

# EXPLORING THE LINK BETWEEN CRITICAL THINKING AND ARGUMENTATIVE WRITING SKILLS

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**Abstract:** This present study aimed to examine the link between critical thinking and argumentative writing skills. This research dealt with quantitative design in the form of correlation and independent sample t-test. This research was conducted in the 4<sup>th</sup> English Department students at University of Islam Malang with 30 English students participated. The data were obtained by applying two instruments: Thinking Skill Assessment Oxford 2014 (focused on assessing problem skill and critical thinking skill including the ability of students to comprehend an issue) and argumentative writing test. Based on the result of this study, it showed a contrary result that stated there was no link between critical thinking and argumentative writing skills with the p-value calculated by *Pearson Product Moment Correlation* was (.065 > 0.05) and the correlation coefficient was .341. Another result showed that there was no significant difference between critical-thinkers and non-critical thinkers on argumentative writing skill with the p-value calculated by *Independent Sample T-Test* was (.067 > 0.05). Those results might be caused by various factors such as the lack of critical thinking skill, improper teaching design especially in critical thinking, the difficulty level of the critical thinking skill questionnaires, and the carelessness of the participant in doing the test of critical thinking.

**Keywords:** Critical Thinking Skill, Writing Skill, Argumentative Writing

## INTRODUCTION

As a written communication, writing is always considered as the fundamental aim of education. It has always been a key in second language learning since it has a big contribution to both educators and learners. It is also said by Muzayyin (2012) that writing refers to a language skill that gives a significant contribution to human activities. Moreover, writing is also regarded as written communication where people express their thoughts, ideas, and feelings through it. It also might be a tool for people to record their memories into written documentation. To simplify, writing allows people to tape, verify, and value of an object illustration (Ferreti & Graham, 2019).

Considering the definition above, this productive skill needs a big consideration and must be a priority for both educators and learners because it is mainly used as in most exams to measure student's competence. Harmer (2004) stated that in the education field, it is important to remember that writing skill is often tested in most exams to measure the student's knowledge.

To a large extent, writing exactly an argumentative writing is the most crucial writing because it is mostly used in higher education and the workplace. Precisely, the main purpose of an argumentative writing is to define our argument about one topic that occurs and to decide in which position we are going to approach.

Although mastering writing is essential, writing skill exactly an argumentative writing is recognized as the most difficult and challenging English skill since it needs lexical and grammatical features strictly and takes a lot of effort. Negari and Rezaabadi (2012) believed that writing as a demanding job takes a lot of time to be fully mastered. College students notice that some difficulties are found when the teacher asks them to write an argumentative writing. They argue that writing forces them to use formal language, grammatical structures, evidence within the academic literature, and/ theories related to their writing, exactly persuasive writing, or known as argumentative writing.

Another difficulty found is that students are difficult to get an idea about what they are going to write and not well organized to express it. They do not know how to express their idea into written terms so that they do not produce good argumentative writing. Another case, lack of critical thinking skills has also become an obstacle to write an argumentative writing. Also, Putri (2018) assumed that writing an argumentative essay, lack of English competencies is not the only problem besides, another one factor is the students have low competencies in critical thinking skills.

Since critical thinking exists to complete the learning ingredients, it might be the solution for those who are difficult to perform an argumentative writing. However, it is crucial to remember that learners have to own this skill to ease them to solve their problems during the learning process, help them to set their learning goals, and train them to be a good decision-maker. Lin (2018) said that

encouraging student's ability to opt relevant and beneficial information, deliver and evaluate information received, efficacious strategy to achieve their goals, and so being problem solvers and decision-makers can be learned through critical thinking skill. Meaning that critical thinking is obviously needed to build a logical argument and reasonable opinion in the learning process. Critical thinking (CT) has an important role to be essentially applied in the learning process. In learning a foreign language, CT as seen as a complementary skill that has to be mastered to help learners to set their learning goals. For EFL, having good writing has always been their dreams. Therefore, CT equals necessity in writing skill since it contributes a big role to ease students in creating good writing, especially writing an argumentative writing. Critical thinking refers to a logical thinking that helps learners produce clear written text. Accordingly, Reay (2018) claimed that CT is defined as the process of a clear argument that will affect the writing clarity. He also stated that one of the important requirements to perform good writing, CT is a must skill that must be implemented in argumentative writing.

Moreover, CT might affect the way people think. Related to argumentative writing, the six core elements of CT must be stressed to produce good argumentative writing including interpretation, analysis, evaluation, inference, explanation, and self-regulation (Facione, 2015). In case of argumentative writing, CT assists the writer to only use the actual and relevant ideas based on facts, data, and/ expert theories which will powerfully affect the readers. Not only that, but CT also comes with various benefits, it helps writers to perform a clear argument writing, encourages writers to present a piece of valid information and forces them to use their logical thoughts related to the core elements (interpretation, analysis, evaluation, inference, explanation, and self-regulation) of CT to produce a good argumentative writing.

From the facts above, it is inferred that critical thinking becomes a solution to help learners who have difficulty in argumentative writing. Finally, Weigle (2002) classified that both argumentative writing and critical thinking have an interrelation, and it could be indicated for those who are able to write can

be called that they have a good cognitive ability obliged for a university assessment.

Therefore, the researcher interested to conduct research entitled "*Exploring the Link between Critical Thinking and Argumentative Writing Skills*" to test the hypotheses that stated whether there is a link between critical thinking and argumentative writing skills or not and whether there is a significant difference between critical-thinkers and non-critical thinkers on argumentative writing skill of the English department students at University of Islam Malang. Finally, this article sought to answer these questions: 1). Is there a significant correlation between critical thinking and argumentative writing skills? 2). Is there any significant difference between critical-thinkers and non-critical thinkers on argumentative writing skill?

## **METHOD**

This current research applied quantitative design since it is used to gather numerical data. Quantitative research aimed to know the relationship between an independent variable and a dependent variable within subjects. In line with this, Creswell (2014) stated that quantitative study refers to an approach to test the aim theories by verifying the connection between variables. This research study used a mixed-method between Correlational design since it was considered to measure the relationship between two or more continuous variables and independent sample t-test to compare two independent variables.

In a correlational study, the independent (X) variable as the predictor while the dependent (Y) variables were seen as a criterion. The extent of correlation among variables was called a *Correlation Coefficient (r)*. The correlation coefficient extended from 0 to  $\pm 1$ . 0 means no correlation or relationship among variables, while 1 showed a perfect correlation.

In the case of independent sample t-test, it was used to compare the means of two independent variables in determining the significant difference between two different groups. The independent sample t-test was a parametric test in which the significant level was at 0,05. If the p-value reached  $< 0.05$ , so the hypothesis was accepted. If the p-value  $> 0.05$ , means the hypothesis was rejected.

From the illustration above, the target population of this research study was taken from the 4<sup>th</sup>-semester students of the English department at the University of Islam Malang. The total number of the 4<sup>th</sup>-semester students of the English department was 140 students and they were distributed into 6 classes. From the population above, the researcher decided to take class IV B that consisted of 30 students as the sample of this current study.

This present study applied two kinds of instruments, those were Thinking Skill Assessment Oxford 2014 Questionnaire to investigate whether the respondents have good critical thinking skills or not by answering the 50 question with 90 minutes duration, and another one was an argumentative writing test to measure the writing ability of the representatives by asking the students to write five paragraph of an argumentative writing including an introductory paragraph, three body paragraphs, and a concluding paragraph. The researcher adopted the questionnaire from Thinking Skill Assessment Oxford 2014 which consisted of 50 questions. It was widely used to test students' abilities in critical thinking for a higher level. Those questions were focused on assessing problem-solving skills and critical thinking skills, including the ability of students to comprehend an argument/ issue. After done with the questionnaires, the researcher then conducted the test of argumentative writing. Unfortunately, due to the limited access, the researcher then decided to collect the argumentative writing score of the respondents in the previous semester. In this section, the researcher got the pre-conversion score from the lecturer of Writing III which was used as the score for an argumentative writing test.

After the researcher obtained the data from those two instruments, then the researcher analyzed them by using SPSS ver. 20 to address the questions of this study. First, the data obtained from Thinking Skill Assessment Oxford 2014 Questionnaire was analyzed by using Pearson Product Moment Correlation to determine the students' critical thinking. The minimum score was 0 and the maximum score was 100. From the score, the level of CT then were categorized into three levels: (1) high (71-100), (2) medium (50-70), and (3) low (0-49). Second, the score obtained from the argumentative writing test was analyzed by using independent sample t-test to know the significant difference between

critical-thinkers and non-critical thinkers on argumentative writing skill. The researcher then categorized them into four levels: (1) Excellent (90-100), (2) Good (80-89), (3) average (70-79), (4) poor (40-49), and (5) very poor (0-39).

## FINDINGS AND DISCUSSIONS

### Findings

#### *Students' Critical Thinking and Argumentative Writing Skills*

Firstly, the score distribution of critical thinking skill and argumentative writing skill were explained below.

**Table 1 Score Contribution of Critical Thinking Skill**

Level of critical thinking skill	Range score	Numbers of participant	Percentage (%)
High	71 - 100	0	0
Medium	50 – 70	15	50
Low	0 – 49	15	50
Total		30	100

The table 4.1 describes that half of the students, 15 out of 30 (50%) had medium critical thinking skills while another half of the students (50%) were categorized as low critical thinkers. At last, there was no students who achieved a high score in critical thinking skills (0%).

**Table 2 Score Distribution of Argumentative Writing Skill**

Categories of argumentative essay	Score	Numbers of participants	Percentage (%)
Excellent	90 – 100	24	80
Good	80 – 89	3	10
Average	70 – 79	0	0
Poor	40 – 69	0	0
Very poor	0 – 39	3	10
Total		30	100

Additionally, from the table 4.2, it can be described that for each category, the majority of students (24 out of 30) had an excellent performance in an argumentative writing, 3 students were categorized as good ability in writing an argumentative text, and the rest of 3 students performed very poor result in an argumentative writing. At last, the result revealed that no students belongs to average and poor categories (0%).

***The Correlation between Critical Thinking and Argumentative Writing Skills***

**Correlations**

		Critical Thinking Skill	Argumentative Essay Performance
Critical Thinking Skill	Pearson Correlation	1	.341
	Sig. (2-tailed)		.065
	N	30	30
Argumentative Essay Performance	Pearson Correlation	.341	1
	Sig. (2-tailed)	.065	
	N	30	30

In addition, the table 4.4 proves that the p-value of critical thinking skill and argumentative writing skill is .065 that is higher than the critical value (.05), so it is concluded that the  $H_a$  was rejected while  $H_0$  was accepted. Meaning, there was no statistical link between critical thinking and argumentative writing skills. Meanwhile, the r-value of the variable is .341 than means the correlation between critical thinking skill and argumentative writing skill is moderate since the correlation coefficient is lower than 0.50.

***The Significant Difference between Critical Thinking and Argumentative Writing Skills***

**Independent Samples Test**

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Argumentative Essay	Equal variances assumed	22.401	.000	1.984	28	.057	18.000	9.071	-.580	36.580
	Equal variances not assumed			1.984	14.073	.067	18.000	9.071	-1.445	37.445

The result in the table above showed that the mean difference between both variable was 18.00 and the p-value was .067 that was higher than the critical value (.05). Therefore, it was stated that H<sub>0</sub> was accepted and H<sub>a</sub> was rejected. So, it was inferred that there was no significant difference between critical thinkers and non-critical thinkers on argumentative writing skill. Additionally, the table analyzed that for the Significant Levene's Test for Equality of Variances mentioned was  $.000 < 0.05$ , so it was concluded that the variance between critical thinkers and non-critical thinkers were not normally distributed. Therefore, the interpretation output was based on the value in Equal variances not assumed (.067). Then, the df (degree of freedom) was calculated from the total respondent (30) minus 2, so it was 28.



## Hypothesis Testing

After the researcher analyzed the results, the researcher then tested the hypothesis that indicated to evaluate some statements about the sample that has been drawing in the previous chapter.

### *1. Correlation between critical thinking and argumentative writing skills*

Related to the first research question, the alternative hypothesis ( $H_a$ ) stated that there is a correlation between critical thinking and argumentative writing skills while the null hypothesis ( $H_0$ ) stated that there is no correlation between critical thinking and argumentative writing skills. Hence, the assumption are formulated as follow:

- a. If the p-value  $< 0.05$ , so the null hypothesis ( $H_0$ ) is rejected and the alternative hypothesis ( $H_a$ ) is accepted.
- b. If the p-value  $> 0.05$ , so the null hypothesis ( $H_0$ ) is accepted and the alternative hypothesis ( $H_a$ ) is rejected.

Based on the result in this study, the p-value (.065) that was higher than the significant value (0.05). Meaning that the null hypothesis was accepted and the alternative hypothesis was rejected, so it was inferred that there was significant correlation between critical thinking and argumentative writing skills.

### *2. Comparison between critical-thinkers and non-critical thinkers in performing argumentative writing*

Regarding the second research question, the alternative hypothesis ( $H_a$ ) formulated was that there is a significant difference between critical-thinkers and non-critical thinkers on argumentative writing skill opposed the null hypothesis ( $H_0$ ) that stated there is no significant difference between critical-thinker and non-critical thinkers on argumentative writing skill. Therefore, the assumptions are formulated below:

- a. If the value of sig. (2- tailed)  $< 0.05$ , the null hypothesis ( $H_0$ ) is rejected and the alternative hypothesis ( $H_a$ ) is accepted.
1. If the value of sig. (2- tailed)  $> 0.05$ , the null hypothesis ( $H_0$ ) is accepted and the alternative hypothesis ( $H_a$ ) is rejected.

As presented by the table above it shows that the p-value was .067 that was higher than the significant value 0.05. This inferred that the null hypothesis was accepted and the alternative hypothesis was rejected, so there was no significant difference between critical-thinkers and non-critical thinkers on argumentative writing skill.

## **Discussions**

From the data collected at the time of observation, there were two questions related to the link between critical thinking and argumentative writing skills and significant difference between critical thinkers and non-critical thinkers on argumentative writing skill. Based on the data analysis, in this portion, the results were described in detail.

Since the objective of this study was to examine the link between critical thinking and argumentative writing skills, the researcher conducted a quantitative research design. The researcher applied a correlational SPSS test to gain the first research question while an independent t-test was applied to answer the second question. This research involved 30 English department students exactly at class 4B in University of Islam Malang. Two procedures were implied during conducting the research. The first was, for critical thinking skill, all respondents were asked to answer 50 questions within 90 minutes duration. The test measured problem-solving skills, including numerical reasoning and critical thinking skill including the comprehension of argument using daily language. It was conducted to measure the student's ability for critical thinking. Second, the respondents were asked to submit their argumentative text as a medium to examine their ability in writing an argumentative essay. After the two-sections were done, the researcher got the data and analyzed them by using correlational tests and independent t-test in SPSS ver. 20.

In line with the result, this study presented detail information into discussion session. According to the results of the analysis, the minimum score of CTS was 16 and the maximum score was 66. The students' percentage in critical thinking was equal between the categories of medium and low. There was no students who achieved a high category. Hence, it was inferred that the students in this present study did not perform strong CTS.

The next result showed that the majority of the students (24 out of 30) performed an excellent argumentative writing. It was proven by the score of argumentative writing that indicated the highest score was 94 while the lowest score was 5. After the researcher did a deeper analysis, in fact, it was found that both categories including medium and low critical-thinkers achieved an excellent score in argumentative writing skill.

The next result showed that there was no link between critical thinking and argumentative writing skills at class 4B of the English department at University of Islam Malang. It was proven by the p-value (.065) that was higher than the r-table (0.05). The same criteria were applied for t-test, if the p-value  $< 0.05$ , it means the variables showed a significant difference or  $H_a$  was accepted. Contrary, if the p-value  $> 0.05$ , it indicated that the variables did not show a significant difference or  $H_0$  was accepted. From the result of the independent t-test, it showed that p was 0.67 which means p was higher than 0.05. However, the next result indicated that there was no significant difference between critical thinkers and non-critical thinkers on argumentative writing skill.

From the results above, it was generally described by Condon and Kelly-Riley (2004) who found an inverse link between CT and writing skills. In spite of the belief that CT and writing skill are inseparable correlated, in fact, it was found that both CT skill and writing are independent. CT does not act as the vehicle of writing skills. Also, asking students to write is not immediately that they are engaged in thinking critically.

On the other hand, it was supported by some studies and statements related to the absence of a relationship between CT skills and argumentative essay. Since the lack of CT skills faced by learners, the researcher related this finding to some theories that had been stated by Huang (1998) that the lack of CT might be largely caused by the incorrect design of curricular and the teaching techniques. Hence, it is important to apply proper teaching administration to help learners in achieving good ability in CT.

Interestingly, a research that was conducted by Zheng, Zhang *et al.* (2017) found the same result with this current study that there was no link between critical thinking ability and argumentative essay writing among EFL learners in

China. The researchers mentioned that EFL learners did not perform strong CTS, so it became one factor why the relationship was not found. They argued that inadequate English proficiency might be another factor blocking the development of students to master critical thinking skills. In addition, not only the improper use of the teaching administration but also, having low competency of critical thinking ability might be another cause.

Another aspect that might be the cause of the contrast results between the current study and the previous study was the matter of the number of the participants. As the previous study carried out by Putri (2018) who had 60 students participated in her study and the current study only has 30 participants. Since the number of the participants was bigger, the data collected by the previous researcher may be varied, so the results between the current and the previous study were different.

Accordingly, the result of this study showed that there was no link between critical thinking and argumentative writing skills at class 4B of the English department at University of Islam Malang. It was proven by the p-value (.065) that was higher than the t-table (0.05). The same criteria were applied for t-test, if the p-value  $< 0.05$ , it means the variables showed a significant difference or  $H_a$  was accepted. Contrary, if the p-value  $> 0.05$ , it indicated that the variables did not show a significant difference or  $H_0$  was accepted. From the result of the independent t-test, it showed that p was 0.67 which means p was higher than 0.05. However, the second result indicated that there was no significant difference between critical thinkers and non-critical thinkers on argumentative writing skill.

Although the findings of this study was not in line with some theories that already explained, but interestingly, one of the previous study that was conducted by Pei, Zheng, Zhang *et al.* (2017) found the same result with this present study. They stated that there was no correlation between CTS and argumentative essay performance in EFL learners in China. They mentioned the same factor that the students of their study did not perform a good CTS.

## **CONCLUSIONS AND SUGGESTIONS**

Critical thinking refers to a skill that stimulates learners' thinking ability. This skill might be acquired through the problem solving and decision making

activities. In this study, a quantitative design was applied and 30 English students at University of Islam Malang were participated. First, the Pearson Product Moment Correlation was used to analyze whether there is a significant correlation between critical thinking and argumentative writing skills or not. The result of this study showed that the p-value was .065 which was higher than .05. The result proved that  $H_0$  was accepted while  $H_a$  was rejected. It was inferred that both critical thinking and argumentative writing skills were not significantly correlated. Second, an Independent sample t-test was applied to calculate the significant difference between critical-thinkers and non-critical thinkers on argumentative writing skill. From the result, it was proven by the sig.(2) tailed was .067 which was higher than the p-value .05, so it was concluded that  $H_0$  was accepted and  $H_a$  was rejected. Meaning that both critical-thinkers and non-critical thinkers did not show significant difference in performing an argumentative writing. In summary, critical thinking skill does not contribute a significant effect for students' argumentative writing ability. This might be caused by several factors such as the improper learning design so it affects the students' critical thinking skill, and lack of problem solving and decision making activities that are believed to stimulate the students' thinking ability.

Some improvements must be done to cover up the lack of this research study. Due to several factors, the researcher only had 30 participants and the difficulty level of the instrument was extremely hard for the English department students. So, further researchers are hoped to improve the lack of this current research by enlarging the research participants and lowering the level of the instrument, and they are also expected to conduct research that might be in the same field with deeper investigation on critical thinking and argumentative writing skills.

English teachers are recommended to teach and foster critical thinking skill (CTS) in the learning process in order to build a strong CTS of learners and English teachers are suggested to be able to help learners in stimulating their CTS by using problem-solving skills, interpreting, analyzing, and concluding written texts. On the other hand, the result of this research is expected to present information about the importance of having critical thinking skill to perform good

argumentative writing. Both teachers and learners have an important role to reach the learning goal during the learning process.

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