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The Uses of Whiteboard Animation Technique as Supplement for Scientific Course: The Case of Non-Primary School Education Students in Indonesia

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Abstract

This research aims to find out the learning media product specifications based on Video Scribe Whiteboard Animation in terms of effectiveness, efficiency, and product attractiveness for the tutors and students. The applied method was testing the distinguishing power with the non-primary school education students of the Opened University at UPBJJ Semarang, exactly in Pati Learning Group by using the applied media for the students who took the scientific article writing course. They were explored with questionnaire. The applied data analysis was distinguishing power with stratified experimental test for the students and the field test for the non-primary education students. The results showed the product specification development was valid. It was indicated by all indicators that provided valid and reliable criteria. Secondly, the applied media was effective based on the obtained percentage, 80%. It showed most students understood the video materials and they understood the content from the media. This result was found both in pretest and posttest groups. Third, there was the influence of Video Scribe Whiteboard Animation-based learning media toward the scientific article writing material understanding. The research limitations were such as the difficulties to control the respondents while filling the questionnaire. It was because the questionnaire was filled simultaneously by the students so the results would have bias risks.

Keywords
learning media; whiteboard; animation; tutorial; scientific article writing

I. Introduction

Tutorial has function as learning assistance and forum for students to communicate their learning difficulties. The main learning process is a learning process that should be done by students in their autonomous learning. The scientific writing course of non-primary education students must be taken by all students. However, this course made the learners difficult to understand the techniques of scientific article writing. The were from the internal and external factors. The internal factors were caused by the fresh graduate status of the students. It meant that they did not have skills to write scientific article writing. On the other hand, the supervisors of the Open University lecturers, via their remote learning and carried out by external practitioners of UT, still showed lack of understanding. This condition made lower attention and understanding levels of the material. The indicator of understanding the material could be seen from the scientific article writing quality reflection that met the

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determined criteria. The students' skills to find problems for writing scientific articles were such as formulating problems, selecting method or media, designing the stages and arranging the report sentence. However, they were still very low.

Teaching media in tutorial process is an influential component for learning outcome success. Although understanding and fluency in presenting materials did not influence teaching media completely but it could facilitate the facilitators' tasks and become the effective and joyful learning process for the students (Chacko, 2017). Teaching media is supportive teaching device in tutorial activity that encourages the students' activeness. The activeness could encourage and motivate students to share opinions and to listen other people (Moss & Ross, 2003). An excellent communication should cover inter-student interaction and tutor-student interaction. They could be the motor of autonomous learning before the face-to-face learning. Students should learn and find the materials as their preparations for interaction during the tutorial session.

Learning media influenced significantly the tutorial process. With media, tutors could influence the interest development, attitude, social, emotion, and reasoning. This result would be maximum if it was entailed with proper managerial skills of the tutors to communicate and interact (Usman, 2001). A successful tutorial depends on the interaction and communication fluency between students and tutors. When the interaction is interrupted, it leads to incorrect perception and the message will not be fully original as stated by the speaker.

Learning media according to Arsyad in Darsih, T. et al. (2021) is a tool that is physically used to convey the content of teaching materials. Classification of learning media based on their nature consists of: 1) auditive media, namely media that can only be heard or media that have sound elements; 2) Visual media, namely media that can only be seen, does not contain sound elements; and 3) Audiovisual media, which is a type of media that in addition to containing elements of sound also contains elements of images that are commonly seen

The tutorial process of the course became the forum for students to obtain field experience from the supervisors in writing scientific articles. Providing guidance should be done comprehensively by providing complete cyclic description. Thus, tutors do not dominate the guidance process but they must pay attention on the students' performance advancement level. Experience and conceptual emphasis without the students' performance process will lead to students' skills in writing scientific articles. Scientific article writing requires skills, knowledge, attitude, and values so learning will be the outcomes in various behavior (Triyanto, 2010).

Guiding scientific article writing requires visualization by using the media. The media is for describing the process comprehensively and describe each process in detail. Guidance for each meeting was formulated specifically and clearly to reach the objectives. Applying media became the appropriate solution to visualize the main objectives to achieve for each meeting. The appropriate media implementation could facilitate students in achieving the scientific article writing objectives. However, the real condition on the field was different.

Some tutors of the course did not use the appropriate media. The tutors relied on lecturing the teaching materials, providing individual writing guidance, and rarely revealing the students' mistakes for better revision and improvement. Tutors had not combined various teaching media to trigger the active interaction during the tutorial.

This condition demanded the initiation that encouraged tutors to create or use various teaching media. One of them was animated video. Teaching media realization should be considered during writing scientific article. In this case, the example was Video Scribe Whiteboard Animation. The practice to write the scientific article writing with video should be the main consideration so that the objectives and the scientific writing arrangement could

be achieved by the students. This research was unique and important to answer question whether the Video Scribe Whiteboard Animation-based learning media product was valid, effective, and influential toward the students' skill improvement for writing scientific article.

The results were expectations of the product to be able to measure the valid and effective learning media model.

II. Review of Literature

3.1. Learning Media Development

Learning media development is an effort to arrange the focused learning model on media planning (Daryanto, 2010). Media should be designed based on the learning objectives and needs. The developed learning media should be based on the course material characteristics, theory, and practice. Learning media is an instrument used by tutors to stimulate students' understanding via various stages or processes. However, generally, the learning media device could stimulate the students' senses. Media covers all matters to stimulate mind, feeling, attention, and learning advance so self-learning process could be promoted (Arsyad, 2012).

3.2. Learning Media Types

a. Graphic Media

Graphic media is a visual media. In this media, the message is delivered and realized into symbols. Therefore, the applied symbols should be understood correctly so that the material delivery could run effectively and efficiently (Basyirudin, 2002). Graphic media has the function to draw attention, to clarify ideas, to illustrate, or to decorate facts that may be quickly forgotten when they are not graphed. Graphic media is simple and easy to make. It is also relatively cheap. The types of graphic media are such as: (1) photograph, (2) sketch, (3) diagram, (4) geometry, and (5) cartoon.

b. Audio Materials

Audio materials are different with graphic media. It deals with auditory sense. The delivered message is expressed into auditory, verbal, and non-verbal symbols. There are some types of audio media, such as: (1) Radio. It is an audio media that is programmed to record and play the audio anytime. This media is cheap, varied, and movable. It also can be used simultaneously. (2) Tape recorder is a learning media that cannot be ignored to deliver information because of its ease. (3) Language laboratory is a device to train students' listening and speaking skills of foreign language. It is done by delivering the previous lesson materials. The applied media was recording (Susilana and Riana, 2008).

c. The Still Projection Media

The still projection media has similarity with graphic media in terms of the presented visual stimulus. Therefore, there are many graphic materials that could be used as the still projection media. The differences of graphic media and still projection media are on the direct interaction with the concerned message media, for the still projection media. The contained message should be projected so the message could be seen by the target. In the still projection, all matters are transparent. They are then projected with a projector. Seels & Rihey, cited in Arsyad (2012), found that teaching media could be grouped into three based on the technology development. They were: (1) printed technology result media, (2) audio-visual technology result media, and (3) computer-based technology result media.

d. Learning Media Function

Levie and Lents, cited in Kustandi and Sutjipto (2011), found four functions of learning media especially visual media. They were: (a) serving the attentive function. This media was the key to attract and direct the students' attentions to concentrate on the related-learning content with the displayed visual meaning or the attached material texts, (b) serving the affective function. This media could be seen from the joyful levels of the learners when they learn (reading) the texts with figures. Figures or visual symbols could trigger the learners' emotions and behaviors, for example the information about social problems or races, (c) having cognitive functioned that reveals visual symbols.

e. The Animated Video

Animated video is an audio-visual media as communication media to develop, explain, deliver, and amuse. The video file formats are such as mpeg, mp3, and jpeg as the common multimedia elements. Videos also have strengths, such as 1) triggering the intention and attracting the attention, 2) having effectiveness for large and moderate groups, such as seminar or conference, 3) recording or displaying the real situation, and 4) informing a situation in detail.

III. Research Methods

This research aims to create a guiding media that could support the tutorial process in class. In this research, the researchers developed a product. It was video scribe whiteboard animation based multimedia. This product was developed into a media for scientific article writing course. The participative-collaborative method was done with reliability and field model test of the developed media to improve the students' skills in writing scientific article.

The effectiveness test of the developed media applied pre-experimental design method with one-group pretest-posttest design. It compared the scientific article writing gain before and after the intervention. The use of this design was to compare the condition between before and after the intervention without control group. Sugiyono (2007:415) states that one-group pretest-posttest design could be done by comparing the pre- and post- intervention conditions.

The subjects were 20 non-primary education students as the experimental group. In this research, the researchers applied three stages of field test toward the product. Thus, there were three samples. The sample selection was from each stage based on three formative level evaluation recommendations by Dick and Carey (Borg and Gall, 2007:591). They are one-on-one with 5 students of the first level, 10 students on the second level, and 20 students from all classes on the third level.

The data collection techniques in this research were questionnaire. The researcher does not ask the respondents directly (Sukmadinata, 2013: 219). The questionnaire consisted of questions or statements to be answered by respondents. The applied questionnaire to collect the data was Likert scale with scores from 1, 2, 3, 4, and 5. The questionnaire for material experts this instrument was questionnaire filled by material expert. The expert would judge the developed media. Then, the media expert would judge the media aspect of the developed media. The questionnaire for media expert, specifically dealing with programming matter, the questionnaire would be filled by the program experts. Then, the questionnaire for users was addressed for the product users as the validator of the developed product.

This research used non-participant observation technique based on the data collection promotion process. It was because the researchers did not participate directly in the respondents' activities. The applied observation was to observe the individual's behavior or

tutorial process of the course with the whiteboard Animation media. Thus, the observation process used non-participant observation. It required the researcher to observe from the outside of the activity and watch the activity.

The data analysis consisted of statistic data with comparison test. It was to determine the students' understanding before and after the observation. The hypothesis of the test was based on t-test. It was to find out the partial correlation between the independent and dependent variables. Then, the f-test was to find out the correlation between the independent and dependent variable simultaneously. After that, the researchers used multiple linear regression test to determine the contribution of independent and dependent variables.

IV. Result and Discussion

4.1. The Research Demography

In this research, the subjects consisted of students who took the scientific article writing course. The results were five students at the first level, 10 students at the second level, and 20 students at the third level.

4.2. The learning Media Trial Test

The question indicators about the learning media implementation were for ten students as the respondents (small group respondents). The researchers selected the respondents randomly for all non-primary education students who took the course in Public VHS 1 Pati-learning group. Each item on the observation represented the creativity variable (Table 2).

The table presents the field test response questionnaire of the small group. Then, the researchers did classical test toward twenty students (see Table 3).

Table 1. The Questionnaire Results of Small-Group Field Test Response

No	Statements	Scores	Average	Criteria
1	Language clarity	48	4,80	Very excellent
2	No deviating words or sentences	49	4,90	Very excellent
3	The question examples based on the delivered materials	45	4,50	Very excellent
4	With this media, you understand the learning material better	42	4,20	Very excellent
5	The order of the material contents based on the indicators	47	4,70	Very excellent
6	Clear examples in the exercise	46	4,60	Very excellent
7	Understandable and communicative language	45	4,5	Very excellent
8	The layouts of the texts and figures	42	4,20	Very excellent
9	The suitability of the background selection	38	3,80	Very excellent
10	Color appropriateness	36	3,60	Very excellent
11	The suitability of the font types and sizes	44	4,40	Very excellent
12	The suitability of the presented animation figures	46	4,60	Very excellent
13	Attractive button display	45	4,50	Very excellent
14	Kemenarikan gambar animasi yang digunakan	47	4,70	Very excellent
	Total average		4,43	

Table 2. The Questionnaire Results of the Operational Test Response

No	Statements	Scores	Average	Criteria
1	Language clarity	95	4,75	Very excellent
2	No deviating words or sentences	97	4,85	Very excellent
3	The question examples based on the delivered materials	92	4,60	Very excellent
4	With this media, you understand the learning material better	86	4,30	Excellent
5	The order of the material contents based on the indicators	93	4,65	Very excellent
6	Clear examples in the exercise	87	4,35	Excellent
7	Understandable and communicative language	83	4,15	Excellent
8	The layouts of the texts and figures	80	4,00	Excellent
9	The suitability of the background selection	86	4,30	Excellent
10	Color appropriateness	79	3,95	Excellent
11	The suitability of the font types and sizes	85	4,25	Excellent
12	The suitability of the presented animation figures	89	4,45	Excellent
13	Attractive button display	90	4,50	Excellent
14	The attractiveness of the applied animation figures	92	4,60	Excellent
	Total		4,41	

Table 1 and 2 obtain the average score of 4.43 for the small group test. It improved into 4.41 in the classical test. Although it was decreased, the average was still higher than 3.40. Thus, it could be concluded that the applied media was categorized excellent.

4.3. Normality Test

Before being analyzed with parametric statistics, the data were tested in terms of normality to find out the data distribution. The results of understanding materials on the scientific article writing with the developed media, consisting of 20 subjects, required the normality test to check the initial data distribution.

Table 3. The Normality Test Results

		The Use of *Whiteboard Animation*
N		40
Normal Parameters[a]	Mean	69.4750
	Std. Deviation	2.00589E1
Most Extreme Differences	Absolute	.189
	Positive	.189
	Negative	-.184
Kolmogorov-Smirnov Z		1.193
Asymp. Sig. (2-tailed)		.116

The applied test in this research was one-sample Kolomorov-Smirnov (KS) to determine the significant score. If the Sig score is higher than 0.05, the variables are normally distributed. The normality test, Table 4, for the research variable shows Asymp Sig (2-tailed) is 0.116 for the developed media. It is higher than 0.05. Thus, the variables are normally distributed.

4.4. Homogeneity Test

The homogeneity test of the scientific article writing with the applied media could be seen in Table 4.

Table 4. Homogeneity Test

Levene Statistic	df1	df2	Sig.
.225	1	37	.638

Table 4 shows the aqual variances assume sig score is higher than 5%. Thus, Ho is accepted. It means the population was homogeneous.

4.5. The Expert Validation

The validation of the experts was done by validating the developed learning media.The media validations consisted of (1) content or material, and (2) the design aspects.

a. The Expert Material Validation

The expert of this validation judged the products with the assistance of the assessment sheet. The material expert gave score 4.55. The validation of the learning media expert about the content (the application main line and materials) obtained a "very excellent" category.

b. The Design Aspects

Media experts in the validity of Whiteboard Annimation media products are carried out by providing media products along with their assessment sheets The score obtained an average of 4.63. The program expert validation obtained a criterion of "reliable" to use.

c. The Users and Tutors' Validation (Field Test)

The field test of the developed media of the non-primary education students in Pati 2020 was given by the tutors. Based on the judgment, the media product obtained an average score of 4.56. The tutor validation obtained a "very excellent" result and was reliable to use.

4.6. The learning Media Effectiveness Test

1. A learning instrument is considered effective if more than 80% students could understand materials. From the questionnaire, the obtained average score is 4.43 (Table 2) and the average score is 4.41 (Table 3).
2. Thus, 80% students could understand the materials because the table scores are higher than 3.4.
3. The subjects could improve their understanding after using the developed media.

Table 5. The Result of Scientific Article Writing

	Test Value = 80					
	T	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
The scientific article writing understanding results	4.430	19	.000	8.05000	4.2464	11.8536

Source. The primary processed data, 2020

The table shows the one-sample test obtains a significant score 0.00, lesser than sig score 0.05. Thus, Ho is denied. It meant the average test result about the scientific article writing understanding was higher than 80. Thus, it proved the subjects could improve their understanding after using the developed media.

4.7. It Meant the Media Influenced the Material Understanding

a. The differences of scientific article writing understanding and the developed media between pretest and posttest

Table 6. The Results of Pretest and Posttest Scientific Article Writing

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
The understanding results	Equal variances assumed	.278	.601	-16.655	38	.000	-37.15000	2.23062	-41.66565	-32.63435
	Equal variances not assumed			-16.655	34.320	.000	-37.15000	2.23062	-41.68161	-32.61839

Source. The primary processed data, 2020

The table shows the output of the Independent Sample test obtains the Fcount of material understanding with a score of 0.278, higher than 0.05. Thus, Ho is accepted. It meant the two variances were homogeneous. Therefore, the researchers selected the equal variance assumed. Based on the series of equal variance assumed in Table 7, the independent sample test output a Sig score 0.00 lesser than 0.05. It meant Ho was denied or there was a difference between the pretest and posttest groups.

b. The influence of the developed media toward the scientific article writing material understanding

Table 7. ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	388.228	1	388.228	8.435	.010[a]
	Residual	782.403	17	46.024		
	Total	1170.632	18			

Source. The primary processed data, 2020

Table 7 shows the ANOVA obtains a sig score 0.010 lesser than 0.05. Thus, Ho is denied or the equation is linear. Thus, the regression model could be used to predict the material understanding skills.

Table 8. The Regression Test

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-86.726	60.035		-1.445	.167
	X	1.891	.651	.576	2.904	.010

Source. The primary processed data, 2020

Table 8 shows the Sig score coefficient is lesser than 0.05. Thus, the regression coefficient is significant or the developed media influenced the material understanding.

Table 9. R Square Test

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.576[a]	.332	.292	6.78408

a. Predictors: (Constant), X

Table 9 shows the R Square is 0.332 or 33.2%. It meant the developed media contributed to Y with a percentage of 33.2%. The remaining percentage was influenced by other factors.

4.8. The Development of the Video Scribe Whiteboard Animation-based Learning Media Product Specifications

The developed product specifications were validated by experts. The media validations were (1) material aspect, (2) content aspect, and (3) program aspect. All experts judged it valid. The material expert gave a score of 4.55. Based on the judgment, the media product obtained an average score of 4.64 with the obtained assessment was 4.63. It showed the developed product specifications were reliable to use. In line with opinion Pedagogy in Action, (2018) Media such as films, music videos, visualizations and films, stories have the ability to display very complex ideas in a very short period of time. Media covers all matters to stimulate mind, feeling, attention, and learning advance so self-learning process could be promoted (Arsyad, 2012).

4.9. The differences of scientific article writing material understanding of pretest and posttest

The differences of the pretest and posttest understanding about the material based on the media material test result obtained the completeness standard 80 ($\mu = 80$). It was done with SPSS version 16 and obtained a significant score of 0.000, equal to 1%. Thus, the students' average skill of the material understanding obtained a score equal and higher than 80. In line with opinion (Steidle, 2020) scientific article can encourage the emergence of future research and can be a source of data for other research. Meanwhile, based on the proposition test, the learners' proposition obtaining score higher than 80 was more than 80% with the applied-developed media. The data analysis with SPSS 15 could be seen from the series of equal variance assumed. SIg = 0.000 < 0.05. It means Ho is denied or there was a difference between the pretest and posttest.

4.10. The Discussion of Video Scribe Whiteboard Animation-based Learning media Influence toward the Scientific Article Writing Material Understanding

The data analysis result, assisted with SPSS 16, shows the tcount scores are -1.445 and 2.904. The t-test was to check the constant significance and the dependent variable is seen on sig score lesser than 0.05. Thus, the regression coefficient was significant or the observed media could influence significantly toward the scientific article writing understanding material. Table 4.7 shows the sig score is 0.010 lesser than 0.05. Table 4.9 shows the R Square is 0.332 or 33.2%. It meant the developed media contributed to Y with a percentage of 33.2%. The remaining percentage, 66.8% was influenced by other factors. Susilana dan Riana, (2008) states that the use of media affects the ability of scientific article.

V. Conclusion

This research expects the developed product of tutorial guidance with multimedia could improve the scientific article writing course. The results and discussion offer conclusions that the developed product was valid. The product obtained scores from the validators with an average score of 4.61, valid and reliable to use. Secondly, the product was effective because 80% students understood the material and there was an improvement of the material understanding between the pretest and posttest groups. The differences of the pretest and posttest understanding about the material based on the media material test result obtained the completeness standard 80 ($\mu = 80$). It was done with SPSS version 16 and obtained a significant score of 0.000, equal to 1%. Thus, the students' average skill of the material understanding obtained a score equal and higher than 80. Third, the developed media influenced the scientific article writing understanding. The data analysis result, assisted with SPSS 16, shows the tcount scores are -1.445 and 2.904. The t-test was to check the constant significance and the dependent variable is seen on sig score lesser than 0.05. Thus, the regression coefficient was significant or the observed media could influence significantly toward the scientific article writing understanding material

References

Alina Bradford. (2017). What is a Scientific Theory. Live Science. Diunduh dari https://www.livescience.com/21491-what-is-a-scientific-theory-definition-of-theory.html

Angel Borja. (2014). 11 steps to structuring a science paper editors will take seriously. Elsevier. Diunduh dari https://www.elsevier.com/connect/11-steps-to-structuring-a-science-paper-editors-will-take-seriously

Arsyad, A.(2012). Media Pengajaran. Jakarta: PT Raja Grafindo Persada.Tirtamedia.co.id/apa-ituivideoscribe. 121

Asep Jihad dan Haris .(2010). Evaluasi Pembelajaran, Yogyakarta: Multi Persindo,. Hlm. 19. Badan Standar Nasional Pendidikan. 2007. Panduan Penilaian kelompok mata pelajaran Ilmu dan Teknologi. Departemen Pendidikan Nasional

Bess Ruff. (2019). How to Write a Scentific Paper. Wiki How to do anyting. Diunduh dari https://www.wikihow.com/Write-a-Scientific-Paper

Darsih, T. et al. (2021). The Development of Android-Based Learning Media for Basic Accounting Subjects for Class X AKL at Al Ikhlas Vocational High School, Pangkalan Susu, Langkat Regency. Budapest International Research and Critics Institute-Journal (BIRCI-Journal). P. 6219-6230.

Daryanto. (2010). Media pembelajaran. Yogyakarta: Gava Medi.

David Pfeiffer. (2017). Scientific Theory vz Law. Science journal. Diunduh dari https://medium.com/science-journal/scientific-theory-vs-scientific-law-5624633a8f1b

Ditjen PMPTK. (2010). Membimbing Guru Dalam Penelitian Tindakan Kelas Materi Pelatihan Penguatan Pengawas Sekolah. Jakarta: Kemendiknas.

http://atikatikaaziz.blogspot.com/2010/09/4-pilar-pendidikan-menurut-unesco.html. diunduh tanggal 13 April 2016

IPHS, (2020). Media Dependency Theory in Cultural Communication, Mass Communication. Increase Police Holder Satisfaction. Learn About RPA. Diunduh dari https://www.communicationtheory.org/media-dependency-theory/

Joanna Kimmerly Smith. (2020). How to \Format a Scientific Paper. Scribendi. Diunduh dari https://www.scribendi.com/advice/format_a_scientific_paper.en.html

Josh Parrish. (2015). Media Dependency Theory. Diunduh dari https://prezi.com/_hh49fge4yxj/media-dependency-theory/

Kustandi C dan Sutjipto B. (2011). Media Pembelajaran Manual Dan Digital. Bogor: Ghalia Indonesia.

Kusumah, Dwitagama.(2007).Buku PTK. Labschool Jakarta Indonesia

Lance F. (2019). The Criteria for Science and Scientific Theory. Diunduh dari https://www.learnreligions.com/criteria-for-science-and-scientific-theories-250570

Mohammad Ashori.(2007).Penelitian Tindakan Kelas, Bandung : CV Wacana Prima. Purwanto. 2008. Evaluasi Hasil Belajar, Yogyakarta: Pustaka Belajar

Reading the literature Homepage. (2001). What is the structure of a scientific papae https://www.wikihow.com/Write-a-Scientific-Paper

Rudi Susilana dan Cepi Riana. (2008). Media Pembelajara, bandung: CV. Wacana Prima. http://www.scribd.com/doc/59705852/Kreatif-Mengembangkan-Media Pembelajaran. diakses pada 13 April 2019

Science Buddies. (2020). Resources for Finding and Acessing Scentific Papers. Diunduh dari https://www.sciencebuddies.org/science-fair-projects/competitions/finding-and-accessing-scientific-papers

S.Eko Putro Widoyoko. (2009). Evaluasi Program Pembelajaran.Yogyakarta ; Pustaka Belajar.

Steidle. (2020). Criteria for Evalulating Scientific Theories. Quizlet Zinc. Diunduh dari https://quizlet.com/46975975/criteria-for-evaluating-scientific-theories-flash-cards/

Suprihadi, Saputro. (2006). Strategi Pembelajaran. Malang: Laboratorium Teknologi Pendidikan.

Suharsimi, Arikanto. (1998). Prosedur Pengembangan: Suatu Pengembangan Praktek. Jakarta: P.T.Rineka Cipta.

Sudjana Nana. (2005). Hasil Proses Belajar Mengajar. Bandung: Remaja Rosdakarya. Sugiyono. (2011). Metode Penelitian Kuantitatif, Kualitatif dan R & D. Bandung : Alfabeta. Sugiyono. 2011. Statistika Untuk Penelitian. Bandung : Alfabeta.

---------- (2012).Metode Penelitian Kombinasi. Bandung: Alfabeta.

Sukmadinata, Nana Syaodih. 2006. Metode Penelitian Pendidikan. Bandung: PT Remaja Rosdakarya

———————. (2011). Metode Penelitian Pendidikan. Bandung : PT Remaja Rosdakarya.

Sujana. (2012). Metode Statistik Bandung : Tarsito

Sudjana, Nana., & Rivai,. Ahmad. (2011). Media Pengajaran. Bandung:Sinar Baru Algesindo

Triyanto. (2010). mendesain model pembelajaran inovatif-progresif. Jakarta: Prenanda Media

Usman, Basyirudin A. (2002). Media Pembelajaran. Jakarta: Ciputat Press.

Writing@CSU. (2020). Writing the Scientific Paper. Colorado State University. The Writing Studio. Diunduh dari https://writing.colostate.edu/guides/guide.cfm?guideid=83