THE EFFECTIVENESS OF APPLYING CONSTRUCTIVE CONTROVERSY METHOD IN GAINING STUDENT'S CRITICAL THINKING FOR WRITING ARGUMENTATIVE ESSAY

Cahya Komara[1] and Widi Sriyanto[2]
[1]Muhammadiyah University of Prof. DR. HAMKA
[2]Muhammadiyah University of Prof. DR. HAMKA
Email: cahya.komara@uhamka.ac.id

Abstract
This research examined the effectiveness of applying Constructive Controversy method in terms of gaining student's critical thinking, thus their argumentative writing become solid. By using quasi-experimental design, this research took 20 students as respondents from both two classes, V-A as experiment class and V-B as control class. The scores of pre-test and post-test gathered from both classes are tested first through pre-requisites analysis; Normality of Kolmogorov-Smirnov and Homogeneity of Fisher. Then, the result of t-test showed that the t-observed was 2.88, and t-table was 2.02 on level of significance 0.05 with degree of freedom (df = n + n – 2) was 38. Regarding to the calculation, $t_o > t_t$ which means H_o hypothesis is rejected meanwhile H_i hypothesis is accepted. Therefore, Constructive Controversy method is effective to help students in gaining their critical thinking known from their arguments when writing argumentative essay.

Keywords: *Writing, Argumentative Essay, Constructive Controversy, Critical Thinking*

INTRODUCTION

Writing is always considered as important skill to be mastered by students when learning English. In fact, many literatures argue not only writing is important, but also it is difficult or complex to be learned (see in Stein & Kucan, 2010: 207; Westwood, 2004: 99; Al-Mahrooqi, Thakur, & Roscoe, 2014: 1). According to Silliman, Jimerson, & Wilkinson cited in Rijlaasdam (2005: 153) has pointed out this complexity by stating many processes occur at the same time when doing writing: decisions on information, meaning construction, language formation, editing the product, and constant monitoring of the process.

Thus, writing is a skill which creates multiple activity within the processes of thinking (to decide which information to be written), constructing ideas (by selecting language; word to word, sentence to sentence), and revising (review and recheck the writing). Although the process of writing seems difficult and complex for students to master, however, it should be noted that writing is simply to gain control over your ideas and get them down on paper (Wingersky, Boerner, & Balogh, 2009: 2). From this perspective, the soul of writing is ideas to be built. Consider, for example, students who understand every types of writing they learn in class, such as descriptive, report, argumentative, and many more, they also know the genre or social function of those types of writing, but they get problem in gaining ideas about the topic they need to explore. These facts emerge one big question, particularly when they write argumentative essay: What makes the students get hard to gain or develop ideas in writing it?

For Indonesian students' context, writing argumentative essay is not just easy as teachers think even in the level of

university. Students need to understand not only the generic structure or social function of the essay, but also the arguments to be expressed in their writing, so the readers can comprehend and be persuaded by writer's point of view about specific topic discussed. As it is already known that argumentative essay is one of types of writing that concentrates on writer's arguments of one topic by giving additional reason, evidence, or data (See Oshima & Hogue, 2006: 142; Anker, 2010: 258). In brief, when the arguments are not successfully convincing the readers, it cannot be categorized as a good argumentative essay.

This problem happened to students in fifth semester of Muhammadiyah Prof. DR. HAMKA University who study argumentative essay. Students often fail to propose good arguments, and the teachers are also rare to provide their student a situation to gain or develop their own opinion convincingly. In this case, students should do critical thinking which can force them to enhance, to state, and then to write strong arguments about specific topic based on factual data. There is one method that can be used to make students think critically named as Constructive Controversy method. Constructive Controversy can be understood as managing the controversial topic discussed together within a group to share argument and learn about its problem. Constructive Controversy is to learn as much as possible by understanding the various arguments pertaining to both sides of the issue in question. The main value lies in engaging the students in exploring, developing, and presenting arguments for a position with which they may not entirely agree (D'Eon, Proctor, & Reeder, 2007: 32).

Introduced over 30 years ago by Johnson and Johnson (1979), Constructive or Structured Controversy was as a way to engage students and deepen their understanding. It involves a group of students and engaging in a debate-like discussion of some controversial issue, but the students in applying this method must switch sides not only in pro position but also contra point of view or known as "Double Switch" into two rounds (See D'Eon & Procto, 2001: 251), then they draw a conclusion.

Moreover, D'Eon & Proctor (2001: 251-252) mentioned the steps or procedures conducting Constructive Controversy method known are as follow: In the first round, the instructor forms about four or five groups of controversy's teams. Then, determine issue or problem to be addressed by informing each group that they will identify the topic 2 times (two positions as pros and cons). Next, establish or draw each team on the position (pro or con) on this round, the instructor gives controversy sheets (topics and ideas must be inserted). Each team must think critically, expresses the main ideas and details in accordance with supporting information.

Furthermore, each member of team is picked randomly against other teams. All teams gather to declare the position of consensus, based on the information and perspective of each (team discussion results). Last, the instructor gives time to each team member to express their opinions. In the second round, the instructor asks the team to swap positions (if previous Pro, then become Cons, and vice versa). Next, instructor adjusts the position of the team against other teams (double switch). Afterwards, instructor gives a different controversy sheets (topics and ideas must be inserted again). Each

team must critically rethink in different perspective or side; express the main ideas and details in accordance with supporting information. Then, students are asked to do the same procedures as in the first round.

Practically, Constructive Controversy has been widely used and modified in line with the implementation as it is explained above, however Constructive Controversy method simply emphasizes on five points: 1) Organizing information and deriving conclusions, 2) Presenting and advocating positions, 3) Uncertainty created by being challenged by opposing views, 4) Epistemic curiosity and perspective taking, 5) Reconceptualization, synthesis, integration. Constructive Controversy is potentially a useful method to support and facilitate students by providing a structural and practical evidence which rationale ideas to strength their position (Millis, 2010: 96). This method is widely used to promote students' not only active learning, but also their critical and open-minded thought during the process, and tend to attempt an agreement.

Thus, the use of Constructive Controversy method which stresses on the activity of debate-like, may promote the students with critical thinking. As we know, critical thinking cannot be separated from daily life. Like Sternberg, Roediger, and Halpern (2007: 6) defined that critical thinking is important and necessary skill for people who deal with messy and complex situation in daily life, thereby they can find solution of each social problem appears. This important skill has many beneficial impacts in giving some opinions especially in the aim of solving problems.

Moreover, Pascarella and Terenzini (2005: 118) explained that critical thinking (CT) is an individual's ability to do some or all of the following: identify central issues and assumptions in an argument, recognize important relationships, make correct inferences from data, deduce conclusions from information or data provided, interpret whether conclusions are warranted based on given data, evaluate evidence or authority, make self-corrections, and solve problems. Moreover, CT skill is much needed, and it can be acquired since early when people are in school. They can train that skill as school is a good and conducive place to create active thinkers with stimulus from teacher. As Dam and Volman (2004: 357) stated that critical thinking skills will encourage students to think independently and solve problems in school or to participate in the context of everyday life.

However, in real life educational system, teachers are invisible to make their students to be active thinkers, especially in writing. It means the teachers rarely involve high thinking activities in the class to gain students' critical thinking. In fact, Liaw (2007: 51) explained that higher-order thinking skills are needed for students in facing community as part of knowledge-based society; thus EFL teachers have to responsible in assisting their students with this skill while learning English." Additionally, critical thinking has some great impacts for the students in language learning, such as in communicative language task whether in writing and speaking. Students can easily explore their thoughts if they have critical thinking skill.

Critical thinking itself is understood as the type of thinking that focus on reviewing, evaluating, and revising of previous thinking (Stratton, 1999: 28). For instance, there is a paradigm that appears to say "smoking is good for health", then someone thinks critically to review, evaluate, or even revise this idea whether it

is true or not. Other literatures enlightened critical thinking as the ability of someone to do at least four processes; 1) hunting assumption, 2) checking assumption, 3) See things from different viewpoints, and 4) taking informed action (Brookfield, 2012: 1).

In the context of writing argumentative, students who are asked to write, for example a topic about "sex abuse from man to woman" with a question "who needs to be blamed?" they will not tend to write their assumption about this topic only in one perspective, such as the man, or woman to be blamed, but more of that they can think critically by checking it, see from different points that might be other factors appear; parents, technology, fashion style, and many more before giving final action of conclusion. Thus, Constructive Controversy is a method that is promising for creating a critical thinking situation that improve students' competency in writing a good argumentative essay.

Regarding to the problem found and the explanation given above, this study investigates the effectiveness of applying Constructive Controversy method in gaining student's critical thinking for writing argumentative essay. Research findings about the use of this method have been positively affected to gain students' critical thinking in various contexts and settings such as Pederson, Duckett, & Maruyama (1990), Johnson and Johnson (1988, 1993, 2007), Daniels & Cajander (2010), Pratiwi (2014), or Mut'ia, Sunardi, & Slamin (2018). However, in the context of EFL, there is found still lack of findings about the Constructive Controversy method effect, particularly in terms of how successful and critical students in managing topic to be written in their argumentative essay.

Thus, the writer states question; is there any significant effect of applying Constructive Controversy method in gaining students' critical thinking for writing argumentative essay? Therefore, the hypothesis of this research is H_o: $\mu_x = \mu_y$ (There is no significant difference between the students who are treated using Constructive Controversy method and those who were treated using the conventional method) and H_i: $\mu_x > \mu_y$ (There is significant difference between the students who are treated using Constructive Controversy method and those who were treated using the conventional method). If $t_o > t_t$, it means H_o is rejected and H_i is accepted.

METHOD

The method of this research was the quasi-experimental design through the analysis of pre-test and post-test results. The quasi-experimental design had been a great opportunity to find out whether the Constructive Controversy method could effectively gain and build a foundation of students' critical thinking. The populations of this study were 134 students in fifth semester of Essay Writing subject in 2017/2018 Academic Year, which are four classes from V-A to V-D. However, this study only took 20 students as respondents from both two classes, V-A as experiment class and V-B as control class using purposive sampling technique.

To get the factual data, three instruments were used in this research, such as the 1) constructive controversy worksheets, 2) the argumentative writing worksheets (pre-test and post-test), and 3) the critical thinking rubric for argumentative essay proposed by NEIU Version (2005).

There were some procedures to be completed: At the beginning, students were given the argumentative writing worksheets (pre-test), then the students were group situated based on constructive controversy system to discuss an issue using constructive controversy worksheet given (total 4 issues). After all activity had been done, the students were given again the argumentative writing worksheets (post-test). Both students' argumentative writing results (pre-test and post-test) were measured by using critical thinking rubric (2 assessors) for argumentative essay as it is mentioned before.

The scores of pre-test and post-test gathered from both classes were tested first through pre-requisites analysis; Normality of *Kolmogorov-Smirnov* and Homogeneity of *Fisher*. After that, the hypothesis testing through t-test formula (Sudjana, 2005: 47) was applied to determine whether there are significant differences between the post-test scores of experiment class and control class.

RESULT AND DISCUSSION

Result

The results of this study were showed in following table, and the discussion was explained afterward. The data itself had been collected from the results of the pre-test and post-test scores from both classes. It was then statically calculated and tabulated as follows:

Table 1. The Score of Pre-test and Post-test from both classes

Symbol	Control Class		Experiment Class	
Respondent	Pre-test	Post-test	Pre-test	Post-test
r.1	27	30	70	85
r.2	56	59	50	58
r.3	59	62	60	68
r.4	44	46	70	82
r.5	59	60	75	85
r.6	58	58	46	58
r.7	54	56	58	70
r.8	50	48	54	60
r.9	65	68	63	75
r.10	70	72	38	44
r.11	63	66	60	73
r.12	44	46	38	50
r.13	42	48	42	50
r.14	46	46	42	58
r.15	46	48	50	66
r.16	38	42	64	74
r.17	50	54	56	64
r.18	54	60	63	72
r.19	63	66	33	36
r.20	42	46	50	70
n	20	20	20	20
$\overline{X}$	51.5	54.1	54.1	64.9
S	111.429	109.098	139.996	176.199
s^2	10.5562	10.44522	11.83171	13.27403

Based on the table 1 above, it can be seen that the pre-test scores from both classes (control and experiment classes) are not excessively different proved by the mean ($\overline{X}$) of both classes which are 51.5 and 54.1. However, there is slight difference in the post-test scores of both classes. The experiment class mean ($\overline{X}$) results showed the higher outcome than the control class which were 64.9 than 54.1. It means that the post-test scores achieved in control class are different; the post-test scores of the control class were in average level, meanwhile the post-test scores of the experiment class were better. Thus, the hypothesis testing or t-test can be done to determine or validate the significances impact of the data achieved from both classes.

Before conducting the t-test, the pre-requisites analysis is required which are the normality test and homogeneity test. The normality test is used in order to ensure the data to be normally distributed. In this

research, the normality test was calculated through *Kolmogorov-Smirnov's* statistical analysis under the alpha (α) = 0.05, and the hypothesis for calculating the normality test was H_i (The data of Control/Experiment class is not normally distributed if < 0.05) and H_o (The data of Control/Experiment class is normally distributed if > 0.05). Below is the calculation of normality test:

Table 2. The normality test results from both classes

T		Kolmogorov-Smirnov Z				
		$\overline{X}$.	SD.	Stat. (Z)	Asymp. Sig. (2-tailed)	D.
Co	Pre.	51.5	10.55562	0.442	0.990	N
	Post.	54.1	10.44522	0.755	0.619	N
Ex	Pre.	54.1	11.83171	0.443	0.992	N
	Post.	64.9	13.27403	0.454	0.986	N

Based on the calculation of normality test (pre-test and post-test) from control class above, it was known and obtained that significant value (pre-test) = 0.990 is bigger than alpha (α) = 0.05, as well as significant value (post-test) = 0.619 which is bigger than alpha (α) = 0.05. Therefore, H_o is accepted, and the sample of the control class is **normally distributed**. Similar results were also seen in the calculation of normality test (pre-test and post-test) from experiment class. It was obtained that significant value (pre-test) = 0.992 is bigger than alpha (α) = 0.05, as well as significant value (post-test) = 0.986 which is bigger than alpha (α) = 0.05. Therefore, H_o is accepted the sample of the experiment class is also **normally distributed**.

Meanwhile, the homogeneity test was used in terms of the data must fulfill the criteria of homogenous and avoid the data to be heterogeneous. For this research, the homogeneity test was calculated by using the *Fisher's* statistical analysis under the hypothesis: H_o (The variance data between Control and Experiment Classes is homogeneous if $F_{observed} < F_{table}$) and H_o (The variance data between Control and Experiment Classes is not homogeneous $F_{observed} > F_{table}$). Below is the calculation of homogeneity test:

Table 3. The Homogeneity test results from both classes

C	T	Fisher		
		F	Sig.	Remarks
Co	Pre. Post.	1.26	2.17	Homogenous
Ex	Pre. Post.	1.62	2.17	Homogenous

From the table 3 above, it was found that the variance (s^2) of pre-test scores between the experimental class and control class or $F_{observed} < F_{table}$ are 1.26 < 2.17. Meanwhile, for the variance (s^2) of the post-test scores between the experimental class and control class had shown $F_{observed} < F_{table}$ are 1.62 < 2.17. So, H_o is accepted and both variance data is **homogeneous**.

After the two pre-requisites analysis had been done, next was the t-test. As previously mentioned that this t-test was used to determine how significant the impact or difference of the application of Constructive Controversy method compared with conventional method data that had been collected and calculated from the pre-test and post-test score. This hypothesis testing used one tail with alpha (α) = 0.05, degrees of freedom (df) = 38, and t_{table} (2.02). Therefore, H_o is rejected if $t_{observed}$ is higher than t_{table}. Below is the result or calculation of t-test:

Table 4. The t-test results from both classes

Symbol	Score	t-test			
		df	t_o	t_t	Decision
$\overline{X_1}$	64.9	38	2.88	2.02	H_o Rejected / H_i Accepted
$\overline{X_2}$	54.1				
N_1	20				
N_2	20				
S_{gab}	33.5551				

Due to the table 4 above, the result of t-test showed that the average score of post-test experimental class was more significant than the control class (2.88 > 2.02). It means that H_o is rejected and H_i is accepted. Therefore, the use of Constructive Controversy method is effective to gain student's critical thinking for writing argumentative. Below is the visualization of the curve of the t-test result:

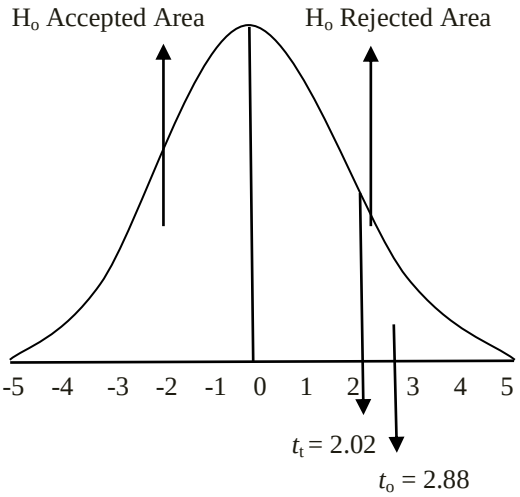

Figure 1. The curve of t-test

Discussion

Regarding to the data analysis and the results presented above, it can be said that the hypothesis to exam whether there is or not (H_i and H_o) an effect of applying Constructive Controversy method to gain student's critical thinking for writing argumentative is truly exposed. Firstly, it was known earlier that the mean ($\overline{X}$) of pre-test scores of both classes are quite similar, but the post-test of both classes showed slightly difference particularly the experiment class. This means the data of experiment class indicated better results. The data of the mean ($\overline{X}$) of pre-test and post-test results from experiment class were significantly increased from 54.1 to 64.9 within standard deviation (S) = 139.996 to 176.199 and Variance (S^2) = 11.83171 to 13.27403. Meanwhile, the mean ($\overline{X}$) of pre-test and post-test results from control class were not significantly increased from 51.5 to 54.1 within standard deviation (S) = 111.429 to 109.098 and Variance (S^2) = 10.55562 to 10.44522.

In addition, after phasing the pre-requisites analysis (data was normal and homogenous), the t-test was counted from the data which were found $t_{observed}$ or 2.88 was higher than t_{table} or 2.02. It then had successfully revealed there was evidence about positive effect of constructive controversy conducted in the experiment class compared to the control class; in this context is gaining students' critical thinking. This result is supported by the study from Yi (2004: 42-43) that showed Constructive Controversy system was a potential method to be applied in the context of EFL (English as Foreign Language) by his main findings that this method promoted high-level cognitive (metacognition) development which led to the increase of students' critical thinking. He argued that high-level cognitive was improved because the factor of Constructive Controversy system that encouraged students to take conflict as the way to stimulate students with the capability to think as protagonists equipped with the capability to think antagonist. Thus, they became more critical.

Zainuddin and Moore (2003: 3) also supported the result of this study and agreed that the use of Constructive Controversy method had created the students with better critical thinking. The main reason was students were provided with the manageable conflict; in addition they could focus on how to think critically with higher levels of reasoning that was vital to acquire the acquisition of academic language. They also found in their research that this method encouraged students to learn better writing, not only about the new concepts or understanding issue to which they have asked to write, but also students were be more gaining in terms of critical thinking skills especially when trying to generate new ideas.

Meanwhile in the different contexts, such as the research conducted by Smith, Matusovich, and Zou (2015: 19) who found the effectiveness of constructive controversy method for the undergraduate students, master, doctor, and professional setting with several concerns including increasing their critical thinking, supported their results with this findings that highlighted their undergraduate students, master, doctor, and professional setting who were treated with constructive controversy method had a great chance to think critically by learning about handling a controversial topic or issue which has multiple perspectives to discuss.

Bickford (2011: 41-42) who studied also constructive controversy method compared to debate method highlighted that students were tend to be more critical when they were treated with Constructive Controversy in three indicators; disposition, reason, and evidentiary support. His data showed that 80-90% of the students' comments were rational, employed logic, and utilized evidence. In contrary with the debate that exposed simply 20-50% of the students covered their arguments with rational thinking, use of logic, and supported evidence. The similar result also figured out from the research conducted by Santicola (2015: 182-183) who got the findings that the use of academic controversy approach could motivate students to be more active in participating learning. This lead to a goal that when students faced information that were not congruent with their own understanding, students were begin into a condition of organizing the conflict which make release their epistemic curiosity. In other words, it successfully grew critical thinking of his students.

In summary, it can be argued that all researches mentioned above had identical findings about Constructive Controversy method with final conclusion that it gave significant effect to gain students' critical thinking.

CONCLUSION

This study has discovered that Constructive Controversy method gives positive impact in gaining students' critical thinking for writing argumentative essay. Due to the results of statistics calculation and data analysis conducted by t-test, it has shown $t_{observed}$ is higher than t_{table} (2.88 > 2.02), with the degrees of freedom = 38 and a significance level of 5%. This means that H_o is rejected and the hypothesis H_i is received. In addition, the results of this study also confirms that the Constructive Controversy method is suitable and effective to be applied for fifth semester students of Muhammadiyah Prof. Dr. HAMKA University in 2017/2018 academic year, particularly when learning

to build arguments rather than using conventional methods.

Some suggestions for other researchers who might interest in implementing Constructive Controversy method as the basic foundation to build students' critical thinking skills as follows: 1) Constructive Controversy method has successfully given a positive impact on the students' critical thinking to write argumentative essay, thus it is not impossible if this method can also be applied in teaching other different skills, for instant speaking that also requires students to talk based on the idea that is perceived through the critical and logical thinking, like in debate practices, speech, and many more. 2) By using Constructive Controversy, other researchers would have plenty opportunity and incentive for exploring other aspects not only how students can do critical thinking, but also how they solve problems, be open minded, adjust motivation, or create engagement to the learning skill or material given by lecturers or teachers. 3) Last, the results of this research hopefully can be a good reference to support the implementation of Constructive Controversy method on the other field of study that will enrich the sources or evidence of pre-existing research done.

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