

The Effect of Toulmin's Model of Argumentation Within TWPS Strategy on Students' Critical Thinking on Argumentative Essay

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Abstract: This research aimed at investigating the effectiveness of Toulmin's model of argumentation within TWPS strategy on undergraduate students' critical thinking on argumentative essay. A quasi-experimental design with a pretest-posttest and nonrandomized control group design was used. The subjects were 38 fourth semester students in English Department of *Universitas Negeri Malang*. The experimental group was treated by using Toulmin's model of argumentation within TWPS strategy while the control group was treated without TWPS strategy. Students' critical thinking ability was measured by using argumentative essay test. ANCOVA was used to test the hypotheses. Findings showed there was not significant difference on the students' critical thinking ability. However, Toulmin's model of argumentation within TWPS strategy proved to improve the students' critical thinking as shown by the improvement of the experimental group's mean score.

Key Words: critical thinking, Toulmin's model of argumentation, argumentative essay, Think-Write-Pair-Share strategy

Abstrak: Penelitian ini bertujuan untuk menyelidiki efektivitas model argumentasi Toulmin dalam strategi TWPS pada kemampuan berpikir kritis esai argumentative mahasiswa. Desain kuasi-eksperimental digunakan dengan *pretest-posttest dan nonrandomized control group*. Subjek dari penelitian ini adalah 38 mahasiswa semester IV di Jurusan Bahasa Inggris Universitas Negeri Malang. Kelompok eksperimen diteliti dengan menggunakan model argumentasi dalam strategi TWPS sedangkan kelompok kontrol diteliti tanpa strategi TWPS. Kemampuan berpikir kritis siswa diukur dengan menggunakan uji esai argumentatif. ANCOVA digunakan untuk menguji hipotesis. Temuan menunjukkan tidak ada perbedaan yang signifikan pada kemampuan berpikir kritis siswa. Namun, model argumentasi Toulmin dalam strategi TWPS terbukti meningkatkan berpikir kritis siswa seperti yang ditunjukkan oleh nilai rata-rata.

Kata kunci: berpikir kritis, model argumentasi toulmin, esai argumentatif, *Think-Pair-Share Write-strategy*

A lot of research on critical thinking, focusing on writing have been conducted for more than a quarter of century (Karbach, 1987; Davidson, et al., 1997; Hubert, 1997; Stapleton, 2002; Twardy, 2003; Alagozlu, 2007; Elsegood, 2007; Rafik-Galea, et al., 2008; Maftoon, et al., 2010; Arju, 2010; Hillocks, 2010; Rex, et al., 2010; Fahim, et al., 2012; Hogsette, et al., 2012). Although much thought and research have been devoted to the teaching of critical thinking focusing on writing skill, the notions of critical thinking has not been extensively investigated in Indonesia.

Mariyana (2007) and Yuyun (2010). Mariyana (2007), for example, focuses on fostering critical thinking skills through active learning among early childhood. This research proves that there is a significant difference between before and after the treatment dealing with the early childhood's ability in fostering critical thinking through the active learning approach. Another research was conducted by Yuyun (2010) which employed systemic functional analysis especially mood and modality analysis to analyze arguments in senior high school debate.

Among other types of writing, argumentative writing is considered the type of writing that best reflects EFL learner's critical thinking (Davies, 2006). This type of writing can also be evaluated and analyzed in a relatively accurate manner against both the writing conventions and the principles of argument which involve logics, the basic of critical thinking. Moreover, Hillocks (2010) testifies argument is at the heart of critical thinking and academic discourse, the kind of writing which students need to know for success in college. In the language classroom, learning to think critically can be done through the process of learning to write argumentative essays. Regarding that the good writing should reflect the aspects of critical thinking, an argumentative writing, then, needs to be defended by the clear assumptions, evidence, and arguments (Kurland, 2000).

Argumentative writing becomes more sophisticated and complex for the undergraduate students compared to argumentative writing in the high school level. However, the undergraduate students are demanded to be able to write the argumentative essay critically. The criticality in an argumentative writing is needed to take a stand toward the topic and to learn how to reason. Critical thinking, too, reflects on how the undergraduate students comprehend the topic of the subject. In regards to the necessity of the critical thinking ability for undergraduate students, it should be taught through the process of learning to write argumentative essay and practiced for many times. This is in line with Warburton's (2007) argument; he states that the writing argumentative essay skills are built in good habits that are patterns of behaviour which become automatic skills.

Generally, in writing, not excluding argumentative writing, there are three important parts: introduction, body, and conclusion. The introduction in argumentative writing covers the thesis statement or claim in which the writer opts to choose his or her standpoint toward the topic being argued, whether s/he agrees or disagrees. While the body of argumentative writing covers supports to maintain the argument of the writer and warrants to show how the evidences logically connected to the data. The writer can also put backing and rebuttal inside the body of an argumentative essay. Finally, the last part of the argumentative essay is called conclusion, in which the writer puts his/her summation of points or final evocative thought to ensure the readers remember the argument.

In the teaching and learning context, many strategies have been used in teaching writing. Among different strategies, Bajracharya (2010) suggests that teachers select appropriate strategy of instruction according to the subject, content, and topic of instruction. Moreover, she suggests a number of strategies and methods useful for teaching to develop critical thinking ability in the students. Some of the strategies are Think-Write-Pair-Share (TWPS), Know/Want to know/Learn (KWL), What/so what/now what, Mix/freeze/pair, Quick-write, Pens in the middle, Value Line, Directed Reading Activity (DRA), Jigsaw, One Stay-Three Stray, Walk Around, Reciprocal Teaching, and Save the Last Word for Me.

All those mentioned above strategies are Cooperative Learning (CL) models. Many scholars support the idea that CL can facilitate learners' cognitive growth and benefits ELT in various aspects such as constructive peer interaction and active learning Ovando et.al., (2006). Johnson et al. (2007) strongly believe in their research in the cooperative learning field. They contend, "Cooperative groups are perhaps the most effective tool colleges have in inculcating desired attitudes in students". While this statement may be true, they also document the need for more research in this area. As Kagan (1990) states that CL structures always include the following factors: class building, team building, communication builders, mastery, concept development, division of labor, cooperative projects. Furthermore, Panitz and Panitz (1998) found that cooperative learning has shown to stimulate critical thinking in students through the development of higher-level discussion within groups.

One of the cooperative learning models is Think-Write-Pair-Share (TWPS) strategy. TWPS strategy is a modification of Think-Pair-Share, which was created in 1981 by Frank Lyman (American Alliance for Innovative Schools, 2011). TWPS strategy is a simple strategy for processing information or activating background knowledge about certain topic. The procedure is simple, first after asking a question or a topic, tell students to think silently about their answers. As a variation, a teacher might have students write their individual answers. Then the teacher asks them to pair up with a partner to compare or discuss their responses. Finally, the teacher calls randomly on a few students to summarize their discussion or give their answer. It is also important for doing so in order to ensure that students are individually accountable for participating. Thus, this present research employed the Think-Write-Pair-Share (TPWS) strategy.

Besides implementing the TWPS strategy itself, there is another way to teach argumentative writing, viz. by using Toulmin's model of argumentation (Karbach, 1987 and Rafik-Galea et.al., 2008). They report an approach used to explore the quality of students' argumentative writing and critical thinking ability through the use of the Toulmin's model of argumentation for arguments. The result indicates that Toulmin's model of argumentation improves the writing ability of the students in Malaysia. This model of teaching encourages students to concern the writing of argumentative essay with the existence of claim, support (ground), warrant, backing, qualifier, and rebuttal.

Considering the parts included in Toulmin's model of argumentation, this present research adapted the crucial parts needed in the argumentative essay, namely stance or claim, supports, warrant, and refutation or rebuttal of opponent's argument (Rex, et al., 2010). The stance functions as the position of the persuader, in which the persuader attempts to start to find evidence appropriate for the angle. Warrant is the assumption that most people usually take for granted. Support or evidence functions as the supporting data so that the claim can be more convincing. While refutation or rebuttal of opponent's argument functions to show that, the writer's arguments are more convincing than the opponent's argument.

Based on Rafik-Galea et. al. research in 2008, it is revealed that the Toulmin's model of argumentation in argumentative essays has a positive effect. The result reveals that the students with the low language ability were able to learn how to think constructively and develop appropriate critical thinking skills for argumentative writing. In regards to the positive effect of Rafik-Galea et.al research, Toulmin's model of argumentation in argumentative essay is worth to be conducted in ELT undergraduate students of Indonesia. Besides, Toulmin's model of argumentation in argumentative essay can also help the students to make candid components of argumentation in their essays (Hitchcock and Verheij, 2006). Even though there are many patterns in constructing the elements of argumentative essay, still Toulmin's model of argumentation in argumentative essay is the umbrella of argumentative essay pattern, which consists of six elements. viz. claim or thesis statement, supports, warrant, qualifier, backing, and rebuttal.

In Indonesian context, Toulmin's model of argumentation had never been implemented, therefore this recent research aimed to investigate the effectiveness of Toulmin's model of argumentation imple-

mented in Think-Write-Pair-Share (TWPS) strategy on undergraduate students' critical thinking ability in argumentative essay. To be more specific, this recent research aimed at investigating the effectiveness of Toulmin's model of argumentation within TPWS strategy on undergraduate students' criticality as reflected in their argumentative essay, in terms of: a) the students' presentation of claim; b) the students' presentation of supports and warrant in the developmental paragraph; and c) the students' presentation of refutation.

METHOD

This recent research aimed to investigate the effectiveness of Toulmin's model of argumentation implemented within TWPS strategy on undergraduate students' critical thinking ability in argumentative essay. Due to inability of assigning subjects to groups randomly, this research used Nonrandomized Control Group, Pretest-Posttest Design. This present research consisted of two variables; one independent variable, namely Toulmin's model of argumentation within TWPS strategy and one dependent variable, namely argumentative essay writing scores, which were obtained from both pretest and posttest administered in both groups. By conducting this experimental design, this study proposed to investigate whether the independent variables affects the dependent variable or not.

In the beginning of the research, both experimental group and control group were tested by using the same material to see their initial ability in argumentative writing. The result of the pretest was analyzed by considering the component of the argumentative essay adapted from Toulmin's model of argumentation; the researcher used scoring rubric to tabulate the existence of the aspects in the argumentative essay pretest. After the administration of the pretest, the experimental group was treated by implementing the proposed strategy that was TWPS in which the Toulmin's model of argumentation was combined.

On the other hand, after the administration of pretest, the control group was treated by the lecturer using Toulmin's model of argumentation in individual writing strategy to control the bias. The control group did not experience working in group while doing the writing activities, yet the lecturer used the researcher's lesson plan. Both groups were given the same prompts during the learning activities. In the end of the research, both experimental group and control

group underwent the same posttest to see the progress they made during the process of writing activities. In addition, the same scoring guide was used in the posttest. Later, the result of posttest of experimental group was compared to the results of posttest of control group.

The population of the research was the fourth semester of undergraduate students of State University of Malang in the even semester academic year of 2013/2014. The researcher chose two out of ten available classes to be the samples of this present research; each class consisted of 17 and 21 students. One of the chosen classes was assigned as the experimental group and another class was assigned as control group. The selection of the two classes was carried out using simple random sampling by directly choosing the classes that were accessible. The taken classes were taught by the same lecturer.

There were two writing strategies implemented as treatments assigned to the subjects of the research. The TWPS strategy was implemented in the experimental group while individual writing strategy was implemented in the control group. Both groups were taught using Toulmin's model of argumentation in the same time allocation that was 2 x 50' in each meeting for 8 meetings. The meetings covered 1 meeting for pretest, 1 meeting for posttest, and 6 meetings for the learning activities. To control the bias, the experimental group was taught by the researcher while the control group was taught by the lecturer of argumentative writing.

Even though the two classes experienced different treatments, yet the steps of the learning followed the same framework, namely exploration, elaboration, and confirmation (EEC). The exploration step serves various purposes such as to set a focus, to tap prior knowledge, to arouse interest and curiosity, to lessen anxiety, and to make the content more accessible. The elaboration step functions to allow students to formulate cognitive concepts, elaborate and contrast, make inference, evaluate, before they are able to create conclusion about the discussed topics. The confirmation step refers to the stage in teaching and learning process where students make report on the result of their work in elaboration stage (Permendiknas Nomor 41 Tahun 2007). For the experimental group, TWPS strategy was applied.

In the first exploration step, students of experimental class had some activities that stimulated their interest and motivation to learn. During the exploration step, the researcher conducted activities aiming at

connecting students to the discussed topic such as brainstorming. The next step was elaboration which students did the activity in pairs. The students read the prompt given by the researcher. In this step, the students of each group discussed the given prompt and outlined the possible reason related to the prompt. After making the outline, the students were to make a draft individually. Then, the draft was checked in pairs. In the confirmation step, the students shared their writing work in front of the class. This activity was done to make sure that the students really master the learning. The scoring was done by the lecturer.

Even though the control group was taught by using individual writing strategy, the same steps of learning were implemented. In the exploration step, the teacher started by introducing what the students had learnt and in the elaboration step, the students started to read the topic or the prompt individually followed by outlining the essay individually. While outlining the essay, the students also browsed to find some evidences to support their claim. Next, the students made a draft of the argumentative essay based on the topic given. The last step, the confirmation step, the students submitted the writing work. The lecturer assessed the students' writing work herself. The Table 1 comprises the activity of experimental group and Table 2 comprises the activity of control group during the research.

In regard to obtain the data required in this research, the research instrument was employed. There was one instrument used in this research. The instrument was the writing prompts for pretest and posttest. Writing test as the main instrument of this research was administered to see the students' achievement before the treatment (pretest) and after the treatment (posttest). The writing test was in the form of subjective test which consisted of an instruction and a prompt. The test takers wrote the argumentative essay accordingly by providing a claim, warrants, supports, and refutation. The argumentative essay consisted of three parts of essay's structures: introductory paragraph, body or development paragraphs, and concluding paragraph.

The results of the students' argumentative essay writing pretest and posttest were checked by using the scoring rubric. The scoring rubric was developed based on the need in scoring argumentative essay. The analytic scoring was adapted from the Internet entitled "Argumentative Essay Evaluation Rubric". The final scores were recapitulated from the two raters who rated the students' writing of the pretest

Table 1. Procedures of Instruction for the Experimental Group

Phase	Teacher	Students
Exploration	<ul style="list-style-type: none"> Teacher asks question related to the topic of the argumentative essay to activate the students' background knowledge. Teacher tells and explains the topic of that particular day. 	<ul style="list-style-type: none"> Students answer the questions based on what they already know. Students listen to the teacher's explanation.
Elaboration (Think-Pair) (Write)	<ul style="list-style-type: none"> Teacher divides the students into pairs. Teacher asks the students to take a position if they are pro or contra towards the given topic by giving a lottery. Teacher asks the students to make the outline of the essay. Teacher asks the students to make a draft of argumentative essay based on the outline individually. Teacher asks the students to swap their work with the same side (pro meets pro and contra meets contra) and to give peer feedback. 	<ul style="list-style-type: none"> Students count 1 to 7 and gather with the same number. Students find several reasons related to their position towards the topic given in pairs. Students make outline of the essay based on the topic. Students make the draft of argumentative essay based on the outline individually. Students swap their work with the same side (pro meets pro and contra meets contra) and to give peer feedback.
Confirmation (Share)	<ul style="list-style-type: none"> Teacher asks one of the students as the representative from both pro and contra to share their result of argumentative essay in class. 	<ul style="list-style-type: none"> One student from both pro and contra present their argumentative essay in class.

and the posttest. There were eight components to be rated based on the scoring rubric namely thesis statement, development, refutation, conclusion, organization, grammar, vocabulary, and mechanics. The total scores were obtained by summing up the eight components from each of the raters. To answer all of the research problems, the data were analyzed descriptively and statistically by using SPSS 16.0.

RESULT AND DISCUSSION

The pretest was administered to obtain the initial students' writing scores of the experimental and the control groups. Based on the descriptive statistics analysis, in the pretest of the experimental group, the standard deviation was 13.83, the minimum score was 36.50 and the maximum score was 86.50. On the other hand, in the control group, the standard deviation was 11.99, the minimum score was 34.00 and the maximum score was 76.50. It means that the standard deviation between the two groups was not too different. Table 3 presents the descriptive statistics analysis for the pretest in the experimental and the control groups.

The mean scores of the pretest in the experimental group was 61.81, while the mean scores of

the control group was 57.59. So, the mean difference scores of the pretest between the experimental and the control group was 4.22.

A posttest was administered after six meetings of the treatment. The standard deviation of the posttest in the experimental group was 9.56, the highest score was 91.00 and the lowest score was 48.00. In the control group, the standard deviation was 11.93, the minimum score was 50.50 and the maximum score was 84.50. Based on the overall descriptive statistical analysis, the posttest students' writing scores in the experimental group were higher than the control group. Table 4 presents the mean difference, the standard deviation, the number of subjects involved, the minimum and the maximum scores of posttest in the experimental and control groups.

In the posttest, the students' writing mean score was higher than the pretest. It was found that the students' mean score of posttest in the experimental group was 72.09 and in the control group was 71.02. So, the mean difference of the posttest between the students who were taught by using Toulmin's model of argumentation within TWPS strategy and the students who were taught by using Toulmin's model of argumentation without TWPS strategy was 1.07. It meant that the students who were taught by using

Table 2. Procedures of Instruction for The Control Group

Phase	Teacher	Students
Exploration	<ul style="list-style-type: none"> Teacher tells the topic of that particular day. 	<ul style="list-style-type: none"> Students listen to the teacher's topic.
Elaboration	<ul style="list-style-type: none"> Teacher divides the students who should write pro-argumentative essay and write contra-argumentative essay. Teacher asks students to make a draft of the argumentative essay. 	<ul style="list-style-type: none"> Students prepare the reasons to support the given topic given. Students make a draft of the argumentative essay individually.
Confirmation	<ul style="list-style-type: none"> Teacher asks the students to hand in their argumentative essays. 	<ul style="list-style-type: none"> Students hand in their argumentative essays to the teacher.

Table 3. The Descriptive Statistics Analysis of the Pretest in the Experimental Group and the Control Groups

Stages	Descriptive Statistics	Groups	
		Experimental	Control
Pretest	Mean	61.8095	57.5882
	SD	13.83246	11.98728
	Min	36.50	34.00
	Max	86.50	76.50
	N	21	17

Table 4. The Descriptive Statistics Analysis of The Posttest in The Experimental and The Control Groups

Stages	Descriptive Statistics	Groups	
		Experimental	Control
Posttest	Mean	72.0952	71.0294
	SD	9.55722	11.93272
	Min	48.00	50.50
	Max	91.00	84.50
	N	21	17

Toulmin's model of argumentation within TWPS strategy achieved a higher mean score than those who were taught by using Toulmin's model of argumentation without TWPS strategy. It was concluded based on the statistical descriptive analysis.

The final scores were recapitulated from the two raters who rated the students' writing of the pretest and posttest. There were eight components to be rated based on the scoring rubric namely introduction and thesis statement, development, refutation, conclusion, organization, grammar, vocabulary, and mechanics. The total scores were obtained by summing up the average scores of eight components from each of the raters. The average score from the two raters was calculated and made as the final score for students' writing achievement of the pretest and the posttest. Table 5 indicates the mean differences among the writing components in pretest and posttest of both groups.

Statistical assumptions needed to be fulfilled before deciding the statistical analysis used for the data

analysis. From the beginning, the researcher planned to use ANCOVA and used a pretest as the covariate. Assumptions analysis for this statistic were the test of homogeneity, normality and linearity (Leech et al., 2005).

The first assumptions to be fulfilled is the homogeneity. To estimate the homogeneity of the data, the Lavene's test was utilized. Table 6 shows the result of the computation of Levene's test for the pretest by using SPSS 16.0

Based on Table 6, the analysis of the homogeneity test of variance showed that the significance value or *p*-value was .171. It meant that the *p*-value was greater than the level of significance $\alpha = .05$ (Sig.

Table 6. The Computation for Homogeneity Testing

Levene's Statistic	df1	df2	Sig.
1.955	1	36	.171

.171 > Sig. .05). In other words, the variances of the data were equal or homogenous.

Second, a normality of the data has to be fulfilled. Therefore, the normality testing was employed. Table 7 demonstrates the result of Kolmogorov-Smirnov and Shapiro-Wilk tests for the posttest by using SPSS 16.0.

Based on Table 7, the significance values for the normality test of Kolmogorov-Smirnov for the posttest result of both groups were greater than the level of significance $\alpha = .05$. To be more specific, the significance value for the experimental group towards the level significance $\alpha = .05$ was (Sig. .738 > Sig. .05) and the significance value for the control group towards the level significance $\alpha = .05$ was (Sig. .060 > Sig. .05). In other words, the data for both groups were normally distributed.

The last statistical assumptions to be fulfilled are linearity. The data were linear if the significance value was greater than the level of significance $\alpha = .05$. Table 8 showed the result of the computation of linearity testing.

From Table 8, it shows that the significance value between groups was .761. Since the significance value

between groups was greater than the significance value $\alpha = .05$ (Sig. .761 > Sig. .05), it meant that the data were linear.

From those three statistical assumptions above, it can be concluded that all of the statistical assumptions were fulfilled. Therefore, a parametric test using ANCOVA was performed to test the hypotheses. Ross and Morisson (1996) stated that ANCOVA replicates ANOVA or MANOVA but it employs an additional variable to control for treatment group differences in aptitude and/or to reduce error variance in the dependent variable(s).

The first statistical computation using ANCOVA is performed to test the main hypothesis. Table 9 shows the computation of ANCOVA for the main hypothesis. The data obtained in posttest were computed by using ANCOVA by means of SPSS 16.0. Later, H_0 was accepted if p -value (Sig.) was higher than the significance value $\alpha = .05$. Based on the data presented in table 3.7, the p -value was .832 and it was higher than the significance value $\alpha = .05$ (Sig. .832 > Sig. .05). Therefore, it can be concluded that the students who were taught using Toulmin's model of argumentation within TWPS strategy did

Table 5. Mean Difference of Writing Components based on the Pretest and Posttest of the Control and the Experimental Groups

Stages	Group	Components of Argumentative Writing							
		TS	DEV	REF	CON	ORG	GR	VOC	MEC
Pretest	Control	9.59	12.5	8.85	7.85	5.88	4.26	4.59	4.21
	Experiment	10.4	12.8	11	8.31	6.33	4.38	4.45	4.17
Posttest	Control	10.91	14.76	12.71	10.21	7.88	5.14	4.79	4.65
	Experiment	12.17	15.17	12.62	10.67	7.62	4.69	4.45	4.81

Note: (TS) Thesis Statement, (DEV) Development, (REF) Refutation, (CON) Conclusion, (ORG) Organization, (GR) Grammar, (VOC) Vocabulary, (MEC) Mechanics

Table 7. The Computation for Normality Testing of the Posttest Result

Tests of Normality							
		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Group	Statistic	Df	Sig.	Statistic	Df	Sig.
Pretest	Experimental	.136	21	.200*	.970	21	.738
	Control	.163	17	.200	.897	17	.060

Table 8. The Computation for Linearity Testing

		Sum of Squares	Df	Mean Square	F	Sig.
POSTTEST * GROUP	Between (Combined) Groups	10.672	1	10.672	.094	.761
	Within Groups	4105.045	36	114.029		
	Total	4115.717	37			

Table 9. The Computation of Main Hypothesis

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
GROUP	4.001	1	4.001	.045	.832

not show better critical thinking ability as reflected in their argumentative essay than those who were taught using Toulmin's model of argumentation without TWPS strategy.

Furthermore, to check the elaboration of the hypothesis, for the introduction, development, and refutation aspect, the scores of each aspect were computed by using ANCOVA.

The result of the computation of ANCOVA for the second hypothesis demonstrated that p -value (.073) was greater than the level of significance $\alpha = .05$ (Sig. .073 > Sig. .05). It meant that the students who were taught using Toulmin's model of argumentation within TWPS strategy did not present better convincing claim in the introduction paragraph as reflected in their argumentative essay than those who were taught using Toulmin's model of argumentation without TWPS strategy.

The result of the computation of ANCOVA for the third hypothesis demonstrated that p -value (.635) was greater than the level of significance $\alpha = .05$ (Sig. .635 > Sig. .05). It meant that the students who were taught using Toulmin's model of argumentation within TWPS strategy did not present better supports and warrants in the developmental paragraph as reflected in their argumentative essay than those who were taught using Toulmin's model of argumentation without TWPS strategy.

The result of the computation of ANCOVA for the fourth hypothesis indicated that p -value (.517) was greater than the level of significance $\alpha = .05$ (Sig. .517 > Sig. .05). It meant that the students who were taught by using Toulmin's model of argumentation within TWPS strategy did not present better critical refutation as reflected in their argumentative essay than those who were taught using Toulmin's model of argumentation without TWPS strategy.

Based on the result of the hypotheses testing, it was found that there was no significant difference on the students' critical thinking ability as shown on the students' argumentative writing between students who were taught by using Toulmin's model of argumentation within TWPS strategy and the students who were taught by using Toulmin's model of argu-

mentation without TWPS strategy. In conclusion, Toulmin's model of argumentation within TWPS strategy had no significance effect to improve the students' critical thinking ability in argumentative essay.

The result of this research was in contrast with the result of the previous research—conducted by Hitchcock and Verheij (2005), Rafik-Galea et.al. (2008), and Rex et.al. (2010) revealed that the Toulmin's model of argumentation in argumentative writing was effective in teaching argumentative writing. For instance, in Rafik-Galea et.al.'s research, it was revealed that based on the analysis, the results showed that overall there was a positive difference between the pretest and posttest. The minimum and maximum marks for each element in the Toulmin model scored by the subjects' in the posttest increased compared to the pretest.

Most of the studies that involve Toulmin's model of argumentation to improve students' critical ability were effective. However, this present research using Toulmin's model of argumentation within TWPS strategy, found that there was no significance effect on inserting Toulmin's model of argumentation into TWPS strategy to improve students' critical thinking ability.

Referring to the ANCOVA computation of the first hypothesis, it was shown that there was not enough evidence to reject the null hypothesis since the p -value (Sig.) was higher than the level of significance $\alpha = .05$. In other words, there was not significance difference of the critical thinking shown in the argumentative writing between students who were taught by using Toulmin's model of argumentation within TWPS strategy and those who were taught by using Toulmin's model of argumentation without TWPS strategy, since the second, the third, and the fourth hypothesis did not indicate the students' critical ability in their argumentative writing. In short, Toulmin's model of argumentation within TWPS strategy did not give a significant improvement to the students' critical thinking ability after the treatment.

The acceptance of the null hypotheses can be explained by considering some factors such as the history, the method used in the control group, and the number of meetings.

The first factor was history. The history factor refers to the students' prior knowledge towards argumentative writing. This research started on the last 8 meetings of the semester, thus the students both at

the control and experimental groups had already experienced the same method and knowledge on argumentative writing with their lecturer. As the result, the mean difference on the posttest between the two groups was slight different.

The third factor was possibly due to the method used in the control group. During the research, both experimental and the control group had the different treatments. As mentioned above, the experimental and the control group differed merely on the method used. The experimental group experienced the TWPS strategy while on the other hand the control group experienced individual writing (without TWPS strategy). In the control group, the students experienced the Toulmin's model of argumentation using individual writing strategy, thus since the students in the control group were accustomed to write individually, it was beneficial for them to write the posttest. Different from the students in the experimental group, where they were accustomed to write and share ideas in pairs, it gave barriers and obstacles to write individually on the posttest.

The fourth factor was the number of meetings. In this research, both experimental and control group had six meetings of treatment. The six meetings for the treatment was assumed as the contributory factor causing the ineffectiveness in this research. According to Naidu (2007), the ability to write is not naturally acquired. It needs a lots of practice to develop the ability to write. Therefore it is reasonable that the students cannot improve the critical thinking ability on the argumentative writing within six meetings of treatment.

CONCLUSIONS AND SUGGESTIONS

The data analysis shows that there were no significant differences of the students' presentation of claim in the introduction paragraph, supports and warrants in the developmental paragraph, and critical refutation as reflected in their argumentative essay between students who were taught by using Toulmin's model of argumentation within TWPS strategy and the students who were taught by using Toulmin's model of argumentation without TWPS strategy.

Moreover, this research had its weaknesses due to some reasons. First, the students in the control group were taught by the lecturer who has become an expert in the teaching of writing. Thus, since the

lecturer taught the control group during the treatment caused an experimenter threat. Second, since before the research was conducted, students in both groups had learnt about argumentative writing, they already had a kind of mindset toward argumentative writing. The students already known what to do after getting the certain topics to be written argumentatively. Based on the results of this present research, the TWPS strategy was proven ineffective to increase the students' critical thinking ability since they experienced working in pairs during the treatments. In a nutshell, having worked in pairs during the treatments became the students' obstacle since they had to write individually in the posttest.

As the result, based on the statistical computation it was found that the Toulmin's model of argumentation within TWPS strategy was ineffective to improve the students' critical thinking ability in the argumentative writing significantly. Eventhough the result of the present research showed the ineffectiveness of the Toulmin's model of argumentation within TWPS strategy in students' argumentative writing, the Toulmin's model of argumentation within TWPS strategy could improve the students' critical thinking ability in the argumentative writing. The experimental group gained the better mean scores than the control group in terms of the presentation of claim in the introduction paragraph, supports and warrants in the developmental paragraph.

In other words, statistically the Toulmin's model of argumentation within TWPS strategy had no significance effect to improve the students' critical thinking ability. However, Toulmin's model of argumentation within TWPS strategy proved to improve the students' critical thinking ability as shown by the improvement of the experimental group' mean score.

In accordance with the research finding, it is suggested for future researchers to give extra individual assignments outside the treatments since the individual assignments for students help them to develop autonomous learning, especially in writing argumentative essay. It is also preferably suggested for future researchers to conduct the reasearch design in which the reasearchers teach both experimental and control group to avoid the experimenter threat.

Future researchers also may add extra meetings in giving treatment to avoid students' obstacles in developing critical thinking ability. This also may help the students to have autonomous learning to think critically by using Toulmin's model of argumentation.

REFERENCES

- Alagozlu, N. 2007. Critical Thinking and Voice in EFL Writing. *Asian EFL Journal*, 9(3): 118–136.
- American Alliance for Innovative Schools. 2011. *Think-Write-Pair-Share: Lyman, 1981*. (Online), (http://allofe.indep.k12.mo.us/gen/indep_generated_bin/documents/basic_module/Cooperative_Learning_Activities.pdf, retrieved on October 17th 2013).
- Arju, S. 2010. Proposing Opinion Writing as a Practice of Critical Thinking. *The Reading Matrix*. 10 (1): 106–114.
- Bajracharya, I. K. 2010. Influencing Factors of Critical Thinking in Class Room Teaching. *Education Quarterly*, 1 (1): 1–7.
- Davidson, B. W. & Dunham, R. A. 1997. Assessing EFL Student Progress in Critical Thinking with the Ennis-Weir Critical Thinking Essay Test. *JALT Journal*. 19 (1): 43–57.
- Davies, W. M. 2006. An ‘Infusion’ Approach to Critical Thinking: Moore on the Critical Thinking Debate. *Higher Education Research & Development*. 25 (2): 179–193.
- Depdiknas. 2007. *Peraturan Menteri Pendidikan Nasional Republik Indonesia Nomor 41 Tahun 2007*. Jakarta: Departemen Pendidikan Nasional.
- Elsegood, S. 2007. *Teaching Critical Thinking in an English for Academic Purpose Program Using a ‘Claims and Supports’ Approach*. (Online), (http://www.fyhe.com.au/past_papers/papers07/final_papers/pdfs/4e.pdf, retrieved on October 17th, 2013).
- Fahim, M., & Hashtroodi, P. 2012. The Effect of Critical Thinking on Developing Argumentative Essays by Iranian EFL University Students. *Journal of Language Teaching and Research*, 3 (4): 632–638.
- Hillocks, Jr. G. 2010. Teaching Argument for Critical Thinking and Writing: An Introduction. *EJ in Focus*, 99(6): 24–32.
- Hitchcock, D. & Verheij, B. 2005. The Toulmin Model Today: Introduction to the Special Issue on Contemporary Work using Stephen Edelston Toulmin’s Layout of Arguments. *Argumentation*. 19: 225–258.
- Hogsette, D. 2012. *Develop Critical Thinking Skills through Journal Writing*. (Online), (<http://uwf.edu/cutla/>, retrieved on October 17th, 2013).
- Hubert, J. 1997. *How to Write Critical Argumentative Essay*. (Online), (<http://publish.uwo.ca/~rmoir2/docsHow%20to%20Write%20a%20Critical%20Essay.pdf>, retrieved on October 17th, 2013).
- Johnson, D. W., Johnson, R. T., & Smith, K. 2007. The State of Cooperative Learning in Post Secondary and Professional Settings. *Educational Psychology Review*, 19(1), 15–29.
- Kagan, S. 1990. *Cooperative Learning Resources for Teachers*. San Juan Capistrano, CA: Resources for teachers.
- Karbach, J. 1987. Using Toulmin’s Model of Argumentation. *Journal of Teaching Writing*, 6 (1): 81–91.
- Kurland, D. 2000. *Critical Reading VS Critical Thinking*. (Online), (<http://www.criticalreading.com/criticalreadingthinkingtoc.htm>, retrieved on February 7th, 2014).
- Leech, N. L., Barrett, K. C., & Morgan, G. A. 2005. *SPSS for Intermediate Statistics: Use and Interpretation (2nd Ed.)*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Maftoon, P. & Sabbaghan, S. 2010. Utilizing the Analysis of Social Practices to Raise Critical Language Awareness in EFL Writing Courses. *Journal of Language Teaching and Research*. 1 (6): 815–824.
- Mariyana, R. & Sriningsih, N. 2007. *Efektivitas Penggunaan Active Learning dalam Mengembangkan Critical Thinking Pada Anak Usia Dini*. Seminar Proposal tidak diterbitkan. Bandung: UPI Bandung.
- Naidu, M. 2007. *The Use of Written Feedback and Conferencing in Improving Students’s Writing*. (Online), (<http://kola.opus.hbz-nrw.de/volltexte/2008/271>, retrieved on September 17th, 2013).
- Ovando, C. J., Combs, M. C., & Collier, V.P. 2006. *Bilingual & ESL classrooms: Teaching in multicultural contexts*. New York: McGraw-Hill.
- Panitz, T., & Panitz, P. 1998. *Encouraging the use of collaborative learning in higher education*. (Online), (<http://home.capecod.net/~tpanitz/tedsarticles/encouragingcl.htm>, retrieved on December 15th, 2013).
- Rafik-Galea, S., Zainuddin, S. Z., & Galea, P. V. 2008. Learning to Think Critically the Toulmin Way. *Seminar and Conference presented in the 13th Seminar International Conference on Thinking 2008*, Sweden.
- Rex, L.A., Thomas, E.E., & Engel, S. 2010. Applying Toulmin: Teaching Logical Reasoning and Argumentative Writing. *English Journal*, 99(6): 56–62.
- Ross, Steven M. & Morrison, Gary R. 1996. *Experimental Research Method*. (Online), (www.aectorg/edtech/ed1/37.pdf, retrieved October 15th, 2013).
- Stapleton, P. 2002. Critical Thinking in Japanese L2 Writing: Rethinking Tired Constructs. *ELT Journal*, 56(3): 250–257.

- Twardy, C.R. 2003. *Argument Maps Improve Critical Thinking*. (Online), (http://www.google.com/url?q=http://cogprints.org/3008/1/reasonpaper.pdf&sa=U&ei=tyaEUruZBcOtiGL4wYCQBQ&ved=0CAsQFjAA&usq=AFQjCNFano8Wu3k4HMNno04i1O_INGnQXQ), retrieved on October 17th, 2013).
- Warburton, N. 2007. *The Basics of Essay Writing*. Great Britain: Routledge.
- Yuyun, I. 2010. *A Study of Arguments in Senior High School Debate*. (Online), (http://www.usd.ac.id/lembaga/lppm/f113/Jurnal%20Penelitian/vol14no1nov2010/2010%20November_07%20Ignasia%20Yuyun.pdf), retrieved on October 17th, 2013).