DEVELOPMENT OF FLIPPED CLASSROOM LEARNING INSTRUMENT AS INNOVATIVE LEARNING WHICH INTEGRATED TO YOUTUBE VIDEO TO IMPROVE STUDENT LEARNING ACHIEVEMENT

Hanif Zahidin Ainur Rosyid, Madlazim

Physics Department, Faculty of Mathemathics, State University of Surabaya
E-mail: hanifrosyid@mhs.unesa.ac.id

Abstract

This research departs from physics lessons problem which is considered as difficult by most of Indonesian students. So students are rarely interested in studying physics at home or even to paying attention to in class physics lessons. Using YouTube technology that begins to enter in educational sector, the teacher could use this opportunity to increase the student interest of learning physics using YouTube videos. Thus, teacher needs a learning instrument of certain model to make the media usage more practical and effective. Therefore, learning instruments is developed through ASSURE method. The result of this development has been confirmed to be valid by two expert validators, then the instruments tested on Senior High School of Darul Ulum Medali Sugio's third grade student, resulting a good result proofing the good practicability of the instrument. The effectiveness of these instruments also proven to significantly improve student learning achievement. After the limited test, researchers get a positive response from students to be able to continue learning by using the same model and instruments that has been developed.

Keywords : Flipped classroom learning models, YouTube videos, improve learning Achievement

INTRODUCTION

Good education will improve the quality of human resources drastically. The application of technology in various aspects of education is a sign that the education in Indonesia began to develop along with the era. One example is an internet-based learning study program which is often called E-Learning. This program is a type of teaching and learning activity that allows the delivery of teaching materials to students by using the Internet, Intranet or other computer network media (Hartley, 2001). This program is very promising to overcome various kinds of obstacles in the world of education such as distance, material, time, place and so on (Virtual college, 2016).

This can also solve the problem of the low interest of student in learning towards physics subjects. Physics as a discipline requires students to be able to master various kinds of methods to have various methods of understanding and interpreting from one word to another, numerical tables, graphs, equations, diagrams, and mapping technique. Physics requires the ability to use algebra and geometry and also the classification of special things to general things, or vice versa. This degree of difficulty results in many students feels unable to understand abstract physics. By using audio visual media or video, it can be a good solution to convey abstract concepts of physics in a much easier way.

However, teaching using video is mostly constrained by the ineffectiveness of time management and the amount of teaching materials that can be delivered. Thus, it will waste the time of teaching and learning activities (Chandler, Curtis; 2016). The number of videos that are very diverse on the internet is also a problem for teachers to choose. Because the video used by the teacher must be efficient in terms of the time and the amount of delivered materials, so that the teacher demands to be more selective in choosing from many videos.

The use of the Flipped Classroom learning model is considered suitable to be combined with the video media. Flipped Classroom is a learning model that requires students to do C1 to C3 at home, then at school they carry out stages C4 to C6 (Berrett; 2012). In other words, reversing the learning position with the teacher who was usually done in class, being at home, using existing media. Then the usual work done at home is done together at school by discussions with friends and teachers. So, students inevitably have to study at home because in school they have to do group activities based on their homework. But in its application, this model is very complicated because it requires an instrument in the form of a web that is used to control students to really study at home. This of course requires a lot of funds to create a web system along with media and learning instruments in it, the cost of maintenance will also

consume a lot of money. Here researchers have the idea of developing a flipped classroom instruments by using ASSURE development methods that are well-known in their effectiveness in developing media-based instruments according to student needs. The media used by researchers is video media in the YouTube channel. This media is a video-based social media that is very popular in the 20th century. This media is chosen because YouTube began to become a trend that followed by students in Indonesia. This can be seen from a survey by Pew Research in a CNN Indonesia article in 2015 which stated that three out of 10 people who watched YouTube were adults. This amount is equivalent to 31% of the total number of visitors. There was a significant increase of 14% in 2009, which means that 7 out of 10 people who watched YouTube were still in school, and this covered 83% of users in 2009. But this percentage will continue to increase because each year there is an increase in the number of people accessing YouTube increased dramatically to reach 600% per year (CNN Indonesia; 2015). By utilizing YouTube video media, and developing the right instruments from the flipped classroom learning model, it is expected to create output in the form of innovative and well-integrated learning so that it can overcome the effectiveness of learning problems using video as the main teaching media, while resolving the problems faced by students in studying physics especially in static electricity matter. Thus the research on the development of flipped classroom learning instruments as innovative YouTube-based learning on static electricity material is considered very necessary.

METHOD

The type of research used by researchers is development research using the ASSURE model to develop learning instruments in the form of Syllabus, Lesson Plan, Student Worksheet, Text Books, and Evaluation Sheets. The target of this research was 15 XII grades students of Senior High School Darul Ulum Medali Sugio Lamongan.

The data collection instruments in this study are learning implementation observation sheets, knowledge assessment sheets, skills assessment sheets and student response questionnaire sheets.

The data analysis technique used is Feasibility test by two expert to analyse the feasibility of the instruments, Kolmogorov-Smirnov normality test and paired T-test as the analysis of student achievements (effectivity test), analysis of practicality, and student response questionnaire analysis. The hypothesis used for this research is

- H_0: There is no difference in student learning achievements before (pre-test) and after (post-test) learning using youtube-based flipped classroom models (There is no effect of learning to use youtube-based flipped classroom models on student learning achievements)
- H_1: There are differences in student learning achievements before (pre-test) and after (post-test) learning using flipped classroom based on youtube (There is an effect of learning to use youtube-based flipped classroom models on student learning achievements)

RESULT AND DISCUSSION

After developing the instrument that have been mentioned, then the instruments are validated by 2 expert lecturers. The following table is a data validity table of the developed instruments.

Table 1 The Validity of The Developed Instruments

No.	Developed Instruments	Average Validity	Description	PoA (%)
1	Lesson Plan	3.35	Valid	96
2	Text Book	3.11	Valid	97
3	Student Worksheet	3.20	Valid	96
4	Knowledge Assesment Instrument	3.75	Valid	96
5	Skill Assesment Instrument	3.36	Valid	93

After the developed instrument is stated to be valid, the researcher conducts a limited test to determine the practicality and effectiveness of the instruments. The practicality obtained after being tested is.

Table 2 Practicality of Developed Instruments

No.	Tested aspect	Average Value	POA (%)	Description
1.	Implementation of Lesson plan	3,35	95	Very good
2.	Student Activity	3,36	92	Good

While the responses of students get a score of 97.66% positive response from 15 students. This indicates that the instruments can be used practically.

The effectiveness test that has been done produces the pre-test and post-test value data. These data are then tested for Normality using the Komolgorov-Smirnov test with the following results:

Table 3. Normality Test

Variable	Asymp. Sig. (2 Tailed)	Description
Pre-Test	0.720	Normal
Post-test	0.426	Normal

The results obtained from the normality test in the table above shows that the sampled data which is the pre-test and post-test values have met the assumption or in other words the distribution of the data is normal.

To test whether there are differences in the results of the pre-test and post-test scores using paired or paired sample tests. This research uses a 5% (0.05) of significance level based on the proposed hypothesis, then the testing criteria in the T-test are as follows:

If the value is significant> 0.05 then H_0 is accepted (There is no difference)

If the value is significant <0.05 then H_0 is rejected (there is a difference)

The results of paired sample T-test ¬ with SPSS can be seen in the following table.

Table 4
Resume of the *Paired Sample T-Test* Result

	Sig. (2 tailed)	Significance Level	description
Pre Test-Post Test	0.000	0.05	Significant

The calculation obtained 0.000 which means the significance < 0.05, then H_0 is rejected, which means the results of the pre-test and post-test are significant. This means that there are differences in student learning achievements before (pre-test) and after (post-test) learning using youtube-based flipped classroom models.

Increasing student learning achievements in this aspect of knowledge also shows that learning uses Flipped Classroom learning instruments using Youtube videos that have been developed effectively in improving student learning achievements.

CLOSING

Conclusion

from the data analysis that has been done, it is concluded that:

1. The results of the feasibility validation of the learning instruments (Lesson Plan, Student Book, Student Worksheet, and Assessment Sheet) by experts are well validated.
   a. The Lesson Plan developed is feasible to use with an average validity of 3.35 out of 4 maximum scores with Precentage of Agreement of 96%.
   b. The developed text book is feasible with an average validity of 3.11 with a maximum value of 4.00 and a Precentage of Agreement of 97%.
   c. The Student Worksheet developed is feasible to use with an average validity of 3.20 with Precentage of Agreement of 96%.
   d. The Knowledge Assessment Sheet is feasible to use with an average validity of 3.75 with Precentage of Agreement of 96%.
   e. The Skills Assessment Sheet is feasible to use with an average validity of 3.36 with a Precentage of Agreement of 96%.
2. The results of practicality of learning instruments in terms of the implementation of learning, carried out in accordance with lesson plan (good, appropriate, systematic). This is based on the average value of lesson plan implementation which is equal to 3.35 out of 4.00 with Precentage of Agreement at 95% and student activity at 3.36 with Precentage of Agreement at 92%
3. The results of the effectiveness of the learning instruments in terms of student learning achievements which include cognitive aspects and psychomotor are both categorized as "very good" with an significant increase in learning achievement, and a class average value of 84,45 with 100% student pass the test.
4. Learning with developed instruments gets a good response from students and some students agree if physics learning uses flipped classroom with the help of videos from Youtube, this is indicated by the percentage of students who like learning that has been done at 97.66%.

Suggestion

As for some suggestions from researchers to improve this research.

1. Time management should be carefully planned so that learning activities are carried out more systematically and effectively.
2. The teacher must often remind to read textbook and all other learning resources that can support solving problems in the student worksheet
3. The teacher must have a lot of alternative media solutions, tools and experimental tools that are relevant to the development of instrumentss that have been compiled.

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