THE EFFECTS OF TEACHING CRITICAL THINKING ON STUDENTS' ARGUMENTATIVE ESSAY

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Abstract: This study is directed to find out whether teaching critical thinking affects the writing ability of argumentative essay. This research employed quasi experimental design as it was intended to measure the effects of the strategy on the students' ability in writing argumentative essay. The samples of the study were the students of class A and B enrolled in the seventh semester of the English Education Department of State Islamic College of Palangka Raya. To collect the data needed, it was used test as the instrument; it was Academic Writing for IELTS Test. The data were processed and analyzed by using SPSS 19.0 statistic technique of independent t-test and paired-sample t-test, and the analized data were concluded. From the result of the test, the independent t-test calculation in posttest scores in both groups shows that the significance value is higher than level of significance (0.194 > 0.05). It indicates that there is no significant difference between experimental and control groups. Moreover, the paired t-test calculation shows the result of paired sample test (0.000 < 0.05) in which there is a significant difference between pretest and posttest scores in experimental group after having treatments.

Keywords: *critical thinking, writing ability, argumentative essay*

English is an international language. Almost all countries have adapted English used as a compulsory subject at schools. The national education has decided that English as a foreign language is taught in Indonesian schools. It is learned started from primary schools up to university. People realize that teaching English at these levels, particularly at university, becomes very important and needs much concern. As an English teacher, he or she demands to explore effective techniques, method and approaches.

In English there are four language skills, they are listening, speaking, reading, and writing. The students must master the four of language skills so they can use English actively and also passively. Writing as a part of the language skills must be taught maximally to the students.

Writing is an also media of communication. According to Byrne (1980: 24) writing is a primary means of recording speech, even though it must be acknowledged as a secondary medium of communication, so that it can help us to have a good socialization and express our ideas, feeling and our opinion to have a good interaction with our society. Hence, it can be concluded that writing is a very important subject because in writing student writers must share ideas from thier brain. It is not easy to translate concept in the brain to be a written language. Consequently, it is normal if the student think that writing is a difficult subject because they must pay attention to

many things (idea, concept, vocabulary and grammar).

Critical thinking is an important element of all professional fields and academic disciplines (by referencing their respective sets of permissible questions, evidence sources, criteria, etc.). According to Moon (2008: 1), critical thinking is an exploration of and exposition on the elusive concept of critical thinking that is central to the operation advanced stages of education and professional development. It draws on a wide-ranging review of literature and discussion.

Bailin et al. (1999) state that critical thinking is needed in language learning. The need to know how teachers, learners and other regard critical thinking because they need to stay in touch with the common-sense thinking in the process of theorizing and developing statements of definition or in achieving a good link between learning and teaching. In addition, in this case, theory is only of use if it eases forward the everyday thinking. Therefore, that is to say, it must be true to the core meaning of the educator's basic concept to critical thinking. It is largely irrelevant to educators concerned with developing critical thinking, particularly in teaching language, writing ability (Bailin et al. (1999).

Referring to the text type of writing, writing argumentative essay assignments generally call for extensive research of literature or previously material (Anderson & Anderson, 1997). Argumentative assignments may also require empirical research where the student collects data through interviews, surveys, observations or experiments. Detailed research allows the students to learn about the topic and to understand different points of view regarding the topic so that s/he may choose a position and support it with the evidence collected during research. Regardless of the amount or type of research involved, argumentative essay must establish a clear thesis and follow sound reasoning. Based on the background above, therefore, the research problem can be formulated as follows, "Does the teaching critical thinking give effect toward the students' argumentative essay?"

METHOD

The research employed experimental design that dealt with the influence of teaching critical thinking on students' argumentative essay. Research design that is used is quasi-experimental design in which it controlled some but not all of the sources of internal validity (Tuckman in Sugioyono, 2010). The research design can be described as follows. The samples of the population were randomly selected. The sample was taken from students of class A and class B in the sixth semester, becoming experimental group and control group. Then both of groups were given pre-test and post-test.

The data were collected from administering pretest and posttest for experimental and control groups by using Academic Writing for IELTS Test. The scores of pretest and posttest were analyzed by *t*-test statistical formula. It was used to find out whether there was a significant difference between the means of two groups in this research or not. It means to find out the effect of teaching critical thinking toward the students' argumentative essay. Then they were calculated by statistical formula with the

assistance of SPSS version 19.0 to compare the results of the test from the manual calculation.

Tabel 1. Quasi-Experimental Design

Sample	Pretest	Treatment	Posttest
Experimental Group (G_1)	T_1	X	T_2
Control Group(G_2)	T_1	-	T_2

FINDINGS AND DISCUSSION

Pretest Scores Analysis

Before calculating the t value, there is one assumption that has to be fulfilled: the sample come from population that is normally distributed (Coolidge, 2000).

Normality Ditribution Test

First step of the is starting the hypotheses. The hypotheses are:

H_0 : the samples of the control and experimental groups are normally distributed.

H_1 : the samples of the control and experimental groups are not normally distributed.

The alpha level at 0.05 (tow-tailed), then analyzing the normality distribution using Kollmogrov-Smirnov in SPSS 19.0. If the probability (Asymp. Sig) is smaller than 0.05, then H_0 is rejected. Meanwhile, if the probability is larger than 0.05, then H_0 is retained (Hatch & Farhady, 1982: 88).

Table 1. Normality Distribution Test in Prestest Control and Experimental Groups

One-Sample Kolmogorov-Smirnov Test

		Pretest control	Pretest experimental
N		26	26
Normal Parameters[a,b]	Mean	71.3077	70.8462
	Std. Deviation	5.71153	6.11027
Most Extreme Differences	Absolute	.241	.213
	Positive	.129	.161
	Negative	-.241	-.213
Kolmogorov-Smirnov Z		1.229	1.087
Asymp. Sig. (2-tailed)		.098	.188

a. Test distribution is Normal.

b. Calculated from data.

From the table above, it can be seen that the probabilities values (Asymp. Sig.) of pretest control and experimental groups are 0.098 and 0.188. It means that the probabilities exceed that alpha level, and then H_0 is retained. In other words, pretests for control and experimental groups were normally distributed. The results of the tests normally distributed because the value from pretest from control and experimental group is balanced.

Posttest Score Analysis

Similar to the pretest data analysis, there is one assumption that has to be met before calculating the t value. The data analysis is follows.

Normality Distribution Test

The assumption to be fulfilled is the sample has to be normally distributed. The procedure is stating the hypothesis,

H_0 : the samples of the control and experimental groups are normally distributed.

H_1 : the samples of the control and experimental groups are not normally distributed.

Set the alpha level at 0.05 (two-tailed). If the probability (Asymp. Sig) is smaller than 0.05, then H_0 is rejected. On the other side, if the probability is bigger than 0.05, then H_0 is retained (Hatch & Farhady, 1982:88). The results of normality distribution tests of control and experimental groups, that were analyzed by Kollmogrov-Smirnov test in SPSS 19.0.

Table 2. Normality distribution test posttest control and experimental Groups

One-Sample Kolmogorov-Smirnov Test

		Posttest control	Posttest experimental
N		26	26
Normal Parameters[a,b]	Mean	79.5385	80.6154
	Std. Deviation	2.68672	3.18844
Most Extreme Differences	Absolute	.132	.194
	Positive	.124	.194
	Negative	-.132	-.146
Kolmogorov-Smirnov Z		.673	.988
Asymp. Sig. (2-tailed)		.756	.283

a. Test distribution is Normal.

b. Calculated from data.

According to those tables, it show that the (Asymp. Sig) of the posttest control and experimental groups are 0.756 and 0.283. Since those values are higher than the level of significance (0.05), it indicates that the samples were normally distributed. According to Sudrajat (1983:388), the level of significance is able to decrease into 0.020 as the lowest level of significance in statistic. If the level of significance is 0.020, then the posttest of control group was normally distributed. The results of the tests normally distributed because the value from postest from control and experimental group is balanced.

T-test Computation

Independent t-test Computation of Pretest Score in Control and Experimental Groups

Since the samples of this research were normally distributed, then the parametric test was carried out. The independent t-test formula was used to analyze whether there was a significant difference between means of the two groups or not.

The hypotheses stated before calculating t value are:

H_0 : there is no significant difference between the pretest means of control and experimental groups.

H_1 : there is a significant difference in pretest means between control and experimental

The level of significance used in the independent t-test is 0.05 (two-tailed). t value was calculated using independent t-test formula in SPSS 19.0. If the significance value of pretest of control and experimental group are smaller than 0.05, then H_0 is rejected. On the other side, if the significance value is larger than 0.05, then H_0 is retained (Hatch & Farhady, 1982:88).

Table 3. Independent t-test of Pretest Scores in Control and Experimental Groups

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
pretest	Equal variances assumed	.843	.363	.281	50	.780	.46154	1.64032	-2.83314	3.75622
	Equal variances not assumed			.281	49.774	.780	.46154	1.64032	-2.83351	3.75659

From the table above, it indicates that the value of significance is 0.780. Since 0.780 is higher than 0.05, then H_0 is retained which states there was no significant difference between pretest means of control and experimental groups. It implied that the initial ability in writing between control and experimental groups were similar. The result of pretest score in control and experimental group above is there was no significant difference because it has not been given a treatment.

Independent t-test Computation of Posttest in Control and Experimental Groups

Since the samples of this research were normally distributed, the parametric test was conducted. The independent t-test was used to analyze whether there was a significant difference between posttest means of the two groups.

The hypotheses are stated before calculating t value:

H_0 : there is no significant difference between the

posttest means of control and experimental groups.

H_1 : there is a significant difference between the posttest means of control and experimental groups.

The level of significance used in the independent t-test is 0.05 (two-tailed). After that, t value was calculated using independent t-test formula SPSS 19.0. If the significance value of posttest of the control and experimental groups are smaller than 0.05, then H_0 is rejected. Meanwhile, if the significance value is larger than 0.05, then H_0 is retained (Hatch & Farhady, 1982:88). The analysis is as follows.

Table 4. Independent t-test of Posttest Scores in Control and Experimental Groups

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Posttest	Equal variances assumed	2.435	.125	-1.317	50	.194	-1.07692	.81770	-2.71933	.56548
	Equal variances not assumed			-1.317	48.603	.194	-1.07692	.81770	-2.72050	.56665

From the table above indicates that the significance value of posttest means of control and experimental groups is 0.194. It indicates that 0.194 is higher than 0.05, then H_0 is retained which states there was no significant difference between pretest means of control and experimental groups.

The result of postest score in control and experimental group above is there was no significant difference after given a treatment. This occurs due to the result value of students postest in control and experimental group is balanced. The average value of the postets control and experimental group 80 and 70.

Paired t-test Computation of Pretest and Posttest Scores in Control Group

A paired t-test was carried out to find out whether there was a significant difference between pretest and posttest means of the control group. The paired t-test formula in SPSS 19.0 was used to analyze the scores. The steps of analyzing paired t-test are similar to the independent t-test analysis. First of all stating the hypotheses, they are:

Table 5. Pretest and Posttest Scores Analysis in Control Group

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pretest control	71.3077	26	5.71153	1.12012
	Posttest control	79.5385	26	2.68672	.52691

Table 6. Paired t-test of Pretest and Posttest Scores in Control Group

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	Pretest control – posttest control	-8.23077	4.72701	.92704	-10.14005	-6.32149	-8.879	25	.000

The table above shows that the mean of posttest score in control group is higher than the pretest score (79.5385 > 71.3077). Table 4.6 shows the significance value is 0.000, which is lower than level of significance (0.05). Consequently, H0 was rejected. It implied that there was a significant difference between pretest and posttest means of control group.

Paired t-test Computation of Pretest and Posttest Scores in Experimental Group

A paired t-test also was carried out to find out whether there was a significant difference between the experimental group's means before and after the treatments. The paired t-test formula in SPSS 19.0 was used to analyze the pretest and posttest scores of the experimental group. The steps of analyzing paired t-test are similar to the paired t-test analysis in control group. First is stating the hypothesis, there are:

H_0 : there is no significant difference between pretest and posttest means of the experimental group.

H_1 : there is a significant difference between pretest and posttest means of the experimental group.

Then, stating the level of significance t 0.05 (two-tailed). Compare the value of level significance and significance value after the analysis. If significance value is equal or lower than 0.05, the result is statistically significant. Then H_0 is rejected; meanwhile, if significance value is higher than 0.05, the result is not statistically significant, then H_0 is retained (Hatch & Farhady, 1982:88). The result of the computation is as follows.

Table 7. Pretest and Posttest Scores analysis in Experimental Group

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pretest experimental	70.8462	26	6.11027	1.19832
	Posttest experimental	80.6154	26	3.18844	.62530

Table 8. Pretest and Posttest Scores analysis in Experimental Group

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	Pretest experimental – posttest experimental	-9.76923	4.50162	.88284	-11.58748	-7.95099	-11.066	25	.000

From the table above, it shows that the mean of posttest score is higher than the pretest score (80.6154 > 70.8462). The table 3.10 shows the significance value is 0.000, which is lower than 0.05. It means H_0 was rejected. This computation implies that there was a significant difference between pretest and posttest means of the experimental group. In other words, the teaching critical thinking improved students' skill in argumentative essay.

Corelations of Postest Writing and Postest Critical Thinking in Control Group

A corelation also was carried out to find out whether there was a significant or corelation between postest writing and postest critical thingking in control group after treatment. The corelation formula in SPSS 19.0 was used to analyze the postes writing and postest critical thinking in control group. The steps of analyzing corelation, first is stating the hypothesis, there are :

H_0 : there is no corelation significant difference between postest writing and postest critical thinking in control group.

H_a : there is a corelation significant difference between postest writing and postest critical thinking in control group.

Then, stating the level of significance t 0.05 (two-tailed). Compare the value of level significance and significance value after the analysis. If significance value is equal or lower than 0.05, the result is statistically significant. Then H_0 is rejected; meanwhile, if significance value is higher than 0.05, the

result is not statistically significant, then H_0 is retained (Santoso 2004:243).

Table 9. Postest writing and Posttest Critical Thinking in Control Group

Correlations

		Postest control	Poestest CT control group
Postest control group	Pearson Correlation	1	,614**
	Sig. (2-tailed)		,001
	N	26	26
Postest CT control group	Pearson Correlation	,614**	1
	Sig. (2-tailed)	,001	
	N	26	26

**. Correlation is significant at the 0.01 level (2-tailed).

Table above shows the significance value is 0.001, which is lower than level of significance (0.05). Consequently, H0 was rejected. It implied that there was a corelation significant difference between postest writing and postest critical thinking in control group.

Corelations of Postest Writing and Postest Critical Thingking in Experimental Group

A corelation also was carried out to find out whether there was a significant or corelation between postest writing and postest critical thingking in control group after treatment. The corelation formula in SPSS 19.0 was used to analyze the postes writing and postest critical thinking in control group. The steps of analyzing corelation, first is stating the hypothesis, there are :

H_0 : there is no corelation significant difference between postest writing and postest critical thinking in control group.

H_a : there is a corelation significant difference between postest writing and postest critical thinking in control group.

Then, stating the level of significance t 0.05 (two-tailed). Compare the value of level significance and significance value after the analysis. If significance value is equal or lower than 0.05, the result is statistically significant. Then H_0 is rejected; meanwhile, if significance value is higher than 0.05, the result is not statistically significant, then H_0 is retained (Santoso 2004:243).

Table 10. Postest writing and Posttest Critical Thinking in Experimental Group

Correlations

		Postest experimental	Poestest CT Experimental
Postest Experimental	Pearson Correlation	1	,776**
	Sig. (2-tailed)		,000
	N	26	26
Poestest CT Experimental	Pearson Correlation	,776**	1
	Sig. (2-tailed)	,000	
	N	26	26

**. Correlation is significant at the 0.01 level (2-tailed).

The table above shows the significance value is 0.000, which is lower than level of significance (0.05). Consequently, H0 was rejected. It implied that there was a corelation significant difference between postest writing and postest critical thinking in control group.

CONCLUSION

This paper reports the results of the study that teaching critical thinking significantly gives effect on the students' skill in argumentative essay. It is indicated from the students' writing scores and their responses after receiving the treatment of this method. Also, the students' writing skill enhanced after receiving the treatments of teaching critical thinking in writing class. It is shown from the statistical computation in which the result of the independent *t-test* calculation in posttest scores in both groups shows that the significance value is higher than level of significance (0.194 > 0.05). It indicates that there is no significant difference between experimental and control groups. Moreover, the paired *t-test* calculation shows the result of paired sample test (0.000 < 0.05) in which there is a significant difference between pretest and posttest scores in experimental group after having treatments. In addition, the results suggest that teaching critical thinking gives positive effects on students' argumentative essay in improving their writing skills. To follow the conclusion, the English lecturers are recommended to implement this method since teaching critical thinking is effective to help students to write better, particularly in writing argumentative essay.

REFERENCES

Anderson, M. & Anderson, K. (1997). *Text Types in English*. South Melbourne: Macmillan Education Australia.

Bailin, S.C., Coombs, R.J. & Daniels, L. (1999). Common Misconceptions of Critical Thinking, *Journal of Curriculum Studies*, 31(3), 269-283.

Blanchard, K.L & Root, C.B. (1984). *Ready to Write: First Composition Text*. New York: Longman.

Brown, H.D. (2004). *Language Assessments, Principles and Classroom Practices*. New York: Longman.

Byrne, D. (1980). *Teaching Writing Skill*. London: Longman Group Ltd.

Colton, D. & Covert, R.W. (2007). *Designing and Constructing Instruments for Social Research and Evaluation*. [e-book]. (Online). Retrieved September 2011, from http://ifile.it/h2co6km/0787987840.zip

Derewianka, B. (2004). *Exploring How Text Work*. Sydney: Primary English Teaching Association.

Harmer, J.B. (2004). *How to Teach Writing*. London: Longman.

Sugiyono, (2010). *Metode Penelitian Pendidikan: Pendekatan Kuantitatif, Kualitatif dan R&D*. Bandung: Alfabeta.