

Investigating the Link between Critical Thinking Skill and Argumentative Writing Skill: The Case of Islamic Senior High School

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Abstract

This study was aimed at describing the link between the second year students' critical thinking skill and their argumentative writing skill at Islamic Senior High School in Palembang, South Sumatera, Indonesia. There were 60 students participated in this study. The data were obtained by using two instruments: Cornell Critical Thinking Test (CCTT) and argumentative writing test. Pearson Product Moment Correlation Coefficient and regression analysis were used to analyze the data. From the result, statistically significant positive link between students' critical thinking skill and their argumentative writing skill was found with correlation coefficient .695, and the p-value was (.000) lower than significance value (.000 < .005). Since there was a significant link, regression analysis was used. As the result, critical thinking skill had 48.4% contribution to the students' argumentative writing skill. In short, critical thinking skill had relationship with argumentative writing skill, and it gave 48.4 % contribution to the students' argumentative writing skill.

Keywords: argumentative writing skill, critical thinking skill

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Introduction

Writing skill plays an important role in learning English as a foreign language. It is considered as an important skill needed for both academic purposes and lifetime learning. Writing itself is variously defined by experts. According to Rivers (1981), writing is conveying information or expression of original ideas in a consecutive way in the new language. It is also supported by Akkaya and Kirmiz (2013) who explain that writing is the expression of feelings, thoughts, desires and plans in black and white. As an important tool, writing has so many benefits. As stated by Mandal (2009), students who are good at writing will bring many benefits. Firstly, writing is a good way to help develop students' ability of using vocabulary and grammar, increasing the ability of using language. Secondly, writing is an essential tool to support other skills. If a student has good writing ability, they can speak and read the text more effectively. Thirdly, writing is a way to approach modern information technology as well as the human knowledge.

Richardson and Morgan (as cited in Marzulina, 2018, p.4) stated that writing is the most complex communication process activity in communicative art. As one of the basic skills in English, writing is more complex because it involves constructing a new text rather than dealing with an already created one (Mohammadnia & Ayaz, 2014). In relation to this, writing ability is only learnable with the help of formal and organized instruction (Emig, 1997). In addition, Hiew (2015) argues that writing requires students to be able to write smoothly as the ideas flow through their

mind. Consequently, writing is not an easy activity to do by students as Jarvis (2000) emphasizes that many students do not enjoy writing because they feel that if they cannot do it correctly at the first time then they will never get it. Even though low and average proficiency students are recommended to write freely without worrying about their spelling and grammar, they still find it hard to express their thoughts and feelings due to the lack of vocabulary knowledge, writing practice and reading (Muslim, 2014).

Concerning about writing, there are still some problems found in Indonesia. Alwasilah (2005) claims that skill of writing in Indonesia is the most ignore skill in language education. Then, writing habit in Indonesia is lower than reading habit (Khak, 2011). This situation is basically supported by the fact that Indonesia is in a far move to consider English as the foreign/second language in the country. Moreover, based on the data found in Scopus and Scimago, Indonesia only had 3.231 journal publications (Arradian, 2014). This number is not satisfying if it was compared to Malaysia's and Singapore's. Thus, as stated in *Surat Dirjen Dikti No. 152/E/T/2012*, there is a rule from Directorate General of Higher Education of Indonesia which required students to write a research article and publish it in a journal as a requirement for graduation since August 2012.

In writing, there are text types that can be written. According to Lowenberg (2000), In Indonesia, there are various types of writing that should be learnt by the students including expository, narrative, descriptive, recount and argumentative. Richards and Schmidt (2010) define argumentative writing as composition which the writers give their opinion and arguments as well as evidence in order to support or defend position. In line with this, Zhu (2011) describes argumentative writing as the act of forming reasons, making inductions, drawing conclusions, and applying them to the case in discussion; the operation of inferring propositions, not known or admitted as true, from facts or principles known, admitted, or proved to be true.

Argumentative writing, in fact, is not an easy task. It is supported by Amalia (2016) who says that all of language skills are useful for students, however; the ability of argumentative writing seems to be the most crucial one. It is because the ability of argumentative writing is used more in field of education and workplace than other. It is needed for writing article and essay, conducting research and applying scholarship, etc. Moreover, Saito (2010) also claims that argumentative writing skill as the most difficult of other writing skills. It is because composing argumentative writing requires students to have a critical thinking, scientific ideas, and argumentative expression.

In L1 context, Crowhurst (1991) reviews the previous studies on argumentative writing and find that even native English speakers have poor performance in writing an argumentative discourse throughout the school system. The problems in argumentative writing identified in those studies are writing shorter texts than narration, insufficient content and ideas, failure to support the point of view, poor organization due to a lack of knowledge concerning argumentative structure and stylistic inappropriateness.

In Indonesian context, there are many explanations accounting for students' difficulties in writing an argumentative essay. According to Rahmatunisa (2014), it is noted that Indonesian students are more familiar with narration, such as writing about their experiences in journals or diaries than any other types of writing. Thus, even when they are assigned to write an argumentative essay, they tend to produce narration and construct their own pattern to write an argumentation. Besides, Al-Khasawneh (2010) mentions that Indonesian students lack implicit knowledge about argumentative conventional pattern. Consequently, they do not know how to write a good argumentative essay.

To cope with the writing problems, factors affecting students' argumentative writing skill are necessary to investigate, and on the factor investigated in this study is critical thinking skill. Masduqi (2011) states that Indonesian students tend to be ineffective in sharing ideas in writing because of their limited use of critical thinking skills and meaningful activities. Furthermore, as stated by Lai (2011), writing does not only require the mastery of linguistic such as grammar

vocabulary, pronunciation, intonation, etc, but also requires the conceptual judgment and critical thinking. Kellog (2001), claims that writing academically is a main cognitive challenge because it is a test of memory, language and thinking ability as well. Therefore, I assume that the problem of the students' argumentative writing skill is not only because students' lack of English competencies but also there is another factor influencing students' writing namely critical thinking skill. Accordingly, Facione (1990) discusses critical thinking in the context of perfections of thought. This preoccupation with the ideal critical thinker is evident in the American Philosophical Association's consensus portrait of the ideal critical thinker as someone who is inquisitive in nature, open-minded, flexible, fair-minded, has a desire to be well-informed, understands diverse viewpoints, and is willing to both suspend judgment and to consider other perspectives.

Critical thinking theory, promoted by Paul in 1992, has attracted many researchers and educators throughout the world. He has identified that thinking skill has three broad categories: reflective, creative, and critical. He emphasizes that we all have critical thinking skill that influenced in all aspects of human life. Fahim and Mirzaai (2014) report in their study that critical thinking is regarded to be the most influential factor in argumentative writing and they also concluded that having critical thinking skill in higher education is crucial and plays a significant role in understanding the learning process.

Regarding the problem above, studies have been undertaken to investigate the link between students' critical thinking skill and students' argumentative writing skill. The findings from the previous studies play an important role in designing this research. On the other hand, Assadi, Davatgar, and Jafari (2013) show that integrating current issues of critical thinking activities improved students' writing.

From the problems occurred above, it is assumed that the level of the students' critical thinking skill has relationship with students' argumentative writing skill. Therefore, this study was intended to investigate whether or not there is a link between critical thinking skill and argumentative writing skill of the second year students of Islamic Senior High School in Palembang, South Sumatera, Indonesia, and whether or not students' critical thinking skill influences their argumentative writing skill.

Literature Review

The concept of critical thinking skill

Nikou, Bonyadi, and Amirikar (2015) explain that the definitions of the concept of critical thinking are broad, the definitions range from multiple perspectives: philosophical, psychological, and educational. Some of definitions given by experts are sometimes different. However, it is important to gather the serious definition to construct the definition of critical thinking. Critical thinking can be defined as the ability to identify and analyze problems as well as to seek and evaluate relevant information in order to reach an appropriate conclusion (Watson & Glaser, 2012). Good conclusion can be reached by identifying, analyzing, and evaluating the matter issues. Critical thinking is also called as "reasonable thinking". It means that having good and logical reason is the major characteristic of critical thinking skill needed when drawing conclusion or making decision.

Paul and Elder (2008) define critical thinking as the art of analyzing and evaluating thinking with a view to improving it. In line with Paul's and Elder's opinion, Freeley and Steinberg (2007) describe critical thinking as the ability to analyze, criticize, and advocate ideas, to reason inductively and deductively, and to reach factual or judgemental conclusions based on sound inferences drawn from unambiguous statements of knowledge of belief. Critical thinking is about analyzing, evaluating, and criticizing something (knowledge, information, problem, and issue) in order to find good conclusion and judgment. Meanwhile, Wasshburn (2010) points out that critical thinking

relates to the activity to criticize people or things both in terms of negative side of them that may lead to the comprehension and best judgment about them.

The concept of argumentative writing skill

Sweat (2012) states that argumentative writing is a genre of writing that allows writers to express their opinion on a topic and support that opinion with strong logic and evidence. The main purpose of argumentative writing is to convince the readers that the writer's particular view or opinion on a controversial issue is correct and to persuade the audience to take some sort of action (Langan, 2008). In argumentative writing, a writer attempts to support or defend a position or difference point on with his/her logical arguments, ideas, and opinions. In argumentative writing, some data, example, and other's opinion are needed in order to support the argument. Good argumentation is required because it can help the writer easily convince and persuade the reader. Therefore, the writer should truly know the issue, his/her position, knowledge in order to give good argumentation.

Methodology

Research design, research site, sampling, and participants

In this study, correlational study was used to find out the link between students' critical thinking skill and their argumentative writing skill. Creswell (2005) states that correlation design is procedures in quantitative research in which investigators measure the degree of association (relationship) between two or more variables using the statistical procedure of correlation analysis. The first procedure was identifying the students' critical thinking skill using Cornell Critical Thinking Test (CCTT) and the second procedure was that giving the students an argumentative writing test. The next step was that the data analysis by using Pearson Correlation Coefficient and regression analysis.

The second year students of one islamic senior high school in Palembang, South Sumatera, Indonesia in the academic year 2017/2018 was chosen as the population. The total number of the population was sixty students, and all of them were taken as the sample.

Data collection

The data were collected by using test. Best and Khan (as cited in Putra & Marzulina, 2015, p.7) state that test is an instrument designed to describe and measure a sample of certain aspects of human behavior. In this study, to measure the students' critical thinking skill, there were 72 questions in the Cornell Critical Thinking Test (CCTT) which was taken from Ennis (2012). For critical thinking test, the Cornell Critical Thinking Test (CCTT) was already being tested in the term of validity. The developers argue for the construct validity of the Cornell Critical Thinking Test (CCTT) based on its content validity. Moreover, level X was chosen by several researchers (Ismail, 2003; Rosyanti & Awang, 2008) to measure students critical thinking skills. Since, the critical thinking test was taken from Ennis, Millman, and Tomko (1980), there was no need to conduct the validity test anymore. Further, the reliability rating of CCTT was 0.90 which was very high reliability (Ennis & Norris, 1989). Thus, this Cornell Critical Thinking Test (CCTT) could be used since it was reliable.

The last instrument, argumentative writing test was used by asking the students to write an argumentative text consisting of maximum 250 words and the topic came from their English text book. For its validity, expert judgment was used. The result of expert judgements showed that the instructions, topics, time allocation, content, and rubric were appropriate. To get the reliability of the writing test, inter-rater reliability was used. Inter-rater reliability allowed the raters to give a

degree or rating to the instruments whether it was appropriate for the sample or not. From three raters, the result showed the instruction, topic, time allocation and rubric were appropriate, and content was appropriate. Thus, argumentative writing test was reliable.

Data analysis

Data analysis was done based on the data obtained from the Cornell Critical Thinking Test (CCTT) and the argumentative writing test. First, Data from critical thinking test were analyzed to determine the students' critical thinking skill. The minimum score was 0 if a student's correct answer is 0 and the maximum score is 100 if a student's correct answer is 72 from total 72 questions. From the result of students' score of critical thinking test, the categories of students' critical thinking skill then were classified into three levels: (1) high (71-100); (2) medium (50-70); and (3) low (0-49). Second, the students' argumentative writing test was analyzed by the three raters who validated the argumentative writing test by using the rubric for argumentative writing from Jacob et. al. There were five aspects of the argumentative writing scoring system; content, vocabulary, usage, organization, and mechanism. As a result, the highest point of all was 100. The average points from them was determined as the students' argumentative writing skill. The result of students' argumentative writing test was categorized into four categories: (1) excellent (86-100); (2) good (76-85); (3) average (56-75); and (4) poor (<56).

To explain the data, descriptive statistics was presented. Then, the normality and linearity test were carried out. To see the correlation between variables, Pearson product-moment correlation coefficient was applied. Furthermore, to see the influence of predictor variables toward criterion variable, regression analysis was applied.

Findings and Discussion

Students' critical thinking and their argumentative writing skill

First of all, the result of critical thinking is presented. It was found that the minimum score of the students' critical thinking skill was 55 and their maximum score was 93. Critical thinking skill's mean score was 74.65 and the standard deviation was 9.010. The last, argumentative writing skill minimum score was 62 and maximum score was 88. The mean score of argumentative writing skill was 75.65 and the standard deviation was 6.903.

Table 1. Score distribution of students' critical thinking skill

| Level of Critical Thinking Skill | Range Score | Number of Students | Percent (%) |
|---|--------------------|---------------------------|--------------------|
| High | 71 – 100 | 35 | 58 |
| Medium | 50 – 70 | 25 | 42 |
| Low | 0 – 49 | 0 | 0 |
| Total | | 60 | 100 |

Based on table 1, the descriptive data revealed that the majority of students, 35 out of 60 (58%), had high critical thinking skill and as much as 25 students out of 60 (42%), had medium critical thinking skill. Last but not least, there was no one categorized as low critical thinking skill.

Table 2. Score distribution of students' argumentative writing skill

| Categories of Argumentative Writing Skill | Score Interval | Number of Students | Percent (%) |
|--|-----------------------|---------------------------|--------------------|
|--|-----------------------|---------------------------|--------------------|

| | | | |
|-----------|----------|----|-----|
| Excellent | 86 – 100 | 5 | 8 |
| Good | 71 – 85 | 24 | 40 |
| Average | 56 – 70 | 31 | 52 |
| Poor | 41- 55 | 0 | 0 |
| Very Poor | 0 - 40 | 0 | 0 |
| Total | | 60 | 100 |

Secondly, it can be seen from the table 2 that for each category, 5 students had excellent argumentative writing skill, 24 students had good argumentative writing skill, 31 students had average argumentative writing skill and there was no student having poor argumentative writing skill.

The result of normality amd linearity test

Based on the results of normality test, it was found that the significance value of critical thinking skill was 0.418, and the significance value of argumentative writing skill was 0.779. Since all of the significance values are higher than 0.05, it can be concluded that the data are normally distributed. Therefore, the data could be used for further analysis. Next, the results of linearity indicated that the deviation from linearity between critical thinking skill and argumentative writing skill was 0.229. In short, all data were linear for each correlation and regression.

Link between students' critical thinking skill and argumentative writing skill

Based on the statistical analysis, it showed that the correlation coefficient or the r - obtained (0.695) was higher than r -table (0.05) ($n-2=58$). Then the level of probability (p) significance (sig.2-tailed) was .000. It means that p value (.000) was less than 0.05. Thus, for the first hypotheses, H_1 was accepted and H_0 was rejected. It indicates that there was statistically significant positive link between critical thinking skill and argumentative writing skill. Since the data showed a significant link between the variables, the further analysis was conducted to find out the significant influence between the variables. The detail result was presented in Table 3.

Table 3. The Link of students' critical thinking skill and argumentative writing skill

| | | Critical Thinking Skill | Argumentative Writing Skill |
|-----------------------------|---------------------|--------------------------------|------------------------------------|
| Critical thinking skill | Pearson Correlation | 1 | .695** |
| | Sig. (2-tailed) | | .000 |
| | N | 60 | 60 |
| Argumentative Writing Skill | Pearson Correlation | .695** | 1 |
| | Sig. (2-tailed) | .000 | |
| | N | 60 | 60 |

Based on Table 3, it showed that the correlation coefficient or the r – obtained (0.695) was higher than r -table (0.05) ($n-2=58$). Then the level of probability (p) significance (sig.2-tailed) was .000. meaning that p value (.000) was less than 0.05. Thus, for the first hypotheses, H_1 was accepted and H_0 was rejected. It means that there was statistically significant positive link between critical thinking skill and argumentative writing skill. Therefore, since the data showed a significant link between the variables, the further analysis was conducted to find out the significant influence between the variables.

Table 4. R-square Analysis

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1 | .695 ^a | .484 | .475 | 5.003 |

Table 4 showed that the R-square was .484. It implied that the students' critical thinking skill had significant effect in the level of 48.4% toward argumentative writing skill, and 51.6% was unexplained factors value. Then, for the second hypotheses, H1 was accepted and H0 was rejected, It implied that critical thinking skill significantly influence argumentative writing skill of the second year students of Islamic Senior High School in Palembang.

In accordance with the results, there were some discussions in this study. First, in this study, most of the students had high level of critical thinking skill. The explanation to support this finding is that from the beginning of their life, the students had been involved in critical thinking process. Since they were born, they use critical thinking to analyze, evaluate, and criticize something (knowledge, information, problem, and issue) in order to find good conclusion and judgment. Wasshburn (2010) points out that critical thinking relates to the activity to criticize people or things both in terms of negative side of them that may lead to the comprehension and best judgment about them. It means that before making decision or judgment, a critical thinker has to think critically about what should to do or believe in order to make a good and reasonable judgment and decision. Critical thinking skill is obviously indispensable used in many field such as in education, research, finance, social, politics, management or other aspects of life.

Next, for argumentative writing skill, the data distribution showed there was the small amount of percentage of the students who were in excellent level as the students who were in average level of argumentative writing skill. It could happen due to the lack of vocabulary, limited idea, and difficulty in expressing their thoughts through writing. However, there was no one in poor and very poor level of argumentative writing skill. It might be because the students of Islamic Senior High School in 67 Palembang were aware of their critical thinking skill. Students could easily use their ability in analyzing, evaluating, and criticizing to make argumentative writing from a certain topics. They assessed themselves of how capable they were to accomplish a given task. Critical thinking skill could affect their judgment and opinion which are necessary in making argumentative writing. Student with high critical thinking skill would give great reason and evidence when facing difficulties or problems, and they probably look for strong evidence to support their opinion. In other words, the critical thinking skill level affects argumentative writing activity. Moreover, level of critical thinking skill, in fact, gives different performance in argumentative writing skill. Students with high critical thinking skill can provide a strong evidence to support their idea and make a rational reason about the problem. It can be said that the higher critical thinking skill level the students have, the easier they make an argumentative writing. It means students with high critical thinking skill can gather their ideas more easily than students with low critical thinking skill. It can be assumed that critical thinking skill is crucial in composing writing. It is because each process of writing requires some thinking skills. Therefore, without being able to think and also write critically, the writers cannot produce a piece of good writing. Besides, argumentative writing requires mental discipline and close attention to the set of logical rules included in critical thinking (Langan, 2008).

The finding in the study was in line with the study of Assadi, Davatgar, and Jafari (2013). They found that students' critical thinking skill had significant positive link with writing skill. Results of this study showed that students with higher critical thinking skill were more likely to receive higher scores in writing. Ruggiero (2004) states that it can be due to the fact that critical thinking in general can help students to participate in tasks, and students with high critical thinking skill set higher goals and engage themselves in tasks which require considerable fact and evidence

(Tays, 2007). Rashid and Hashim (2008) also found that there was a statistically significant positive link between critical thinking ability and language proficiency. Students who had high critical thinking ability also achieved at least a satisfactory level of proficiency in the target language.

Furthermore, Agustina (2013) found that there was relationship among reading attitude, critical thinking, and self-determination, in a college sample. Critical thinking as the predictor is used in the model to measure of academic reading attitude, although social self-determination is also shown to have a significant effect. Such a theory would predict that students with high levels of critical thinking are generally higher achievers than those who have lower levels of critical thinking. Nikou, Boyadi, and Amirikar (2015) in their research also found the existence of a significant positive link between critical thinking skill and the quality of argumentative writing. It can be said that the students with good critical thinking skill, they will have good writing skill as well, particularly in argumentative writing and the students with lack of the critical thinking skill usually have poor argumentative writing skill since critical thinking skill enables students to develop the idea critically and creatively.

On the contrary, Sugianto (2014) could not find any significant effect between critical thinking skill and writing skill. It indicated that the differences of means between high critical thinking skill and low one are not significant. Even though college-students with higher critical thinking skill also performed higher in writing activity, in fact, the differences between high and low critical thinking were not quite significant in writing activities. The level of critical thinking skill, either low or high, surprisingly does not give significant effect in writing activities though students with high critical thinking could make better writing. This indicates that high critical thinking does not automatically emerge and initiate students to make better writing task. This is in contrary to a research by Helix (2015) which showed a large significant positive link between critical thinking and writing of students in Florida State University; in writing activities for college students of Florida State University, students' level of critical thinking skill affect students' ability in writing.

The unexplained factors also influenced students' argumentative writing skill. The findings of this study also give pedagogical implications for teachers, students, and next researchers. Finally, investigation the link and the influence between critical thinking skill and argumentative writing skill of the second year students Islamic Senior High School in Palembang was successfully done.

Conclusions

The result of the study indicated that the alternative hypothesis was accepted. The null hypothesis was rejected as the correlation coefficient was .695 and the p-value was .000 which was less than .05 ($.000 < .05$). It implied that there was significant positive link between students' critical thinking skill and argumentative writing skill of the second year students of one Islamic Senior High in Palembang, South Sumatera, Indonesia. This result also means that the higher the level of students' critical thinking skill is, the better the the students' skill in argumentative writing. Futhermore, critical thinking skill gave 48.4 % contribution to the students' argumentative writing skill. To sum up, the more critical the students think, the more creative and critical they are in developing the ideas in making good argumentative writing. Therefore, future studies are expected to consider whether teaching method, teaching strategy, or teaching technique related to develop students' critical thinking skill, and also to correlate with other variables since there are many unexplained factors that affect students' argumentative writing skill.

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