

The Development of E-Learning Media for Audio Video Department in Vocational High School

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Abstract

This research aims to determine the learning management of audio video department in vocational high school and to develop suitable e-learning media for audio video students that meet the criteria of validity, practicality and effectiveness. This research focuses on developing e-learning media, which following the ADDIE model. The results show that: (1) the development of instructional media e-learning on a set of skills audio video Vocational High School is carried out through several stages, i.e., need analysis, design, development, implementation, and evaluation, (2) e-learning media has fulfilled validity criteria covering the aspects of the application, display, and content. The developed e-learning media is categorized as practical since all aspects of learning is in the very good category. The results also show that e-learning media is effective; it can be seen from the students' activities in the learning process both categories, and generally respond well to medium learners e-learning developed.

Keywords

E-learning Media, Vocational School, Blended Learning

I. Introduction

Vocational high school (SMK) is one of educational institution, which is responsible for creating human resources with competences, skills, and expertise, which eventually after graduation they are able to develop their performance in work place. Law of National Educational System article 15 of Ministry of National Education [1] stated that Vocational Education is a secondary education, which prepares the learners to work in certain field. The existence of Vocational High School is demanded to be able to fulfill the need of society, which is the need of professional labor. Professional labor can be obtained through vocational education. Thus, learners are demanded to have skill and professional attitude in their field. The objective of vocational high school curriculum, according to Vocational Secondary Education, is to create learners or graduates who are able to (1) enter work place and develop professional attitude, (2) choose carrier, compete and develop themselves, (3) become secondary labor to fulfill the need of the current and the upcoming work place/ industry, (4) become productive, adaptive and creative labor [2]. To achieve the aforementioned objectives, Vocational High School has to increase the quality or grade of education. The effort of increasing quality of education can be done through three dimensions, which are educational input, educational process, and educational output. Input is related to learners who become educational subject. Educational process includes facilities and infrastructures of education, while output is the expected result in the concerned educational process. Therefore, it is expected that those three domains can be coordinated in achieving the quality of the education.

Vocational High School is formal educational institute, which is vocational and produces many graduates in each year. Graduates of vocational high school are able to work more independently than the graduates of general senior high school. However,

many teachers have not been able to show their competence in educational process thus many learners cannot obtain the expected competence.

The same problem happens in SMKN 2 Makassar in which learners' motivation in learning is low. This can be seen through their low interest, their attitude that shows their boredom and their unwillingness in following the learning process. If learners' motivation in learning decreases, it can affect the learners' learning achievement. The result of observation and interview done in February 3rd, 2014 by the head of electronics engineering department of SMKN 2 Makassar shows that the average score of learners' learning achievement of eleventh grade students in Basic of TV Video Signal and System subject in SMK 2 Makassar is still low. Based on DNK (the List of Competence Score) for productive subject, there are a lot of learners who have lower score than the Minimum Criteria of Mastery Learning (KKM) which is 70. This is in line with the average score of learners' learning achievement in eleventh grade, which is 66.94 that shows that the average learning achievement of the learners is still below the standard. Besides, in that school, some learners are dropped out especially in eleventh grade. From electronics engineering department, two learners drop out.

Based on the interview on November 9, 2013 with a teacher of TV Receiver subject in SMKN 2 Makassar, the teacher stated that one of the factors that cause less optimum of learning process in vocational school is the incomplete discussion of the learning material optimally due to the wide scope of the material. That fact causes some materials skipped, which makes it difficult for learners in learning.

The result of observation done by the researcher shows that vocational education in SMKN 2 Makassar is conducted through face-to-face meeting in class with supporting facilities and infrastructures. However, the use and the development of those facilities and infrastructures have not been optimum yet. Besides, the learning method conducted in the classroom has less variation. Most of the teacher use lecture method. Teachers cannot design learning scenarios, which make the enjoyable learning atmosphere. This is highly related with their pedagogic competence, which is creative and innovative learning process.

The implementation of e-learning is one of technology innovations in learning which integrates informational technology and communication with the content of the subject. E-learning is an educational activity which is conducted either individually or collectively either online or offline through network or personal computer and others electronics devices [3].

Although e-learning can be done independently by learners, but the existence of teacher becomes very important as an adult who gives supports and guides the learners during the learning process. In other words, every meeting process becomes important and cannot be skipped in the learning process. Therefore, learning model using e-learning in audio video department is integrative and systematically expected to make the learning process becomes more practical and effective. The objective of this study is to

produce e-learning media for Audio Video Department, which fulfill the validity, practicality, and effectivity to be used in Vocational High School (SMK).

A. E-Learning

The word e-learning consist of two parts, which are e and learning. E is an abbreviation of 'electronic' while 'learning' means learning process. Thus, e-learning means a learning process which uses electronics devices as a learning aid. E-learning is a learning system or concept which makes use of technology in the learning process. Below are some interpretations of e-learning from some sources:

1. E-learning is every learning activity that uses electronic technology as the aid.
2. Learning, which is designed with the objective of using electronic system or computer to support the learning process [4].
3. Long distance learning, which combines the principals in the learning process using technology [5].
4. Learning system, which is used as a medium in the learning process, is conducted without face-to-face meeting between the teacher and the learners [6].

Based on the aforementioned interpretations, it can be concluded that e-learning is a learning environment which uses internet, intranet and web based technology in accessing the learning material and makes the learning interaction among the learners and learning everywhere and every time are possible to happen. A researcher states that e-learning is not the same as conventional learning [7]. E-learning has the following characteristics:

- Interactivity; the availability of various communication line, either directly (synchronous), such as chatting or messenger or indirectly (asynchronous), such as forum, mailing list or guest book.
- Independency; the flexibility in terms of time, place, teacher, and materials. It can make the learning process becomes more focused to the students (student-centered-learning).
- Accessibility; the learning sources are easy to be access through the distribution in internet network, which has wide access than the distribution of learning materials in conventional learning.
- Enrichment; the learning activity, the learning materials presentation and the training materials as enrichment, make it possible for the use of informational technology devices such as video streaming, simulation, and animation.

II. Research Method

This study is a research and development study. It is focus on the development of e-learning media for audio video department in SMK Negeri 2 Makassar. The development model of this e-learning media is using ADDIE model. that there are five stages in the development model of ADDIE, which are Analysis, Design, Development, Implementation, and Evaluation [8]. The subjects in this development of e-learning media for audio video department are the experts of media and material, which are competent with media and material used in the e-learning media. There are two experts of media. There are two experts of material and one teacher of SMKN 2 Makassar. The other subjects is teacher of SMKN 2 Makassar and eleventh graders majoring in Audio Video Engineering Department in SMKN 2 Makassar and SMK Kartika Makassar.

In obtaining the data for this study, questionnaires and learners' score in the end of the learning process were analyzed. The questionnaire were used in obtaining the data from the experts of media, experts of material, teacher, and learners. Questionnaires for experts of media and material are used to know the feasibility of the developed media. Questionnaires for teacher and learners are used to know the perspective of teacher and learners on the developed media. Test is also used to know the mastery degree of the students on the material after using e-learning media. The Table 1 shows the classification of feasibility criteria.

Table 1: Feasibility Criteria

Score	Criteria
>3, 25 – 4	Very Feasible
>2,5 – 3,25	Feasible
>1,75 – 2,5	Less Feasible
1,0 – 1,75	Not Feasible

III. Findings

Research and development of e-learning media is conducted using ADDIE model with the following stages: (1) Analysis, (2) Design, (3) Development, (4) Implementation, (5) Evaluation. The product of this study is an e-learning material consists of material for audio video department. The presented materials are material taught in the third semester of eleventh grade of Audio Video Engineering in SMKN 2 Makassar. The materials are consists of four topics which are acoustics, psychoacoustics of human hearing, microphone, and a series of front audio power amplifier. The following is the cover of the e-learning website.



Fig. 1: The Cover of E-learning Website

A. Data from Media Experts

Experts of media give some suggestions for revising the product. The suggestions are: (1) to make the color of the font varied, (2) to provide exercises such as final exam taken from each task in each topic, (3) the need of supporting lesson plan, which leads the learners in using e-learning media. (4) to provide space to upload task made in every topic, (5) to make quiz in some pages. The result of validation made to know the validity from the point of view of experts of media. The result of this validation can be seen in the questionnaires filled by the experts of media. The following is the validation result from the experts of media.

Table 2: Validation Result from the Experts of Media

No	Aspect	Average	Category
1	Appearance	3.74	Very good
2	Interactivity	3.69	Very good
3	Benefit	3.64	Very good
Average Score		3.69	Very good

Table 2 gives information that experts of media give average score 3.69. Based on the criteria of feasibility on Table 1, thus the final assessment of media experts on the product is categorized as very good.

B. Data from Content Material Experts

Experts of Material gave some suggestions for revising the product. The suggestions are: (1) the use of English needs to be changed into Indonesian, (2) the materials to not only in PDF form, (3) the materials to be in form of video uploaded in e-learning by embedded it, (4) the need of additional material in animation form.

The result of validation given to know the validity of the product from the point of view of material experts. The result of the validation can be seen in the questionnaires filled by the experts of material. The following is the validation result from the experts of material.

Table 3: Validation Result from the Experts of Material

No	Aspects	Average	Category
1	Content	3.6	Very Good
2	Language	3.45	Very Good
Average		3.52	Very good

Table 3 gives information that experts of materials give assessment with average score of 3.52. Based on the feasibility criteria set on Table 1, the assessment of experts of material on the product is categorized as very good.

Data from the Implementation Result

Table 4: The Implementation Result on Teacher or Educator

No	Aspect	Average	Category
1	Media	3.67	Very good
2	Material	3.31	Very good
3	Benefit	3.50	Very good
Average Score		3.49	Very good

Table 4 shows the information that teacher or educator gives assessment on the product with average score 3.49. Based on the feasibility criteria set on Table 1, thus the assessment of the teacher or educator on the product is categorized as very good.

The feasibility test of the product on the learners are obtained from questionnaires, while data of test result is obtained from assessment sheet. The result of the questionnaires can be seen in Table 5. Distribution of data category is made prior to the test. The distribution of data category is based on the ideal score, which has been standardized on Table 1.

Table 5: The Result of the Implementation of e-learning Media on the Learners

No	Aspect	Average	Category
1	Media	3.27	Good
2	Material	3.22	Good
3	Benefit	3.41	Good
Average Score		3.30	Good

Table 5 shows the information that learners give assessment on the product with the average score of 3.30. Based on the feasibility criteria set on Table 7, thus the assessment from the users, learners, is categorized as good.

IV. Discussion

A. Learning Process

The result from the observation before the development of e-learning media shows that the learning process in SMKN 2 Makassar starts to implement the system from Curriculum 2013. Based on the observation of the researcher, teacher forms small groups in every learning process. Teacher explains the materials before the discussion. Teacher explains by directly explaining the material on the white board. During teacher’s explanation, learners seem uninterested and do not pay any attention to the teacher. Teacher gives task to every group to discuss, but during the discussion process learners tend to discuss things, which are out of topic of the appointed topic. During the learning process, learners were busy with their own computer and internet; however, computer and Internet were not used to look for the learning materials. Meanwhile, the use of Internet has not been used for learning or it can be said that e-learning has not been conducted in learning process.

B. The Result from Media Experts

The assessment from experts of media on e-learning media shows the average score 3.49 of 4 which criteria can be seen in Table 7. The result of product test from those two experts shows that e-learning media is “very good” to be used as media in the learning process. However, it does not close the possibility of the need to revise the product. The result from experts’ assessment on the product shows in the fig. 2.

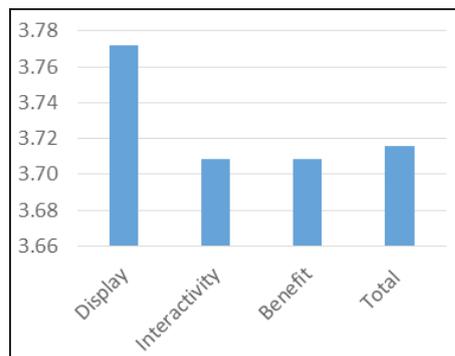


Fig. 2: The Assessment Result of Media Experts

C. The Result from Experts of Material

The assessment from the experts of material on the e-learning media shows the average score 3.08. Based on the Table 3, the result of the assessment from experts of material shows that the product is “good” to be used. However, it does not close the possibility of the need of revision for the product from the experts of material. The result from the experts of material can be seen through the fig. 3.

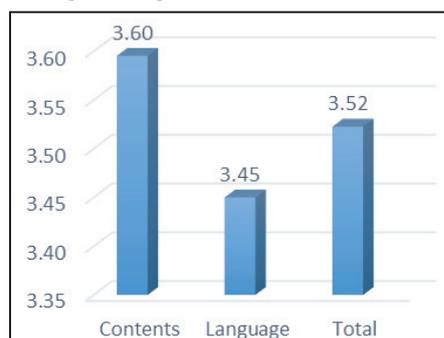


Fig. 3: The Assessment Result of Content Material Experts

D. Implementation Result

The result of product try out conducted on two teachers obtained the average score 3.51. The result shows that e-learning is “very good” to be used as learning media. That result shows that teachers’ perception is very good on the product.

The result of assessment from the teacher can be seen in the fig. 4.

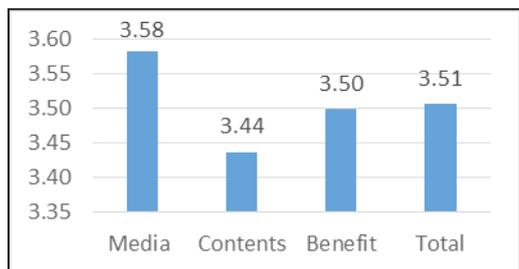


Fig. 4: Implementation Result on Teachers

The try out on 16 learners obtained the average score of 3.19. The result shows that e-learning is “good” to be used as learning media. That result shows that learners’ perspective on the product is good. The result of learners’ assessment can be seen from the fig. 4.

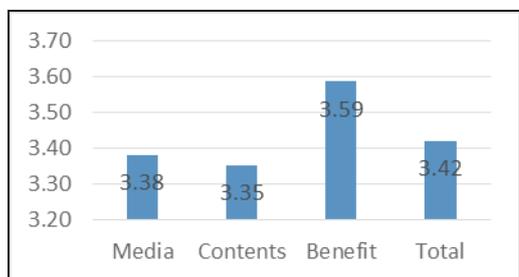


Fig. 5: The Implementation Result on Learners

Based on the discussion above, experts of media categorized the product as “very good”, experts of material categorized the product as “good”, the result of implementation on teachers categorized the product as “very good”, the result of implementation on teachers categorized the product as “very good” and “good”. Therefore, it can be concluded that e-learning is feasible to be used as learning media in audio system Engineering subject in Audio Video Engineering department of SMKN 2 Makassar. This media is expected to be able to help teachers’ performance and be able to help learners during the learning process.

E. Hypothesis Testing

Hypothesis testing was done using independent sample test. Based on the score in pretest and posttest data in experimental class, it is obtained that gain was normalized in experimental class for 21.38 and control class for 15.44. Those numbers were interpreted in criterion score (g). It shows that the effectivity of e-learning media in experimental class is considered as medium.



Fig. 6: Total Value in Experimental Class and Control Class

From the comparison of those gained value from experimental class and control class, it can be concluded that the effectivity of e-learning media in experimental class is higher that in control class which uses conventional media.

V. Conclusion

Based on the problem of the study, the objective of the study and the discussion, which had been explained, it can be concluded that:

1. The learning process of audio video department in SMKN 2 Makassar uses Curriculum 2013, in which the learning process is conducted through face to face meeting in classroom and laboratorium with the supporting facilities and infrastructures. However, the use and the development of facilities and infrastructures have not been maximized. Besides, the implemented learning method is not varied. Most of the time, learning method used is lecture. Teacher rarely designs learning process which creates joyfull learning process. E-learning model for audio video department is valid. It can be known from the result of experts of media and material oppinion who conclude that the product is feasible to be used.
2. E-learning model for audio video department is very easy according to the oppinion from the users, teachers and learners, who conclude that it is feasible to be used.
3. The average score of the learners who learn using e-learning media is higher compared to those who use conventional media. Therefore, the effectivity of e-learning media is higher than conventional media.

The conclusion of this study is expected to make the school to make use e-learning media maximally to increase learners’ learning outcome. Besides, it is better for the school to use e-learning in other subjects with suitable characteristics with audio video department which has been tried out and draws conclusion that e-learning media is effective to improve learners’ learning outcome.

References

- [1] National Educational System. UU Sistem Pendidikan Nasional pasal 15. Jakarta: Depdiknas, 2006.
- [2] Vocational Secondary Education. Kurikulum SMK. Jakarta: Dikmenjur, 2006.
- [3] Naidu, S. E-learning: A guidebook of principles, procedures and practices. New Delhi: Aishi Creative Workshop, 2006.
- [4] Michael, Allen. Michael Allen’s Guide to E-learning. Canada: John Wiley & Sons, 2013.
- [5] Chandrawati, Sri Rahayu. Pemanfaatan E-learning dalam Pembelajaran. Vol. 8, No. 2. [Online] Available: <http://jurnal.untan.ac.id/>, 2010.
- [6] Ardiansyah, Ivan. Eksplorasi Pola Komunikasi dalam Diskusi Menggunakan Moodle pada Perkuliahan Simulasi Pembelajaran Kimia, Universitas Pendidikan Indonesia, Bandung-Indonesia, 2013.
- [7] Rusman., Kurniawan, Deni. & Riyana, Cipi. Pembelajaran Berbasis Informasi dan Komunikasi. Jakarta: PT Raja Grafindo, 2011.
- [8] Pribadi, B.A. Model Desain Sistem Pembelajaran. Jakarta: Dian Rakyat, 2009.