

Development of Youtube-Assisted Learning Videos on Science Subject (Mupel) Content

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Abstract

This study aims to develop youtube-assisted learning videos to improve science learning outcomes of fifth grade students of Kalibanteng Kidul Public Elementary School 03. This study uses a research development (R&D) approach based on Sugiyono's theory which has been adjusted to research needs into eight stages of implementation. The results of this study indicate that: (1) learning videos developed according to the questionnaire of the needs of students and teachers; (2) valid learning videos based on validation from material experts and media experts. Obtained a percentage of 100% with a very feasible category of material experts and a percentage of 78,3% with a decent category from media experts; (3) the percentage of teacher responses after using a learning video in a classical manner is 98% with very good criteria, the percentage of students' responses in a classical manner is 98,5% with criteria agreed; (4) the use of learning videos has very good practicality, because in practicality tests get a percentage 90%; (5) learning videos are effectively used in science learning, the results of the analysis of the difference in the average t-test are 0,000 and the increase in average (gain) was 0.57 with high criteria. The conclusions of the results of this study are that learning videos were suitable for use in learning activities 000 and the increase in average (gain) was 0.57 with high criteria. The conclusions of the results of this study are that learning videos were suitable for use in learning activities

Keywords: learning video; Youtube; Science

1. INTRODUCTION

The educational process occurs throughout life and continuously in the family, school and community environment. This shows that education is a shared responsibility between family, community and government. In Law Number 20 of 2003 concerning The National Education System Article 1 paragraph (1) states that education is a conscious and planned effort to create an atmosphere of learning and the learning process so that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble character, and skills that are needed himself, society, nation and state. In Law No. 20 of 2003 Article 37 paragraph 1 concerning the National Education System states that the primary and secondary education curriculum is obliged to contain various kinds of subject matter, one of which is Natural Sciences. Natural Sciences (IPA) is one of the subject matter contained in the education curriculum in Indonesia is one of them in the elementary school unit which must be realized or implemented in accordance with the objectives of national education in Indonesia.

The science concept in elementary schools is an integrated concept.

Based on research conducted by researchers at SDN Kalibanteng Kidul 03 Semarang City. The result, the researchers found problems in science learning in class V. This problem occurs in single substance and mixed substances, where students find it difficult to distinguish which is meant by single substances and mixed substances. Based on the documentation data of the 2018 UTS results, students get unsatisfactory grades. From the UTS results, 31 out of 35 students or about 88.57% of students have not passed the KKM. This data shows the low achievement in science learning. Based on the results of research conducted, in the learning process the teacher uses a learning model that does not make students active where learning is still teacher-centered. The absence of teaching aids to support the learning process of single substances and substancesmixed, so that students cannot think critically and cannot do practicum.

Education and learning media are two things that are interrelated, where learning will not run smoothly if the media used is inappropriate or inappropriate. According to

Rayandra Asyhar (2012: 8), learning media is anything that can be used to convey or distribute information in a planned manner so that an efficient and effective learning process occurs. Media can function as a media / teacher's aid to distribute messages or learning materials. Selection of the type of media in a lesson is very important, especially for learning in elementary schools. Selection of the type of media must consider the material, learning models, and students' abilities. An alternative that can be done to improve the learning outcomes of science lesson content on single substance and mixed substances is to develop YouTube-assisted learning videos. Youtube is a video sharing website that allows users to upload, share and view videos (Dean, 2008, 231; Weinberg, 2009, 292) in the journal Huda Omar Alwehaibi. The development of this learning media intends to make students think critically, and be able to do practicum. The development of this instructional video media contains single substance and mixed substances with picture illustrations. The video will later be uploaded to social media (Youtube), the goal is that students can access it at any time so that students can study at any time. Youtube is a video sharing website that allows users to upload, share and view videos (Dean, 2008, 231; Weinberg, 2009, 292) in the journal Huda Omar Alwehaibi. The development of learning media is intended to enable students to think critically, and be able to do practicum. The development of this instructional video media contains single substance and mixed substances with picture illustrations. The video will later be uploaded to social media (Youtube), the goal is that students can access it at any time so that students can study at any time. Youtube is a video sharing website that allows users to upload, share and view videos (Dean, 2008, 231; Weinberg, 2009, 292) in the journal Huda Omar Alwehaibi. The development of this learning media intends to make students think critically, and be able to do practicum. The development of this instructional video media contains single substance and mixed substances with picture illustrations. The video will later be uploaded to social media (Youtube), the goal is that students can access it at any time so that students can study at any time. and can do practicum. The development of this instructional video media contains single substance and mixed substances with

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Another research that supports this research is Sofyan's research Hadi in 2017 with the title "The Effectiveness of Using Video as a Learning Media for Elementary School Students". The results of research conducted by SofyanHadi found the advantages of using video to support the learning process including making students feel happy, able to present concrete information, and able bring new learning experiences. These advantages make videos considered effective for improving student learning abilities and improving student learning outcomes. In addition, video media is suitable for elementary school students.

Based on this description, the researcher conducted a problem study using the research and development (R&D) method entitled "Development of YouTube-assisted Learning Videos for Class V Students at SD Negeri Kalibanteng Kidul 03 Semarang City". The research objectives were 1) developing youtube-assisted learning videos in science learning, 2) testing the feasibility of youtube-assisted learning video media in science learning, 3) testing the effectiveness of youtube-assisted learning videos in science learning, 4) testing the practicality of youtube-assisted learning videos in science learning .

2. RESEARCH METHODS

This study uses a Research and Development (R&D) approach. According to Sugiyono (2015: 297) Research and development methods are research methods used to produce certain products and test the effectiveness of these products. To be able to produce certain products used research that is needs analysis and to test the effectiveness of these products so that they can function in the wider community, research is needed to test

the effectiveness of these products. This research was conducted to develop YouTube-assisted learning videos for grade V students. The development model in this study refers to the development model by Borg and Gall with ten stages of implementation. However, in this study, researchers only took seven stages based on Sugiyono (2015: 298) because they were adjusted to the research needs. These stages are: 1) data collection, 3) product design, 4) design validation, 5) design revision, 6) product trials, 7) usage trials, and 8) final products. The subjects of this study were teachers and grade V students of SDN Kalibanteng Kidul 03 Semarang City for the 2018/2019 academic year, totaling 32 students.

The teacher is the subject of research because the teacher plays a role in gathering information and implementing collaborative learning with researchers using assisted learning video products *youtube* which has been made. Based on the title Research "Development of Learning Videos assisted by Youtube on Mupel (Subject Content) Science class V SDN Kalibanteng Kidul 03 Semarang City" The researcher applied research variables in the form of independent variables and dependent variables. The independent variable in this study is the learning video. While the dependent variable in this study is the result of learning science.

The data were collected using test techniques and non-test techniques. The test techniques used were pretest and posttest. *Pretest* used to determine student learning outcomes before using instructional video media, meanwhile *posttest* used to determine student learning outcomes after using instructional video media. Meanwhile, non-test techniques used questionnaires, interviews, observation, and documentation. Data analysis techniques are divided into three, namely product data analysis, initial data, and final data analysis. Analysis of product data was obtained from the results of expert tests on the feasibility of instructional video media. Initial data analysis was conducted discretely regarding the level of student and teacher needs for instructional videos and normality tests. The final data analysis was obtained from the score of student learning outcomes during the pretest

and posttest, the researcher also conducted a practicality test. The pretest and posttest data will be analyzed using the *t*-test and N-gain tests to determine the effectiveness of the media.

3. RESULTS AND DISCUSSION

1. Product Development

The development of YouTube-assisted learning videos is carried out to support the learning process and to help students who are still having difficulty understanding and remembering the material taught in learning single substances and mixed substances for grade V SD. The development of this learning video is in accordance with the teacher's needs questionnaire and the student's needs questionnaire. The researcher chose to develop instructional video media because the researcher referred to Edgar Dale's theory. The use of audiovisual media makes students have a 50% chance of understanding the material and through direct experience students will understand the material by 90% so the learning process will take place more concretely. In developing the product contains theories, examples, pictures and illustrations. Instructional video media are made attractive in order to attract students' attention and motivate students to learn. In addition, researchers use YouTube media to publish instructional videos so that students can carry out the teaching and learning process anywhere and anytime even though not in the classroom.

2. Product Validation by Experts

The validation of the YouTube assisted learning videos was carried out by media experts and material experts. Validation by media experts and material experts is carried out to determine the feasibility of the media. This assessment aims to determine the percentage of feasibility of instructional video media and its materials. After conducting media tests on media experts and material experts, the value obtained. The value obtained is then converted into the assessment criteria. By knowing the assessment criteria, it can also be seen the feasibility level of the media that has been developed. The following are the criteria for expert validation.

Table 1 Expert Validation Interpretation Criteria

Percentage	Criteria
0% - 20%	Very unworthy
21% - 40%	Not worth it.
41% - 60%	Worth it
61% - 80%	Very worthy
81% - 100%	

Source: Riduan (in the Journal of Education, 2016) After testing the media and material experts, the following scores were obtained.

Table 2 Recapitulation of Media Test Results

Dimension	Jumlah Score	Percentage	Criteria
Media Aspects	15	75%	Well worth it
Program View	16	80%	Well worth it
Quality Technical	16	80%	Well worth it
Overall Percentage	47	78.3%	Well worth it

Table 3 Recapitulation of Material Test Results

Eligibility Aspects	Jumlah Score	Percentage	Criteria
Theory	12	100%	Sangat Well worth it
Presentation	12	100%	Sangat Well worth it
Language / Readability	14	87.5%	Sangat It's not worth it
Overall Percentage	38	95%	Sangat Well worth it

Based on the assessment by media

experts, the instructional video media met the appropriate criteria with a percentage of 78.3%. Assessment by material expert, instructional video media met the very feasible criteria with a percentage of 95% so that the media was feasible to be tested in science learning for fifth grade students of SDN Kalibanteng Kidul 03 Semarang City.

3. Student and Teacher Responses

According to media experts and material experts, the guidebook that is feasible to be tested is then tested in small groups. In the trial, 4 students and the class teacher filled out a questionnaire on their responses to the instructional videos. Students and teachers provide an assessment by filling out a response questionnaire related to the use of YouTube-assisted learning videos in learning. The assessment carried out by students and teachers will produce a percentage score of eligibility. The percentage results are then converted with the following criteria.

Table 4 Results Criteria for Percentage of Teacher and Student Responses

Percentage	Criteria
81.26% - 100%	Very good
62.51% - 81.25%	Good
43.76% - 62.50%	Pretty good
25.00% - 43.75%	Not good

Source: (Noviar A, 2016) Journal of Edu Geography After conducting an assessment by students and teachers, the following results were obtained.

Table 5 Recapitulation of Student and Teacher Response Results

Responden	Jumlah Score	Percentage	Criteria
Students	3128	98%	really Good
Teacher	39	98%	really Good

The assessment carried out by students obtained a score of 3128 from a total score of

3200. The score was then analyzed by the formula for the percentage of eligibility according to Noviar (in the Journal of Edu Geography) so as to produce a percentage of 98% with very good criteria. Meanwhile, the teacher's assessment obtained a score of 39 out of a total score of 40. The score was then analyzed to produce a percentage of 98% with very good criteria.

4. Product Practicality Test

The practicality test is used to measure the practicality of using YouTube-assisted learning video media in learning. This practicality test is calculated from the questionnaire results that have been filled in by the teacher. The results of the assessment from this test are in the form of a percentage then converted to the following criteria:

Table 6 Practicality test criteria

Percentage	Criteria
86% - 100%	Very Practical
76% - 85%	Practical
60% - 75%	Quite Practical
55% - 59%	Less Practical
54%	ng Very Practical

Source: Purwanto (2009)

After calculating, the questionnaire gets a score of 36 with a percentage of 90% in the "Very Good" category. These results indicate that the use of YouTube-assisted learning videos is practical for use in learning.

5. Product Effectiveness Test

The test of the effectiveness of the YouTube-assisted learning videos was carried out to determine the differences and increase in the average science learning outcomes. The test of the effectiveness of the instructional videos was conducted in class V SDN Kalibanteng Kidul 03 Semarang City with a total of 32 students. Data taken from student learning outcomes before using the media (pretest) and after using the media (posttest). To Knowing the effectiveness of the manual, the pretest and posttest scores, then the normality test, N-gain, and t-test were carried out.

After obtaining the pretest and posttest values, the normality and homogeneity tests were carried out. The

normality test is carried out to determine whether the data is normally distributed or not and to determine the statistics that will be used next. The normality test was calculated using the Liliefors test, but in this study the researchers used SPSS assistance. Based on the normality test with the help of SPSS, the results of the sig value were obtained. pretest of 0.078 and the sig value. posttest of 0.162. Because the sig. > 0.05, the data is declared normal.

Furthermore, the researchers tested the research hypothesis. The increase in the average science learning outcomes is then calculated using the N-gain test formula. Data were analyzed descriptively by looking at the percentage of students' science results using N-gain. The following are the results of the test for the increase in the average learning outcomes of students' explanatory text writing.

Table 7 Average Increase Test Results

Category	Score
Pretest Average	59.69
Posttest Average	82.66
Difference in Average	22.97
N-Gain value	0.57
Criteria	High

To determine the effectiveness of the use of instructional video media in science learning, researchers used the t-test with the help of SPSS. Following are the results of the t-test using SPSS.

Table 8 Result of Paired Sample T-test

		Paired Samples Test							
		Paired Differences							
		Mean	Std. Deviation	Std. Error	95% Confidence Interval of the Difference		t	Sig. (2-tailed)	
					Lower	Upper			
Pair 1	Pre Test - Post Test	22.96	9.743	1.722	26.482	19.456	13.335	31	.000

Based on the table, it is known that the sig (2-tailed) value is 0.000. This value indicates that Ho is rejected and Ha accepted. So it can be concluded that the use of YouTube-assisted learning videos is effective for use in science learning for fifth grade students of SDN Kalibanteng Kidul 03

Semarang City. Based on the results of the effectiveness test, it can be concluded that the YouTube-assisted learning videos have a positive effect on the learning outcomes of fifth grade students and are effectively used in science learning with single substance and mixed substances.

4. CONCLUSION

Based on the results of data analysis and discussion of this research, the following conclusions can be drawn: (1) Development of YouTube-assisted learning videos in the form of videos containing explanations of material accompanied by pictures and illustrations; (2) YouTube-assisted learning videos that have been developed, based on the assessment by media experts, get an average percentage of 78.3%, assessments by media experts get an average percentage of 95%. Based on the validation results, these percentages indicate that the YouTube assisted learning video is suitable for use in science learning; (3) the use of YouTube-assisted learning videos in learning received positive responses from students and teachers, namely getting a percentage of responses from students after using the product 98% (very good) and a large percentage of teachers 98% (very good); (4) the use of YouTube-assisted learning videos has very good practicality, this is because in the practicality test it gets a percentage of 90% in the "very high" category; (5) the average increase (N-gain) test of the pretest and posttest data is 0.57 with "high" criteria. In the t-test, the pretest and posttest values obtained the sig (2-tailed) value of 0.000. This value shows that the use of YouTube-assisted learning videos is effective and can improve science learning outcomes. In the t-test, the pretest and posttest values obtained the sig (2-tailed) value of 0.000. This value shows that the use of YouTube-assisted learning videos is effective and can improve science learning outcomes. In the t-test, the pretest and posttest values obtained the sig (2-tailed) value of 0.000. This value shows that the use of YouTube-assisted learning videos is effective and can improve science learning outcomes.

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