Development of Tutorial Video Media Based on Project Based Learning in Class XI State of SMKN 1 Lubuk Pakam

Fahrul Rozi[1], Abdul Hamid K[2], Keysar Panjaitan[3]
{ fahrulrozilbs93@gmail.com }

Education Technology Postgraduate of Medan State University, Indonesia[1,2,3]

Abstrak. This research aims to: (1) know the feasibility of the media Video tutorial based on the project based learning software application and interior building, and (2) to determine the effectiveness of the use of media video tutorial based project based learning on software application learning and building interiors can improve the learning outcomes of software applications and building interiors. This type of research is development research using R&D models from the Borg and Gall combined with the Dick and Carey instructional design models. The method used in this study is a quasi-experimental method. The results of the hypothesis test study prove that there are significant differences between the learning outcomes of software applications and building interiors that are studied using video based tutorials on project based learning with the learning outcomes of software applications and building interiors that use visual media.

Keywords: video tutorials, project based learning, media visual, learning outcomes, software applications and interior building.

1. Introduction

Lubuk Pakam State Vocational School Has a Building Modeling and Information Design Expertise Program carrying out a series of learning activities covering various engineering training subjects. Training courses in the Building Design and Information Design expertise program can be classified into three, namely: normative training courses, adaptive training courses and productive training courses. Of these three training courses, productive training courses are skills training courses that are directly related to student skills. One of the productive training courses received by students of class XI Building Design and Information Design Expertise Program is Building Software and Interior Applications. In the Software Building and Interior Application subjects, students are expected to have expertise and skills in Drawing With Software using software, such as Autocad.

Based on observations at SMK Negeri 1 Lubuk Pakam it was found that in the learning that took place the teacher only explained the material visually so that the students only focused on the teacher was impressed students could not directly practice it on their computers, but the learning was still felt to be less detailed and effective. The media used by the teacher has not been able to increase student interest in learning. In addition, visual media has not facilitated students learning independently.

Submitting practical material is not enough just to explain with visual media only, To overcome this, we need learning media that can support the teaching and learning process. Thus the teacher no longer has difficulty in explaining the material and not only relies on the material contained in the e-book but can be supplemented with instructional video tutorial media on the material How to Draw Window and Door Construction and Ventilation With AutoCAD.

Chen [1] in the results of his research explained that the video tutorial as part of curriculum-based skills, meaning effective methods to be introduced for novice students. Thus the video tutorial can provide students with knowledge but also motivate learning and be able to follow the process of the teacher delivering the material with the video so it is suitable for teaching in skills. Nasir [2] in his research results explained that the video tutorial not only provides knowledge to the audience but also motivates them to learn. Henderson, Selwyn dan Aston [3] in the results of his research explained that has shown the video in an authentic context, allowing students to have the use of very special controls, for example if students skip the parts they already know or the speed of teacher demonstrations in delivering the material then with video tutorials students can follow it.

To increase the activeness of students in the classroom in the learning process, it can be handled by applying the learning model, the success of a student in the learning process is not only determined by good teaching staff or a sound curriculum, but also determined by the learning methods used by the teacher. Putra [4] in his research to obtain the optimal activeness achievement required a supportive learning environment and environment and an interesting learning process so that it is possible to have a good and appropriate application of learning models that actively involve students. Saputra [5] related to the project based learning model shows that the implementation of the project based learning model has an impact on increasing student learning activities that continue to be expressed in each learning cycle. So it is very clear that the project based learning model is very suitable for learning skills.

The objectives of the study are: (1) To find out the feasibility of Project Based Learning Based Video Tutorial Media on learning Software Applications and Building Interiors. (2) To find out the effectiveness of using Project Based Learning Video Based Tutorial Media on learning Building Software and Interior Applications.

2. Research Method

This research uses a research and development approach (Research and Development), better known as R&D studies, which in the process includes the development and validation of educational products, as revealed by Borg & Gall. Borg and Gall [6] say that Educational Research and Development (R&D) is a process used to develop and validate educational products. In this study the steps taken in this study reached step nine out of ten steps, namely: (1) Introduction, (2) Making learning designs, (3) Collection of materials, (4) making and implementing learning models, (5) Review or field test in the context of formative evaluation and product revision. (6) Main Field Testing, (7) Operational Product Revision, (8) Operational Field Testing, (9) Final Product Revision Formative evaluation continues during the development process starting from the analysis, design, production, and implementation stages until the results are obtained in accordance with the objectives stated, and finally the product effectiveness test.

Next validate 3 instruments to each validator consisting of severe experts consisting of instructional design experts, media experts, and material experts, then provide more instruments

or individual tests consisting of 3 students then small group tests consisting of 9 students last limited field test which includes all students in the class. Then the results obtained are tested again on 65 students consisting of 2 classes, the experimental class and the control class. The experimental class consisted of 33 students with project-based learning video tutorial media and the control class consisted of 32 students with visual media to gain effectiveness.

3. Results and Discussion

1. Feasibility research test

The results of study by material experts, design experts and media experts in each aspect of the overall assessment are determined by the average score in each category. The results of the study were then analyzed to determine whether learning media was developed or not. The average percentage of results from research material experts, learning design experts and media experts will be explained as follows:

Table 1. Summary of product feasibility results that have been validated by experts and trials

No	The Experts	Average Percentage	Criteria
1.	Learning Design Expert	91,91%	Very Decent
2.	Media Expert	83,59%	Decent
3.	Theory Expert	95,19%	Very Decent
4.	Individual Trial Students	81,81%	Very Decent
5.	Small Group Trial Students	90,90%	Very Decent
6.	Field Trial Students	91,48%	Very Decent
	Average	**89,13%**	**Very Decent**

Based on the table above, it can be concluded that the Video Based Tutorial Learning Media Project Based Learning in software and interior building subjects has proven to be very feasible because it has passed material experts, design experts, media experts, individual trials, small group trials and tests try the field and the results are stated "Very Decent ".

2. Research effectiveness test

The media is said to be feasible after showing satisfactory results in achieving the specified goals. In this case, a product trial is conducted in the learning process. Media effectiveness is obtained from the value of student learning outcomes. Chen, et al [1] also stated that video tutorials are part of curriculum-based skills, meaning effective methods to be introduced for novice students. Viewing video tutorials, like in a classroom, is a reasonable method for teaching her specific skills. Saputra [5] states that project based learning models show that the implementation of project-based learning models has an impact on increasing student learning activities that continue to be expressed in each learning cycle. From the results of data processing research conducted there are differences in student learning outcomes using learning media Video Based Project Based Learning on Software Application and Interior Building subjects with students using visual learning media that is the average value taught using instructional media based Video Tutorials Project Based Learning in the Building Software and Interior Application subjects is higher than that using visual learning media from the results of tests using the t test, obtained $t_{hitung} = 5,63$ while $t_{tabel} = 1,63$. Because $t_{hitung} = 5,63 > 1,63$, it can

be concluded that the learning outcomes of students who use Video Based Project Based Learning media are higher than student learning outcomes using visual learning media.

4. Conclusion

Based on the results and discussion of the research development of learning media based on Project Based Learning Video in the subjects of Software Applications and Interior Buildings that have been tested on class XI students of SMK N 1 Lubuk Pakam, it can be concluded as follows: (1) Video learning media Project Based Learning based Tutorials on Building Software and Interior Application subjects are declared to be very feasible and suitable for use in class XI students of SMK N 1 Lubuk Pakam in Building Software and Interior Application subjects, (2) Use of Project-based Video Tutorial learning media Based Learning is more effective in improving student learning outcomes in Software Applications and Interior Buildings compared to using visual learning media.

5. References

[1]   Chen, L. X., Fuller, Tobi., Mclntire, D. D., & Kimberly, A. Introduction to open surgical skills curriculum: randomized trial of selfpaced vs group video tutorial viewing. *Journal of Surgical Education*, *76*(2), 453-458. doi: 10.1016/j.jsurg.2018.08.019. (2018).

[2]   Nasir, A. R., Bargstädt, H. J. An approach to develop video tutorials for construction tasks. *Journal Procedia Engineering*, *196*(17), 1088-1097. doi: 10.1016/j.proeng.2017.08.066. (2017)

[3]   Henderson , M., Selwyn, N., & Aston, R. What works and why? Student perceptions of 'useful' digital technology in university teaching and learning. *Journal Studies in Higher Education*, *42*(8), 1567-1579. doi: 10.1080/03075079.2015.1007946. (2017)

[4]   Putra, A. P. Efektivitas penerapan metode tugas dan resitasi dalam meningkatkan hasil belajar siswa smk negeri 5 bandung. Diakses dari http://repository.upi.edu/28763/. (2017)

[5]   Saputra, I. G. N. H., Joyoatmojo, S., & Harini., H. The Implementation of Project-Based Learning Model and Audio Media Visual Can Increase Students' Activities. *Journal of Multicultural and Multireligious Understanding*, *5*(4), 166-174. doi: 10.18415/ijmmu.v5i4.224. (2018)

[6]   Borg, W. R., & Gall, M. D. *Educational research: an introduction,* Fifth edition. New York: Longman. (1983)