



INTEGRATING TMA WITHIN “CLAIM AND SUPPORT” STRATEGY ON STUDENTS’ CRITICAL THINKING ON ARGUMENTATIVE ESSAY

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Abstract

Based on the previous research, it was found that the *Think Write Pair Share* technique was ineffective in improving students’ critical thinking skill, and due to the fact that during the process of learning to write argumentative essay, student commonly encounters various obstacles at determining the opinion of a topic which should be supported by logical reasons and appropriate evidences in the form of facts, then this research aimed at investigating the effectiveness of Toulmin’s model of argumentation (TMA) within “Claim and Support” strategy on undergraduate students’ critical thinking ability on argumentative essay. Thus, this current research employed a quasi-experimental design with a pretest-posttest and nonrandomized control group design. Students’ critical thinking ability was measured by a writing test in the form of argumentative essay test. The data analysis in this research employed analysis of covariance (ANCOVA). This research revealed that Toulmin’s model of argumentation within “Claim and Support” strategy was ineffective to improve students’ critical thinking in their argumentative essay.

Keyword: *critical thinking competence, argumentative essay, “Claim and Support” strategy*

Abstrak

Introduction

University students are obligated to pass all the courses, including writing the thesis as the basic standard, to get their undergraduate degree. Thesis examination is to assess student’s writing and speaking competence of a conducted research. Having passed in a speaking test of thesis describes that s/he is able to deliver

his/her topic presentation or able to answer all the examiners' questions related to the theoretical frameworks briefly. As long as the oral test, a written test in the form of manuscript determines student's affective and cognitive skills thoroughly. Moreover, as the researcher, student has to deliver all the idea relating to the previous studies accordingly, and student has to quote expert's statements in accordance with the topic discussion, or even student can also argue towards the expert's statement by delivering more previous factual research findings.

The student's language style, critical thinking ability, vocabulary, and grammar must be well-written into standard-form in accordance with the determined guideline and based on the instructions or even suggestion of the advisors through the long-process of guidance. The student's ability in applying affective and cognitive attitudes in composing the thesis could not certainly be mastered in a short time. Formally, student should have passed several compulsory subjects namely Writing I, II, III, and IV. Commonly, the student takes lots of effort in mastering English, especially for the students majoring English (or literature). Various aspects of writing skill in English need careful attention, ranging from the process words-selection and use of vocabulary in accordance with the context of the sentence, the use of punctuation, the proper grammar selection, and moreover the sentence structure should not be ignored.

All those above-mentioned aspects must be mastered by each student because Writing course is categorized as one of the productive skills. The student's writing skill is assessed based on the ability to use target language in written form. During the Writing course, the student is required to be able to compose essay, argumentative essay, articles, papers, to do presentations in English, and to submit papers in English.

Among a number of types of writing, writing argumentative essay is one of activities that foster students' critical thinking ability. Argumentative essay often referred as a standard reference to student's feasibility of at scientific work. Thus, the ability to think critically can be done by training students to write argumentative essay.

As a matter of fact, the student's ability to write argumentative essay is not determined by a single indicator only, yet it is determined by other indicators as well, such as student itself, lecturers, learning materials, and effective learning strategies. During the process of learning to write argumentative essay, student commonly encounters various obstacles at determining the opinion of a topic which should be supported by logical reasons and appropriate evidences in the form of facts.

Those obstacles are encountered by the student whenever s/he writes down creative ideas alongside critical thinking skill becomes normative classical phenomenon of Asian students, especially Indonesians. As the effect, lecturers often give special attention to the student's composition in the form of written feedbacks.

In general, Asian lecturers often comment that students' writings are lack strong arguments. Moreover, some of students' ideas and opinions are less critical, or even comment that their works tend to be descriptive since there are no arguments. This statement is supported by Suhartoyo (2015), that there was no significant difference between the students taught by one of cooperative learning strategies namely Think-Write-Pair-Share (TWPS) and those who were not. In other words, the TWPS strategy proved to be ineffective in improving students' critical thinking skills.

Such ineffectiveness may be due to historical factors in which students already have knowledge of argumentative essay before the research. The second factor was the technique used in the control group where the implementation of Toulmin's argumentative model used individual writing strategy, whereas in the experimental group the students had been accustomed to compose in pairs. This activity caused the TWPS strategy was ineffective because both control and experimental groups had to write an argumentative essay individually in the final test.

Based on the findings and suggestions from previous research, this research applied a different strategy by applying "claim and support" strategy which investigated broader research subjects based on several factors. The first factor is based on previous relevant research results with the application of TWPS strategy proved ineffectiveness in improving students' critical thinking skills in the form of argumentative essay. The second factor is the lack of research that specifically examines the ability of critical thinking in the form of writing in Indonesia, especially by implementing the "claim and support" strategy. Next, with a wider range of research subjects, researcher wanted to know whether Indonesian students especially in Malang have the same critical thinking skills compared to the students in various Asian countries in composing argumentative essay.

Based on the research objectives above, the initial hypothesis of this research was that the students who were taught by using Toulmin's model of argumentation (TMA) within "claim and support" strategy demonstrated better critical thinking skills than students who were taught by using Toulmin's model of

argumentation without "claim and support" strategy in writing argumentative essay.

In details, the hypotheses of this study are as follows:

1. Students who were taught by using TMA within "claim and support" strategy could make a better claim than students who were taught by using Toulmin's model of argumentation without "claim and support" strategy.
2. Students who were taught by using TMA within "claim and support" strategy could make a better support than students who were taught by using Toulmin's model of argumentation without "claim and support" strategy.
3. Students who were taught by using TMA within "claim and support" strategy could make a better refutation than students who were taught by using Toulmin's model of argumentation without "claim and support" strategy.

Research Methods

This research aimed at investigating the effectiveness of TMA implemented within "claim and support" strategy on undergraduate students' critical thinking ability in argumentative essay. This research used Nonrandomized Control Group, Pretest-Posttest Design. This present research consisted of two variables; one independent variable, namely TMA within "claim and support" strategy and one dependent variable, namely argumentative essay writing scores, which were obtained from both pre-test and post-test administered in both groups. By conducting this experimental design, this study proposed to investigate whether the independent variables affect toward the dependent variable or not.

The population of the research was the fourth semester students of English Department of Universitas Islam Malang in the even semester of 2018/2019 academic year. The researcher chose two out of six available classes to be the samples of this present research; each class consisted of 20 and 15 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 eight meetings to conduct this research. The first meeting was to know the students' initial ability in argumentative essay by conducting a pre-test. After that, the pre-test scores were analysed by considering the

Toulmin's model argumentation and scored by implementing adapted argumentative scoring rubric. After conducting a pre-test, the experimental group was treated by implementing "claim and support" strategy inserted into TMA in six meetings. On the other hand, the control group was treated by using Toulmin's model argumentation using individual writing strategy. Both groups were given the similar prompts during learning activities. At the final meeting, both experimental and control group underwent the similar post-test in order to know the progress they made during the learning activities. In addition, the similar scoring rubric was applied in the post-test and the results of the post-test were compared one to another based on the validated rating rubric.

The students' argumentative essays from both pre-test and post-test were analysed by implementing the assumption achievement test in order to know the normal distribution, homogeneity, and data linearity using SPSS 16.0 program afterwards. After knowing the assumption achievement, the next step was to calculate the data using the same program. The next step was to do statistical calculations Analysis of Covariance (ANCOVA) since the assumption was reached.

There were three reasons underlying the statistical calculation: first, because the design of this research used quasi-experimental design; second, to control the pre-test results that may have an effect on the post-test results of both groups. Finally, by implementing statistical calculations, various possible errors in data analysis can be substantially reduced Ary et al. (2010) and Roscoe (1975).

Results and Discussion

The pre-test was administered to obtain the initial students' writing scores from both experimental and control group. Based on the descriptive statistics analysis, in the pre-test of the experimental group, the standard deviation was 2.67, the minimum score was 3.2 and the maximum score was 13.2. On the other hand, in the control group, the standard deviation was 3.27, the minimum score was 1.3 and the maximum score was 12.8. It means that the standard deviation between the two groups was not too different. Table 1 presents the descriptive statistics analysis for the pretest in the experimental and the control groups.

Table 1. Descriptive Statistics Analysis of the Pre-test in the Experimental and Control Groups

Stages	Descriptive Statistics	Groups	
		Experiment	Control
Pre-test	Mean	10.195	5.3067
	SD	2.67394	3.27097
	Min	3.2	1.3
	Max	13.2	12.8
	N	20	15

The mean scores of the pre-test in the experimental group was 10.2, while the mean score of the control group was 5.3. So, the mean difference scores of the pre-test between the experimental group and control group was 4.9.

A post-test was administered after six meetings of the treatment. The standard deviation of the post-test in the experimental group was 3.28, the highest score was 17 and the lowest score was 5.3. In the control group, the standard deviation was 3.79, the minimum score was 1.2 and the maximum score was 14.7. Based on the overall descriptive statistical analysis, the posttest students' writing scores in the experimental group were higher than the control group. Table 2 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.

Table 2. Descriptive Statistics Analysis of the Post-test in the Experimental and Control Groups

Stages	Descriptive Statistics	Groups	
		Experiment	Control
Post-test	Mean	12.275	5.2133
	SD	3.28119	3.79377
	Min	5.3	1.2
	Max	17	14.7
	N	20	15

In the post-test, 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 12.27 and in the control group was 5.21. So, the mean difference of the posttest between the students who were taught by using TMA within "claim and support" strategy and the students who were taught by using TMA without "claim and support" strategy was 7.06. It meant that the students

who were taught by using TMA within “claim and support” strategy achieved a higher mean score than those who were taught by using TMA without “claim and support” 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 pre-test and post-test. 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 3 indicates the mean differences among the writing components in pretest and posttest of both groups.

Table 3. Mean Difference of Writing Components based on the Pre-test and Post-test of the Control and the Experimental Groups

Stages	Groups	Components of Argumentative Essay							
		TS	DEV	REF	CON	ORG	GR	VOC	MEC
Pre-test	Control	4.97	5.90	5.10	5.03	3.50	3.03	2.70	2.70
	Experiment	8.68	10.95	10.95	10.03	6.13	4.13	4.68	4.33
Post-test	Control	5.63	6.07	7.17	5.57	4.23	3.73	3.53	3.17
	Experiment	10.83	12.68	13.30	10.58	7.18	5.05	5.10	4.38

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

Based on pre-test results in Table 3 above, the eight components of argumentative essay of the experimental group are higher than the control group. The differences of each component of the argumentative essays of the two groups are as follows. The average difference in component of thesis statement is 3.71, development is 5.05, refutation is 5.85, conclusion is 5.00, organization is 2.63, grammar is 1.1, vocabulary is 1.98, and mechanics is 1.63.

However, based on the post-test result in Table 3 above, the eight components of argumentative essay of the experimental group are higher than the control group. The differences of each component of the argumentative essays of the two groups are as follows. The average difference in component of thesis statement is 5.2, development is 6.61, refutation is 6.13, conclusion is

5.01, organization is 2.95, grammar is 1.32, vocabulary is 1.57, and mechanics is 1.21.

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 4 shows the result of the computation of Levene's test for the pre-test by using SPSS 16.0.

Homogeneity Test

The homogeneity test results can be seen in the Levenes's Test section, in Sig. The hypothesis provisions are as follows: H0 = The population variance is identical (homogeneous), H1 = The population variance is not identical (not homogeneous). While the hypothesis testing criteria as follows: H0 is accepted if Probability (Sig.) > 0.05. Whereas H0 is rejected if Probability (Sig.) < 0,05.

Table 4. The Computation for Homogeneity Testing

Dependent Variable	Levene's Test	df1	df2	Sig.
Critical Thinking Skill	2.518	1	33	0.122
Claim	0.217	1	33	0.644
Support	4.707	1	33	0.037
Refutation	3.181	1	33	0.084

It can be concluded that the four variables have an identical (homogeneous) variant because all the Sig values. > 0.05.

Normality Test

Second, a normality of the data has to be fulfilled. Therefore, the normality testing was employed. Table 5 demonstrates the result of Kolmogorov-Smirnov and Shapiro-Wilk tests for the post-test by using SPSS 16.0. The data is said to be normally distributed if the value (Sig)> 0.05, otherwise data is not normally distributed if the value (Sig) <0.05.

Table 5. The Computation of Normality Testing in Pre-test

	Group	Kolmogorov-Smirnov (a)			Shapiro-Wilk		
		Statisti			Statistic	df	Sig.
		c	Df	Sig.			
Critical Thinking Ability (Pre-test)	Control	.167	15	.200 (*)	.930	15	.271
	Experimental	.187	20	.064	.889	20	.026
Claim (Pre-test)	Control	.204	15	.094	.854	15	.020
	Experimental	.127	20	.200 (*)	.928	20	.140
Support (Pre-test)	Control	.165	15	.200 (*)	.877	15	.043
	Experimental	.158	20	.200 (*)	.937	20	.207
Refutation (Pre-test)	Control	.209	15	.077	.862	15	.026
	Experimental	.162	20	.176	.914	20	.075

Table 6. The Computation of Normality Testing in Post-test

	Group	Kolmogorov-Smirnov (a)			Shapiro-Wilk		
		Statistic	Df	Sig.	Statistic	df	Sig.
Critical Thinking (Post-test)	Control	.186	15	.175	.857	15	.022
	Experimental	.152	20	.200 (*)	.945	20	.301
Claim (Post-test)	Control	.193	15	.136	.913	15	.149
	Experimental	.127	20	.200 (*)	.898	20	.038
Support (Post-test)	Control	.198	15	.116	.841	15	.013
	Experimental	.130	20	.200 (*)	.943	20	.269
Refutation (Post-test)	Control	.217	15	.055	.896	15	.083
	Experimental	.162	20	.175	.932	20	.165

It can be concluded that all data variables are normally distributed because all values of Sig. > 0.05.

Linearity Test

The data is said to be linear if the objective of linearity test is to test whether independent variable and dependent variable have linear correlation or not. Linearity test results can be seen in the ANOVA Table, Linearity, Sig.

The test criteria are as follows: if Sig. > 0.05, then the relationship is not linear, whereas if Sig. < 0.05, then the linear relationship.

Table 7. The Computation of Linearity Testing

Variable		Sum of Squares	df	Mean Square	F	Sig.
Critical Thinking Ability (Post-test) * Group	Between Groups (Combined)	307373	1	307373	25604	0.00
	Within	396.155	33	12005		

		Groups					
		Total		703.527	34		
Claim (Post-test) * Group	Between Groups	(Combined)	231.029	1	231.029	17735	0.00
	Within Groups		429871	33	13.026		
	Total		660.9	34			
Support (Post- test) * Group	Between Groups	(Combined)	374,315	1	374,315	18828	0.00
	Within Groups		656.071	33	19881		
	Total		1030386	34			
Refutation (Post- test) * Group	Between Groups	(Combined)	322.438	1	322.438	22166	0.00
	Within Groups		480.033	33	14.546		
	Total		802.471	34			

From the Table 7 above, it can be seen that all Sig. values. < 0.05, then the variable data is linear.

Data Analysis

The data analysis used in this research was argumentative essay test based on the assumption fulfilment of homogeneity test, normality test, and linearity test. If all those assumptions are met, then the parametric statistics can be used to analyse the data. The parametric statistics used are Covariance Analysis (ANCOVA). Table 8 shows the ANCOVA statistical results.

Table 8. The Computation of Main Hypothesis

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Group	3.634	1	3.6	1.437	0.239

The data obtained in post-test were computed by using ANCOVA by means of SPSS 16.0. Later, H^{01} was accepted if p-value (Sig.) was higher than the significance value $\alpha = .05$. Based on the data presented in Table 8, the p-value was .239 and it was higher than the significance value $\alpha = .05$ (Sig. .239 > Sig. .05). Therefore, it can be concluded that the students who were taught using TMA within “claim and support” strategy did not show better critical thinking ability as reflected in their argumentative essay than those who were taught using TMA without “claim and support” strategy.

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

Table 9. The Computation of Introduction

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Group	2.386	1	2.4	0.407	0.528

Table 9 shows that H^{02} was accepted since the p-value (Sig.) was higher than the significance value $\alpha = .05$. ($0.528 > 0.05$). It meant that the students who were taught using TMA within “claim and support” strategy did not present better convincing claim in the introduction paragraph as reflected in their argumentative essay than those who were taught using TMA without “claim and support” strategy.

Table 10. The Computation of Development

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Group	1.132540995	1	1.1	0.175	0.678

Table 10 shows that H^{03} was accepted since the p-value (Sig.) was higher than the significance value $\alpha = .05$. ($0.678 > 0.05$). It meant that the students who were taught using TMA within “claim and support” strategy did not present better supports and warrants in the development paragraph as reflected in their argumentative essay than those who were taught using TMA without “claim and support” strategy.

Table 11. The Computation of Refutation

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Group	9.956750189	1	10	1.492	0.231

Table 11 shows that H^{04} was accepted since the p-value (Sig.) was higher than the significance value $\alpha = .05$. ($0.231 > 0.05$). It meant that the students who were taught by using TMA within “claim and support” strategy did not present better critical refutation as reflected in their argumentative essay than those who were taught using TMA without “claim and support” 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

TMA within “claim and support” strategy and the students who were taught by using TMA without “claim and support” strategy. In conclusion, TMA within “claim and support” strategy had no significance effect to improve the students’ critical thinking ability in argumentative essay.

The result of this research was similar with to the previous research conducted by Suhartoyo (2015) where the researcher applied the TWPS strategy. From those two conducted researches, statistically that either TWPS or “claim and support” strategies were ineffective to be inserted in the Toulmin’s model of argumentation to improve students’ critical thinking skill.

Referring to the ANCOVA computation of the first hypothesis in the previous chapter, 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 essay between students who were taught by using TMA within “claim and support” strategy and those who were taught by using TMA without “claim and support” strategy, since the second, the third, and the fourth hypothesis did not indicate the students’ critical ability in their argumentative writing. In short, intergating TMA within “claim and support” strategy did not give a significance 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 essay. This research was conducted at the fourth semester, while the fourth semester students already experienced the argumentative essay in the previous semester. As a result, the students had lots of prior knowledge of argumentative essay and this made the mean different on the post-test between the two groups was slightly different.

The second factor was possibly due to the method used in the experimental group. During the research, both experimental and the control group had the different treatments. Even though both of groups were treated by using different strategy, however practically the “claim and support” strategy was merely an individual task. The difference was only at the crucial points where the experimental students made claims based on predetermined topics. Afterwards, the students should make support with logical reasons based on the claim accordingly. And that individual task was not too different done by the control group, where they were accustomed to write down the essay individually.

The third 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 were 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 lots of practice to develop the ability to write. Therefore, it is reasonable that the students could not improve the critical thinking ability on the argumentative essay within six meetings of treatment.

Conclusion

Based on statistical calculations, it was shown that the value of Sig. was greater than 0.05. In other words, H_0 was accepted. It meant that there were no significant differences between students' critical thinking skills as shown in the ability to write argumentative essay between the students who were taught by using TMA within "claim and support" strategy and the students who were taught by using TMA without "claim and support" strategy.

In accordance with the hypothesis, there was no significant difference in the students' ability to make claims in the introduction paragraph, to create support and warrants in the developmental paragraphs, and to make critical refutation as written in the argumentative essay between students who were taught by TMA within "claim and support" strategy and students who were taught by using TMA without "claim and support" strategy

Moreover, this study has several weaknesses. Among others are; first, the students in the control group are taught by lecturers who have a background in teaching experience of previous Writing courses. Therefore, this causes a disturbance of experience factors. The second reason, both groups (experiments and controls) have obtained the similar material in the previous semester, so they already have the background knowledge and how to write the appropriate argumentative essay. Therefore, based on the findings of this study, it can be concluded that the "claim and support" strategy proved ineffective in improving students' critical thinking skills significantly in writing argumentative essay.

Although the results of this study prove the ineffectiveness of the "claim and support" strategy inserted into TMA, yet the "claim and support" strategy could improve students' critical thinking skills in writing argument paragraphs, as illustrated in Table 2. Table 2, clearly indicated that the experimental group received a higher mean score than the control group.

Based on the statistical calculation result that TMA within "claim and support" strategy was not proven effective to improve

students' critical thinking ability. However, based on the average score among the eight components of argumentative essay of the experimental group, TMA within "claim and support" strategy could improve students' critical thinking skills.

Moreover, based on data analysis and discussion in the previously, the results of this study provide theoretical feedback and practical contribution to learning English, especially in the Writing course that focuses on argumentative essay. The theoretical benefit is that this study brings new ideas to the implementation of the "claim and support" strategy in the argumentative essay by combining TMA within "claim and support" strategy. Practically, lecturers may consider using TMA to be incorporated into several other strategies to improve students' critical thinking skills.

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