Improving Vocational High School Students' Critical Thinking through Graphic Organizer

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Abstrak

Pemikiran kritis membantu siswa dan mengkonseptualisasikan, menerapkan, menganalisis, dan mengevaluasi informasi yang dikumpulkan. Penelitian ini bertujuan untuk mengetahui penerapan serta hasil belajar siswa kelas 10 di SMK Giki 1 Surabaya dalam penggunaan graphic organizer untuk meningkatkan pemikiran kritis siswa dalam materi teks recount peristiwa bersejarah. Penelitian ini menggunakan desain penelitian kuasi-eksperimental. Data penelitian diperoleh melalui hasil pre-test dan post-test pada pembelajaran teks recount peristiwa bersejarah dengan menggunakan graphic organizer. Sampel penelitian ini diperoleh di kelas X-AK 2. Subjek terdiri dari tiga puluh enam siswa. Analisis instrumen menggunakan uji validitas dan reliabilitas. Sementara itu, teknik analisis data penelitian menggunakan paired sample t-test, uji hipotesis, dan perhitungan eta-kuadrat. Berdasarkan data pre-test dan post-test, nilai P adalah .000 dan kurang dari .05. itu menunjukkan perbedaan yang signifikan. Ukuran efek dari penelitian ini adalah .59 yang mengindikasikan efek besar. Berdasarkan data ini, dapat disimpulkan bahwa penyelenggara grafik dalam materi penghitungan sejarah memiliki pengaruh yang signifikan terhadap hasil belajar terutama dalam pemikiran kritis siswa kelas 10 di SMK Giki 1 Surabaya.

Kata Kunci: Pemikiran Kritis, Graphic Organizer, Teks Recount Peristiwa Bersejarah

Abstract

Having critical thinking helps in conceptualizing, applying, analyzing, synthesizing, and evaluating information that accumulated from observing, reflecting, and communicating to conduct to further action. This study aims to find out implementation graphic organizer to improve students' critical thinking in historical recount material. This study focuses toward student learning's result of 10th graders at SMK Giki 1 Surabaya. This research uses quasi-experimental research design. The research data gained through pre-test and post-test's result on historical recount learning by using graphic organizer. The sample of this research was obtained at X-AK 2 class. It consist of thirty six students. The instrument analysis used validity and reliability test. Meanwhile, the technique of data analysis research using paired sample t-test, hypothesis test, and eta-squared calculation. Based on pre-test and post-test data, the *P* value was .000 and less than .05. it showed as a significant difference. The effect size of this research is .59 which indicated large effect. Based on these data, it can be concluded that the graphic organizer in historical recount material have a significant effect on the learning outcomes especially in students' critical thinking of 10th graders at SMK Giki 1 Surabaya.

Keywords: *Critical Thinking, Graphic Organizer, Historical Recount Text.*

INTRODUCTION

Nowadays, critical thinking is one of twenty first century skills that is very important. critical thinking can stimulate to identify problems around them, get the importance ways to solve the problem, collect the relevant information, find unnecessary beliefs, comperehend and apply the information accurately, define data to catch the evidence and make judgement about arguments, understand the correct conclusions, rebuild of one belief to get more experiences, create correct assessment about specific things and qualities in everyday activities (Shankapal). However, students especially in vocational high school still lack of English comperehension especially in their critical thinking. It is because of some reasons. It is because teacher still used teacher-centered learning. This makes learning process dominated by teacher and making the student less involves to teaching learning process (Supriyadi, 2006).

The researcher will use medium in the learning process is the solution to overcome the problem. The

medium will be used is graphic organizer. Graphic organizers guide students focus on what is important (Bromley, DeVitis and Modlo, 1995) because they highlight key concepts and vocabulary, and the relationships among them, thus providing the tools for critical and creative thinking. Graphic organizer sustains teachers to show and explain relationships between content and subcontent and how they in turn connect with other contents.

The researcher will use text for student to comperehend. It means students will be asked to stimulate their low-order thinking skill and critical thinking in high-order thinking skill for historical recount material. This study aims to find out whether Graphic Organizer would be effective to improve students' critical thinking or not.

There were some studies said that graphic organizers helped the students with recall and comprehension of passages at their current reading level. And also by using of graphic organizers positively impacted the students' reading comprehension and test scores (Humbert, 2014). Graphic organizrs also helped the result in the students' writing score was giving the significance difference in all aspects except vocabulary and mechanic (Eryanti, 2016). In short, graphic organizers allow students have critical thinking in learning process.

According to background of study that researcher found, the research question was formulated such as: Is there any improvement of students' critical thinking before and after being taught using Graphic Organizer?

Critical thinking gives big impact toward teaching and learning process. It can support student as a reader to find out the prove in what students are reading and identify the false or illogical reasoning. Thinking critically will also help students to create solid opinions of their own assignment that teacher gives to them. It means that students will be able to present and correct any denial that they make based on the proof they have evaluated (Thinking Critically, 2008). Moreover, critical thinking helps to empower students' soft skill toward learning process. It is supported by Halpern (1996 p.5) argues that critical thinking makes students's cognitive skill appears to increase the possibility of the students's result want.

The researcher puts historical recount as a material. It is because Blake Education (1999) argues that historical recount as a factual recount. It is a recount text which tells about the past events sequentially and significantly. It is suitable to motivate students critical thinking.

The researcher applied three types of graphic organizer.

- **5W Graphic Organizer**

This graphic organizer is adapted by Read All About It!: The 5W's and the News graphic organizer (Robb, 2003). It uses as first stage to encourage students' critical thinking toward the historical recount text that provided by teacher. Students will be expected to answer the following question with valid answer through this. It is hoped to make students identify the main points from each paragraph in texts easily and difficult words in text.

Figure 1. 5W Graphic Organizer

Difficult Words:	
What events were being described in each paragraph?	
Who do/does involve(s)?	
When did happen?	
Where does the action take place?	
Why is this important to read?	

- **A Descriptive or Thematic Map**

The researcher selects this graphic organizer because it is suitable to write all informations that stated in the text. It is also uses to compare two text that given by teacher.

Figure 2. Thematic Map
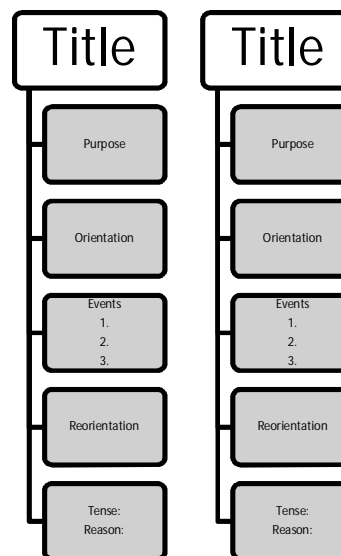
The Chart Graphic Organizer

This graphic organizer is adapted by Hayden (2012) which entitled the plot chart graphic organizer. It is an organizer to write down the details of the text such setting, characters, time and the events in sequence. By filling this organizer, students are expected make a historical recount organizely.

Figure 3. The Chart Graphic Organizer

Title	
Orientation (First paragraph)	
What happened?	
When did happen?	
Who did involve to the event?	
Where did it happen?	
How did it happen?	
Why did it happen?	
Series of Event	
(Second Paragraph) First, At first, Initially… Min. 2 Sentences	
(Third Paragraph) Then, Next, During, After That, Meanwhile… Min. 2 Sentences	
Reorientation (Fourth Paragraph) (It contains of what you think, feel, decide about the events did)	

Then, to apply this medium, the researcher make the learning aims, set up the targets, set up the text as the examples and explanations using visual medium, set up opportunities to practice.

METHOD

This research used quasi experimental one group pre-test-post-test research design since this study investigated the improvement students' critical thinking. The purpose of the researcher in this research was to find out how successfully graphic organizer to improve students' critical thinking in historical recount. It will be investigated by comparing the improvement of students' comprehension scores between the pre-test and post-test scores.

The first stage, experimental group was given a pre-test in order to measure students' reading and writing comprehension skill toward historical recount material. The pre-test began on April 23rd, 2018. Afterwards, on April 26th April, 2018 was a first meeting. There was 36 students participated in this study which meant there was no one absent in the class. Then, the researcher asked all students to take pre-test to know their critical thinking through the questions which were arranged by the researcher. The second meeting held on May 1st, 2018. At this part, the students were taught by using graphic organizer to catch their critical thinking toward historical recount material. Moreover, the third meeting was on May 8th, 2018. The activity was making a simple historical recount using graphic organizer. The last meeting was May 23rd, 2018. The researcher distributed the posttest to the students to know whether their score increase or not.

The subject of this study was the tenth grader in a vocational high school. It was because of there was no research to apply critical thinking in vocational high school. It consisted of 36 students. It was because the subjects were suitable to apply in this study. The material was historical recount text which had not taught to students yet.

This study was conducted in SMK Giki 1 Surabaya. This is one of vocational private school in Surabaya which good enough to conduct this study. Therefore, private school especially vocational high school was chosen because it can be beneficial for other vocational high school and private school if this research is successfully done.

This study used as a instrument. The test in this study was a multiple choice and writing test. Test was designed to find out students' critical thinking toward historical recount material. The researcher used multiple choice question to know students' critical thinking in analyzing and evaluating domains and it helps the researcher reliably and administer efficiently, beside that researcher will gives essay question to check students' critical thinking in creating domain.

This research uses content validity to know the validity of test's content . It because the researcher wants to find out about broad issue yet under several test items that could represent. Then, the test uses two types of reliability. There are cronbach's alpha and inter-rater reliability. Cronbach's alpha is a measure used to internal measurement of some test items. Therefore, inter-rater is "the level of agreement between raters or judges (Stephanie, 2016) not more

than 2 (Cohen, 1960)". This reliability used to prevent human's prejudice (Eryanti, 2016). The data rated by two raters.

For gaining the data, the researcher makes a guidelines as follows:

1. First of all, the reaseracher will conduct the tryout which will be gathered to the students who are not from the experimental group.
2. Then, to investigate students' critical thinking the researcher collect the data through the test. The pre-test was given to experimental group on April 23rd, 2018. The test contains 30 multiple choice questions and 1 item writing question.
3. The researcher gives treatments by using graphic organizer until four meeting to the experimental group
4. The researcher conducted post-test for experimental group after all treatments are done which held on May 23rd, 2018.
5. The researcher analyze the result of pre-test and post-test score, then compared into solid data.

The researcher used Ms. Excel to record the data from pre-test and post-test from the students who participated into the research. The data should changed into numeric format which known as coding step. In analyzing the data of the study, the researcher uses paired samples T-test to rate the result of the students' score in both pre-test and post-test. It perceived the significant difference between pre-test and post-test score.

Then the researcher interprets the output from paired-samples t-test through the steps explained by Pallant (2010: 243). The first is determining overall significance. The second stage is comparing the mean values. The three is calculating the effect size for paired sample t-test. Then, the researcher presents the result after measuring the data using SPSS.

RESULTS AND DISCUSSION
Result

The study attempted to answer the aim of this research which is to find out whether there is any significant difference effect the usage of graphic organizer toward students' critical thinking in historical recount text material or not at vocational high school. In addition, the study held in four meetings. Before the first meeting as the treatment, the researcher held try out test to find out the

reliability of the test and and the content validity of the multiple choice and writing test that related to the content of indicators of curriculum 2013. It was regarded was valid and reliable. The analysis of the calculation result will be presented below:

The Statistical Result of Pre-test

The test was in two parts. The first was students have to answer the question in multiple choice and scored. The second was students have to compose a simple historical recount text and scored using a rubric was adapted by Jacob's scoring profile. A statistical calculation done using SPSS which aimed to see the mean scored by students. The statistical calculation would be shown in the table:

Table 1. The mean value of Pre-test Scores

Descriptive Statistics

	N	Min.	Max	Mean	Std. Dev
Multiple Choice Pre-test	36	8	23	15.00	4.222
Organization Pre-test	36	1	18	13.28	5.604
Content Pre-test	36	1	18	11.06	4.433
Language Use Pre-test	36	1	15	10.08	3.660
Mechanics Pre-test	36	1	16	9.11	3.875
Valid N (listwise)	36				

That table showed the statistical calculation of the students' mean score at writing components and also multiple choice from pre test. The students' mean score at multiple choice is 15.00 from the maximum score is 30. Based on the rubric that the researcher compiled, the mean score of organization is 13.28 which means good to average criterion. The mean score of content is 11.06 which implies as good to average criterion. The mean score of language use

is 10.08 which also indicates good to average. The last is mechanics 9.11 which implies good to average criterion.

The Statistical Result of Post-test

After the researcher gave pre-test, the researcher gave treatments until four meetings. The experimental class was taught historical recount material using graphic organizer. After that, researcher gave post-test to students.

Table 2. The mean value of Post-test Scores

Descriptive Statistics					
	N	Min	Max	Mean	Std. Dev
Multiple Choice Post-Test	36	11	24	18.22	3.348
Organiz ation Post-test	36	13	18	16.64	1.693
Content Post-Test	36	11	18	14.64	2.153
Languag e Post-Test	36	9	17	13.06	1.970
Mechani cs Post-Test	36	8	17	12.78	2.153
Valid N (listwise)	36				

That table represented the statistical calculation of the students' mean score at writing components and also multiple choice from post-test. The students' mean score at multiple choice is 18.22 from the maximum score is 30. Based on the rubric that the researcher compiled, the mean score of organization is 16.64 which means in excellent to very good criterion. The mean score of content is 14.64 which implies as excellent to very good criterion. The mean score of language use is 13.06 which also indicates excellent to very good. The last is mechanics 12.76 which implies excellent to very good criterion.

The Result of T-Test Analysis

Table 3. The result of paired sample t-test analysis of pre-test and post-test score

		Paired Differences			
		Mean	t	df	Sig. (2-tailed)
Pair 1	Pre Test - Post Test	-16.806	-7.147	35	.000

According to the table above, the result showed the mean value of pre-test was 58.53. Meanwhile, the mean score of post-test score was 75.33. It indicated there were an improvement on students' score before getting treatments and after getting treatments. The table also showed the standard deviation in pre-test was 16.446 and in post-test was 5.155. If the probability (p) value which labeled as Sig. (2-tailed) is less than .05 it showed a significant difference (Pallant, 246:2010).

Even though the result showed significant difference yet we did not know how big the improvement was (Pallant, 247: 2010). The way to know that is by calculating the effect size through eta squared.

To gained the score using the formula as follows:

Table 4. The result of eta squared calculation

$$\text{Eta squared} = \frac{t^2}{t^2 + (N-1)}$$

$$\text{Eta squared} = \frac{-7.147^2}{-7.147^2 + (36-1)}$$

$$= \frac{51.08}{51.08 + (36-1)}$$

$$= 0.59$$

Cohen (1988) (as cited in Pallant, 2010) provided the guidelines to interpret the value. Those are .01 indicated small effect, .06 indicated moderate effect, and .14 showed large effect. The eta squared value that researcher got was .59 which was higher than .14. It implied that treatment gave large effect toward students' score in the test. So, it also meant students' critical thinking was improving through the application of graphic organizer.

Discussion

After the following treatments that taught to the students, the researcher draws conclusion that there was an improvement in students' score between pre-test and post-test. It means the students are able to make appropriate opinion that related to context, depends on criteria, and is self-correcting (Lipman, 1988) The mean value of pre-test which was 58.53 and post-test which was 75.33 also showed improvement. The students' could reach better result than before gatting treatments.

Another result from paired sample t-test using SPSS 24 version showed that students score from post-test gave significant difference after accepting treatments. The *P* value which labeled as Sig 2-tailed was .000. It could be as significant difference because it was lower than .05 (Cohen, 1988). Hence, the alternative hypothesis that there is significant in students' scores of pretest and posttest before and after being taught using Graphic Organizer was accepted.

Although, there was a significant difference in pre-test score and post-test score but we do not know how big the improvement. The researcher found that the effect size through eta squared was .59. It indicated that the treatments using graphic organizer gave large effect to the students.

Conclusion

There was a significant difference in students' critical thinking before and after being taught through graphic organizer through test that compiled by researcher. The result showed significant difference from paired sample t-test analysis analyzed by researcher. The *P* value showed .000 in sig.2-tailed which means less than .05. it showed significant difference (Pallant, 246:2010). The effect size which gained by eta squared calculation was .59 which more than .14=large effect. It indicated large effect from comparison before and after taught by using graphic organizer.

Based on the result from the research, the author appeals some conclusions. First, there was improvement of students' score after getting the treatments. It represented that there was a siginificant improvement in students' critical thinking toward historical recount material. Second, the calculation of paired sample t-test showed that alternative hypothesis accepted or proven. Finally, graphic organizers help students to get critical thinking more.

They strengthen enough students' to solve problem through learning process and especially in the test. They are also proven as one of choices as medium to tech historical recount in 2013Curriculum.

Suggestion

According to the entire finding and conclusions that revelaed previously, the researcher made some suggestions as follows:

1. Students hopefully apply the graphic organizer in other material in English subject nor other subjects. It is because graphic organizer was proven give positive impact toward students' learning process especially to improve students' critical thinking.
2. English teacher can use graphic organizers as medium to teach students other material by using graphic organizers. They are easy to use for students and teachers. Yet, it must be step by step taught to students and take more times.
3. Other researcher can also use this research as a reference to conduct similar research. However, other researcher conduct this with different level of students, different skill, or different material.

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