only given a learning method as usual without using the medium of the electronic modules.

i. Revised Product

After the trial use of the large group was finished, the product was revised back to get the feasibility of the use of media in the classroom learning and the improvement of the overall learning media

j. Mass Production

After a revision of the media products of electronic modules can be used in teaching subjects XII class audio processing techniques Multimedia-3 vocational high school inSurabaya.

4. Data Analysis

In this phase, the data obtained from the questionnaire of students and student test results. The results of the data analysis are used to the conclusions of the products that have been developed.

Based on calculations using t-test formula obtained a value of 8.098 which is then consulted with the distribution table t-test with the significance level of 5%, and the degree of the divisor (df) = $(N_1 + N_2)$ - 2. Then come df = (23 + 23) - 2 = 44. In the table could not be found t-test difference (df) 44, then enter df classified df44 40 In the table of the t-test difference (df) 44 gained 2,68. It turned out to be greater than or 8.098>2,68 so that Ho refused and Ha accepted or proved that the development of Electronic Modules media Subjects Audio Processing Techniqes class XII student vocational high school Surabaya can improve student learning outcomes.

5. Conclusion

After going through the stages of development using a model of the development of R & D (Research & Development) of Sugiyono, starting from the preparation of the development and implementation of electronic modules media development or testing and evaluation of media, the data obtained from the development of electronic modules media on subjects Audio Processing Techniques in Multimedia XII grade students of State Vocational School Surabaya can be concluded as follows:

All of the validation to subject matter experts and media specialists, test a small group and large group trial that has been done, it can be concluded that the media electronic modules on subjects Audio Processing Technique Multimedia Class XII have been worthy of instructional media.

The electronic module Media influence on improving student learning outcomes XII graders of State Vocational School (SMK) Surabaya in Audio Processing Techniques subjects. This is shown by the high value of the posttest compared with the pre-test after using the medium of electronic modulles.

Suggestions: a). Dissemination. The development of the products with the electronic module subjects audio processing techniques. If this medium is used in other educational institutions is necessary to do the identification and analysis of needs, because every institution has the characteristics of students and different problems. So, if in the analysis of the needs, characteristics and the same data, this media can be used in other schools. b). Product Development More. It is expected that further development, should their updating reference material from other sources, especially on new sources of information.

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