



The Effectiveness of Discovery Learning Model Based on Sparkol Videoscribe and Chart on Economic Learning Outcomes

Oki Angraeni[✉], P. Eko Prasetyo, Partono Thomas

Pascasarjana, Universitas Negeri Semarang, Indonesia

Article Info

Article History :
Received May 2020
Accepted June 2020
Published December 2020

Keywords:
Sparkol Videoscribe,
Media Chart, Discovery
Learning, Interest in
Learning, Learning
Outcomes

Abstract

Audio visual-based learning is a media that is concerned with hearing and vision. In era 4.0 the effective and efficient media-based learning are needed. The study is aimed to explain the effectiveness of the discovery learning model based on *Sparkol Videoscribe* and *Chart* on students learning outcomes in Economics, as well as looking at the influence of economic learning interest in class XI IPS students on their learning outcomes. This research design was comparative quantitative with the quasi-experiment approach. The object of this research was students' learning model of SMA Negeri 1 Randudongkal, Pemalang, Central Java. The level of effectiveness analysis techniques used *t-test* and *N-Gain*. The results showed that the experimental class had higher economic learning outcomes than the control class with a *t-test* value of 70.22 and an experimental class of 75.61. The variables of students learning interest-based on simple regression tests the results stated that $0.207 \geq 0.05$ then H_0 was accepted H_a was rejected, it meant that there was no effect on the economic learning outcomes of students of XI IPS at SMA Negeri 1 Randudongkal.

[✉] Correspondence :
Pascasarjana, Universitas Negeri Semarang
Jalan Kelud Utara III, Semarang, Jawa Tengah, Indonesia 50237
E-mail: okiangraeni13@gmail.com

INTRODUCTION

The success of education is influenced by the learning process. Through the learning process, influences emerge that can bring a change in attitude towards oneself towards a more advanced direction (Megawati, 2018). Learning outcomes will be obtained after going through the learning process usually measured by how far students understand the subject matter taught at school through daily tests and homework given by the teacher (Megawati, 2018). Learning outcomes are the results of interaction of learning and act of teaching (Dimiyati, 2015).

The result of the first daily test of the students of SMAN Randuonkang 1 in Economics lesson shows the students still have not reached the standard of minimum criteria. Teachers are still lacking in utilizing facilities and infrastructure as innovative learning media, so the students' interest in learning are still relatively low. This can be seen from the large number of students who choose economics in the national exam, therefore there must be an effective learning model development, learning that is often used is still conventional. Hikmawati (2017) concluded that students learning outcomes also improved, from 25 to 84 with classical completeness of 0% to 86%. By using discovery learning models, it can improve the students learning outcomes in subject matter of physic in high school. The teachers can use discovery learning for the students who got low score (Herlambang, 2018).

The use of appropriate media learning can overcome the problems, it can show the students' interest in learning, and it creates an atmosphere of active and fun learning so that it can ultimately improve student learning outcomes (Hamdani, 2011). Media learning means everything that can be used to send messages. Nowadays, schools have used media learning in the learning process, especially economic lessons. But it needs to be reviewed which media are suitable to be applied in learning (Arsyad, 2011).

Recent literature studies suggest that effective learning is the culmination of all factors, learning attributes, and the environment (Adebiyi, 2019; Guney, 2012). Furthermore, further research is still needed on the effectiveness of constructivist and constructionist teaching

methodologies to ascertain which approaches are most effective for the educational learning environment (Alanazi, 2019). In the context of effective learning theory, designing a suitable learning atmosphere, and design activities must follow a holistic, systematic way and all aspects must be taken into account (Guney, 2012; Adebiyi, 2019).

According to Setiyowati (2018), in her study, she used quantitative research. It was quantitative research design in the form of an experimental research design with a *Pre-Experimental* research model in the form of *Intact-Group Comparison*. As lined Firdaus (2019) his research used experimental research with the *Control Group Pretest-Posttest design*. In this study the researcher uses a comparative quantitative research. The researcher compares the control group and the experimental group. The researcher uses Discovery learning method in the control class and uses *Sparkol Videoscribe* media and *Chart* in the experimental class, with a quasi-experimental approach.

METHOD

The researchers used a comparative qualitative design with a quasi-experiment approach. In this study, a comparative qualitative was to compare between the control

group and experiment group. The researcher used the discovery learning method in the control class group and used *Sparkol Videoscribe* and *Chart* media in the experiment class group.

The researcher used the effectiveness analysis technique using the *T-test* and *N-Gain*. The formula of *T-test* as follows:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}}$$

or

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2}{n_1 + n_2 - 2} \left(\frac{1}{n_1} + \frac{1}{n_2} \right)}}$$

Test criteria, the significance level used is $\alpha = 5\%$ and the degree of freedom is $(n - k)$.

If $t \text{ count} \geq t \text{ table}$ then H_0 is accepted

If $t \text{ count} < t \text{ table}$ then H_0 is rejected

The calculation of Gain index is done to see how much the increase in student learning outcomes through discovery learning models based on *Sparkol Videoscribe* and *Chart*. Therefore the pretest and post-test conducted aims at the effectiveness of the learning model developed. The gain index can be determined by the following formula:

$$\text{Gain Index} = \frac{\text{Posttest Score} - \text{Pretest Score}}{\text{Ideal Maximum Score} - \text{Pretest Score}} \quad \text{Meltzer (2002)}$$

Table 1. Gain Index

Percentage (%)	Information
< 40	Not effective
40- 55	Less effective
56-75	Effective
> 76	Efektif

Source : Hke, R. R, 1999

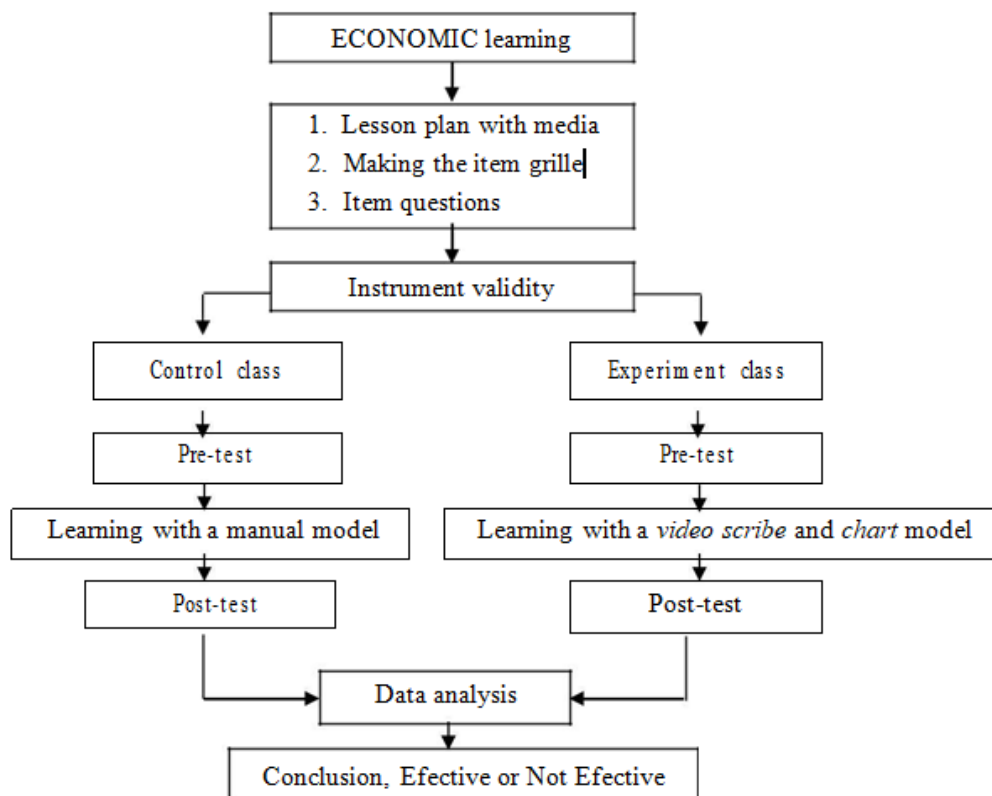


Figure 1. G-1 Research Implementation Procedure

RESULT AND DISCUSSION

The results of the research in the Experiment class and Control class showed that students had low learning interest. The students

who got low interest in learning were not necessarily an effect on learning outcomes because based on the results of a simple regression test the interest in learning towards learning outcomes showed no effect.

Table 2. Simple Regression Analysis of Experiment Classes

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error			
	44.009	14.766		2.980	0.005
Interset learning	0.633	0.357	0.294	1.770	0.086

Source: Data Process 2020

Based on table 2, a constant value of 44.009 is obtained from the test results in the table, obtained a coefficient for the variable student

interest of 0.633 with *t-count* = 1.770 with *P-value* = 0.086 > 0.05 which means that *Ho* is accepted and *Ha* is rejected. So, it can be concluded that

there is no influence of learning interest on student learning outcomes.

Table 3. Simple Regression Analysis of Control Classes

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
	33.130	4.832		6.856	0.000
Intersect learning	0.081	0.063	0.219	1.286	0.207

Source: Data process 2020

Based on table 3, a constant value of 33.130 is obtained. From the test results in the table, the coefficient for student interest in learning variables is 0.081 with *t count* 1.286 with *P-value* 0.207 > 0.05 which means that *H₀* is accepted and *H_a* is rejected so it can be concluded that there is no

influence of learning interest on student learning outcomes.

To compare the two experimental and control groups, a predetermined *T-test* formula was used. Based on the results of calculations using SPSS, the following data can be obtained as follows:

Table 4. Table of Independent Sample T-test

Levene's Test for Equality of Variances									
	FSig.	t-test for Equality of Means			Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
		t	df					Lower	Upper
Equal variance assumed	0.030	0.864	-2.019	70	0.047	-5.389	2.669	-10.712	-0.066
Equal variance not assumed			-2.019	69.960	0.047	-5.389	2.669	-10.712	-0.066

Source: Data process of SPSS 2020

Based on table 4 the significance value is known *Levene's Test for Equality of Variance* is 0.864 > 0.05, it can be interpreted that the data variance between the experimental and control classes are homogeneous or the same (V. Wiratna Sujarweni, 2014). Furthermore, is known that the significance value (2-tailed) is 0.047 < 0.05, so as a basis for decision making in the independent sample *t-test*, it can be concluded that *H₀* is rejected and *H_a* is accepted. This means that there are significant differences between the average student learning outcomes in the experimental class and the control class.

The next step is to determine the error level of 5%. Because the homogeneity test shows that both homogeneous groups can be seen *t* and the significance of the *Equal Variances Assumed*. At *t value*, it is known that sig 0.047 or 4.7% < 5% then *H₀* is rejected and *H₁* is accepted. So it can be said that the experimental group's learning achievement is different from the control group's learning achievement. The difference in learning achievement between the experimental group and the control group can be seen in the following *statistical group* output table:

Table 5. Group Statistic

	Class	N	Mean	Std. Deviation	Std. Error Mean
Students learning outcome	Control	36	70.22	11.187	1.865
	Experiment	36	75.61	11.457	1.910

Source: Data process 2020

Based on table 5 it is known that the average for the control class is 70.22 and for the

experimental class average is 75.61. This shows that the experimental class learning outcomes are

better than the control class. So it can be concluded that learning Economics by using discovery learning model based on *Sparkol Videoscribe* and *Chart* improves student learning outcomes in SMA N 1 Randudongkal.

Table 6. Gain Index Analysis

Average	56.2955	35.3053
Minimal	-20.00	-48.15
Maximum	86.30	78.75

Source : The result of primer data process 2020

The results of the *N-gain* test calculations in table 6 shows that the average value of the *N-gain* score for the experimental class using discovery based on *Sparkol Videoscribe* and *Chart* is 56.2955 or 56.30% included in the quite effective category. With a minimum *N-gain* score of -20% and a maximum of 86.30%. While the average *N-gain* score for the control class using discovery learning without media is 35.3053 or 35.30% included in the ineffective category. With a minimum *N-gain* value of -48% and a maximum of 78.75%.

Based on the *N-gain* index, these results indicate that the average increase in mathematical critical thinking skills of the experimental class and control class students is sufficient. The average value of the experimental class gain index is higher than the average value of the control class gain index. Thus it can be concluded that the increase in students' critical thinking skills using the discovery learning model based on *Sparkol Videoscribe* and *Chart* is higher than conventional classes.

At this time, it is imperative that all Indonesian citizens continue to prepare for the golden generation as a strong and highly competitive human resource that has a multidimensional based on comprehensive intelligence and superior character in the year 2045, (Prasetyo, 2020b, 2019a, 2019b). To be able to master the competitiveness, of course, it takes a process including the learning process. The learning process must, change faster, be productive, be creative, innovative, and adaptive, (Prasetyo, 2019a). With the mastery of ICT, the learning system is no longer confined to time and space manually. The element that most influences students' perceptions about teacher effectiveness are intellectual quality (Lumadi, 2014).

This is in line with Kholidin's research (2017). The results of his study concluded that the potential effects of media use were seen from the learning outcomes before and after using *Video Scribeparkol* learning media at the field trial stage with an average pretest result of 44.3 with a very low category and then the average the post-test was 89.6 in the good category. Arifani (2015) Summing up based on the results of the study the average score of students' learning interest increased from the results before the learning using flip chart media in the experimental class from 51.075 to 67.615, while the control class only increased from 50.357 to 56.65. Based on the regression analysis, the value of $t_{count} > t_{table}$ ($4.357 > 2.024$) and $sig < 0.05$ or ($0.00 < 0.05$) and obtained R square 0.333 then H_0 was rejected means that there was a

significant influence between the use of flip chart media and student interest in learning, its contribution was 33%. Kamal (2016) concluded that the average student learning outcomes on post-test scores after using the module amounted to 75.39 and the average learning outcomes on student post-test scores after using a wall chart of 72.14. The enhancement of the students learning outcomes which used modules by 57% and increased learning outcomes using wall charts by 49%.

CONCLUSIONS

Learning interest did not have significant effect on student learning outcomes in Economics. This showed that if students' interest in learning Economics was not necessarily low economic learning outcomes. Economic Learning using discovery learning models based on *Sparkol Videoscribe* and *Chart* improved students learning outcomes. This was seen from the learning outcomes of the experimental class better than the control class. Learning Economics used the discovery learning model based on *Sparkol Videoscribe* and *Chart* was quite effective in the experimental class while the control class was included in the ineffective category.

REFERENCES

- Adebiyi, A. (2019). *Understanding Effective Learning*. Dept. of Curriculum Studies and Educational Technology, University of Minho, 1(1), 1-11.
- Alanazi, A. (2019). A Critical Review of Constructivist Theory and the Emergence of Constructionism. *American Research Journal of Humanities and Social Sciences*, 2(8), 2378-7031.
- Arifani, Nurul dkk. 2015. Tingkat Kemampuan Berfikir Kreatif Matematika Siswa SMP Kelas VIII di SMP Negeri 6 Jember, SMP Al Furqon 1, SMP Negeri 1 Rambipuji dan SMP PGRI Rambipuji. *Kadikma*, 6 (2)
- Arsyad, Azhar. 2014. *Media Pembelajaran*. Jakarta: Raja Grafindo Persada
- Dimiyati & Mudjiyono. 2009. *Belajar dan Pembelajaran*. Jakarta: Rineka Cipta.
- Farhan, A. (2020). Penerapan Media Pembelajaran Audio Visual Berbasis Sparkol Videoscribe Pada Model Pembelajaran Jarak Jauh (Pjj). *ResearchGate*, <https://www.researchgate.net/publication/341177894>.
- Guneya, A., & Al, S. (2012). Effective learning environments in relation to different learning theories. *Procedia Social and Behavioral Sciences*, 46(2012), 2334-2338.
- Hamdani. 2011. Strategi Belajar Mengajar. Bandung : Pustaka Setia.
- Hake, R.R. (1999). *Analyzing Change/Gain Scores*. Dept. of Physics, Indiana University, 13(3), 1-4. <http://www.physics.indiana.edu/~sdi/AnalyzingChange>.
- Herlambang, dkk. (2018). Problem Analysis on Teachers in the Development of Discovery Learning Model-based Worksheet and Student Problem on Cognitive Learning Achievement. *Jurnal Pendidikan Biologi*.
- Hikmawati, F. (2017). *Metodologi Penelitian*. Depok: Rajawali Press.
- Kamal. 2016. Efektivitas Penerapan Model Pembelajaran Kooperatif Tipe Team Games Tournament (TGT) Dengan Pendekatan Matematika Realistik Pada Siswa Kelas VII SMP Negeri 1 Patampanua Kabupaten Pinrang. *Jurnal Pendidikan*. (7)
- Kholidin. 2017. Pengembangan Media Pembelajaran dengan Menggunakan Sparkol Video Scribe Pada Mata Pelajaran Sejarah Kelas XI di Sekolah Menengah Keatas. *Jurnal Pendidikan Sejarah*. (7) 1.9-21.
- Lumadi, M., W. (2012). Curriculum management: "Driving the school management team frantic". *African Education Review* 9 , Supplementary issue 1, 2012, 121 - 136, ISSN1814-627, DOI:10.1080/18146627.2012.755282.
- Megawati, Sarah. (2018) Pengaruh Media Pembelajaran Spakrol VideoScribe dan Grafis terhadap minat belajar siswa SMA 2 Purwokerto, *Jurnal Pendidikan Ekonomi*. (7)
- Prasetyo, P.E., & Kistanti, N.R. (2020b). Human capital, institutional economics and entrepreneurship as a driver for quality & sustainable economic growth. *Entrepreneurship and Sustainability Issues*, 7(4), 2575-2589
- Prasetyo, P.E. (2019a). Membangun Karakter Budaya Edupreneur Tenaga Pendidik Profesional Menuju Generasi Emas, *Prosiding Seminar Nasional Pendidikan Dasar*, PGSD UMP, Purworejo, 30 Maret 2019, 1(1), 1-9.
- Setyowati, Endah, dkk. (2018). Penggunaan Model Pembelajaran Discovery Learning untuk Meningkatkan Kreativitas dan Hasil Belajar Siswa Kelas 5 Negeri Mangunsari 07. *Jurnal Sains dan Teknologi*, 1(1), 76-81. <http://journal.ummat.ac.id/index.php/justek/article/view/408>. (Diakses tanggal 26 April 2018 pukul 15.00 WIB).