An Investigation Link between Critical Thinking and Reading Comprehension: A case of A Madrasah in Lubuk Linggau, South Sumatera

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Abstract
The aims of the study were to find out (1) whether critical thinking had any significant correlation to reading comprehension of English Education Study Program Students at one of Madrasahs in Lubuk Linggau, South Sumatera; and (2) whether critical thinking significantly influenced their reading comprehension. The study was in the form of correlational research method. The population of the study was 636 active EFL students. By using purposive sampling technique, there were 108 students involved as participants in this research. The instruments, both critical thinking test and reading comprehension test, were analyzed in order to gain the data of the study. To find out whether critical thinking of students, as a whole, had any correlation with students' reading comprehension achievement or not, Pearson-Product Moment Correlation Coefficient was applied. Besides, to answer the second research problem, to find the significant influence of critical thinking, the coefficient determination (R Square) was applied. From the data analysis, it was found that there was significant correlation between students’ critical thinking and their reading comprehension since the p-value was (0.020) was less than significance value (0.020 < 0.005). In addition, to know the percentage of critical thinking skill influence on reading comprehension, R-square was obtained. The students’ critical thinking skill gave significant effect with 48.4% contribution towards reading comprehension. In short, critical thinking had relation to reading comprehension of the students of one of Madrasahs in Lubuk Linggau, South Sumatera.

Keywords: critical thinking, reading comprehension

Introduction

Communication and information are transferred mostly by a language. Therefore, mastering a language is a must for people in this era. According to Putra and Marzulina (2016), language plays important roles in daily life for human being. People use language as communication tool to share ideas, expressions, and information each other. Moreover, Putra and Marzulina (2016) state that English is one of international languages. As international languages, English is taught in every country all over the world, including Indonesia. English was used in every corner of the world as a medium to interact among people from different cultural, ethnic, and social backgrounds. Komaria indicates that the language, at present, is being articulated by not only native-speakers, but also non-native speakers (as cited in Abrar, Mukminin, Habibi, Asyaraﬁ, Makmur, & Marzulina, 2018, p.129). Furthermore, a large number of studies language have focused on the importance of the teaching quality, for

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instance, they have shown that teachers are key players in any educational innovation, especially in English education.

In Indonesia, English is mostly learned at schools or universities, but English is completely a foreign language for language learners in Indonesia. It is also supported by Sari and Yusuf (2009) that English is treated as a foreign language in Indonesia’s educational policy; it is likely that these EFL (English as a Foreign Language) students encounter problems in learning the language (as cited in Yusuf, Yusuf, Yusuf, & Nadya, 2017, p.44). Moreover, the quality of English language teaching in Indonesia is still not effective. Pitaloka (2014) says that there are actually various problems in ELT and one of them is the limited time allocation that was provided for English subject in school. In addition, English is not formally used in people’s daily communication either orally or in written but the students of university would use full English (Samanhudi, 2017).

In English, there are four language skills; they are listening, speaking, reading, and writing that should be mastered by the students in order to use English actively or passively in daily lives. Among the four language skills, reading is the skill that should be mastered by the students. Reading should be the first skill that should be learnt by the students because reading is an active cognitive process of interaction with printed and monitoring comprehension to establish meaning. Moreover, there are various good reasons for teaching reading (Kurniawati, 2010). Students may actually need to read for their work or study, or they want to read for pleasure. In addition, the exposure to English is an important part of acquiring language, the texts themselves can act as models for writing, the exercise allows the study and practice of grammar, vocabulary, pronunciation, punctuation, and provoke conversation and discussion.

There was a fact from Program for International Students Assessment (PISA) that was reported in 2009. It shows that among 65 countries participated in that program, Indonesia is at the 57th rank with the average score of 402, which is significantly below the average score of OECD, 493 (Organization for Economic Cooperation and Development OECD, 2010). Furthermore, The Progress in International Reading Literacy Study (PIRLS) in 2011, which measures students’ performance on a combined reading literacy scale, also reported that Indonesia ranked 42 out of 45 countries around the world (International Association for the Evaluation of Educational Achievement IEA, 2012). Indonesian students were just capable of mastering 305 reading material, and found difficulty in reading items that were in the form of commentary requiring cognitive process. In line with this, EGRA (2014) mentioned that reading achievement of students in Indonesia was on the lowest category and 26.3% of them was reading with comprehension.

People usually read the text to find the message or information. Whether or not they can understand about the text they read, it depends on their reading comprehension ability. Reading comprehension as the process of simultaneously extracting and involvement with written language which is very important since it supports student’s academic performance. Students think and try to comprehend the reading text when they read. This means thinking skill cannot be separated from reading comprehension. In line with this, NIHCD (2002) states that comprehension is the process of deriving meaning form connected text. It involves world knowledge (vocabulary) as well as thinking and reasoning. King, Wood, and Mines (1990) argue that reflective thinking, the careful collection and evaluation of evidence leading to a conclusion, should be a central aim of education. Many researchers such as Vaseghi, Gholami and Barjesteh (2012) also support critical thinking as an important thing that plays a central
role in academic instruction because it is what students need to succeed both in an academic environment and real-life situations. A research was conducted in the scope of critical thinking; endorse that this skill is very essential in education and real life. A study was conducted by Forood and Farahani (2013) showed that high critical thinkers performed better than low critical thinkers in answering factual, referential, and inferential reading comprehension questions. Besides, Chaffee (1992) states that successful students are not defined as those who are able to memorize facts and learn fixed routines and procedures, instead as those who are able to think critically when they are in difficulties and about what they are teaching. Ennis (1993) supports that thinking critically covers the skills of analysis, synthesis, and evaluation which are the purposes of education in the level of cognitive in Bloom’s taxonomy. In addition, it is related to the abilities of problem-solving and decision making. Therefore, teacher should teach the students not only what to think but also how to think critically.

Additionally, the study by Forood and Farahani (2013) shown that there was significant difference between the performance of high and low critical thinkers on factual, referential, and inferential reading comprehension questions. The study was conducted by Hosseini, Khodaei, Sarfallah and Dolatabadi (2012) also investigated the relationship of critical thinking ability, reading comprehension and reading strategy among 70 male and female Iranian university students majoring in English Translation and English Literature. The study showed that there was a correlation between critical thinking ability, reading comprehension and reading strategy.

Moreover, based on the informal interview with one of the students in the school, it was found that some of them were not satisfied with their reading score. Some students said that they had difficulties in comprehending the long text. The students were sometimes lazy to think because they had to assess and judge the rationality of an idea from the reading text given by the teacher. In addition, sometimes they got bored in doing this activity.

Taking into consideration what literature has documented concerning the role of reading comprehension and critical thinking, I was interested in conducting a study about the correlation and the influence of students’ critical thinking towards reading comprehension. Therefore, in this study, I intended to investigate whether or not there was a correlation between students’ critical thinking and reading comprehension at one of Madrasahs in Lubuk Linggau South Sumatera, and whether or not critical thinking influences their reading comprehension.

**Review of Literature**

**Critical thinking**

Critical thinking can be defined as the ability to identify and analyze problems as well as seek and evaluate relevant information in order to reach an appropriate conclusion. 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 improve it. In line with Paul and Elder opinion, critical thinking as the ability to analyze, criticize, and advocate ideas, to reason inductively and deductively, and to reach factual or judgmental 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, 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.

To sum up, critical thinking is the ability to think critically, reasonably, and analytically about the problem or the matter issue. Understanding cause and effect as well as evaluating information is required in order to reach good and logical interpretation from the problem or the matter issue. Such thinking is needed in every aspect of people’ life as making decision and having problem are the part of life.

Benefits of critical thinking

Critical thinking is valuable for two main reasons. First, thinking critically increase knowledge. Second, thinking critically is essential to being autonomous. It means that by thinking critically can make up someone’s own mind about what to believe or what to do.

According to Paul and Elder (2008), there are some benefits of critical thinking as mentioned below:

a. Bringing a clear and accurate formulation of vital questions and problems.

b. Having an effective interpretation of ideas and information.

c. Making reasonable conclusion and solutions which are in accordance with relevant criteria and standards.

d. Thinking inclusively or open minded.

e. Having an effective communication with other in coping with complex problem.

To sum up, the ability of critical thinking is obviously beneficial for the people because it is used in many aspects of life such as in workplace, education, politic or social life. Having critical thinking ability can help people solve the problem carefully and accurately. Most importantly, people can make reasonable conclusions and solutions from the issues arise.

Reading comprehension

The readers need to comprehend the reading text and understand what they read because comprehending the reading is an active thinking process that depends not only on comprehension skills, but also on the readers’ experiences and prior knowledge. In order to comprehend the reading text, the readers do not just transfer the printed symbol from page to the brain but also the readers have to comprehend the content of what the readers read.

Therefore, reading comprehension is the interaction between a reader and a writer which the reader tries to reconstruct the writer’s massage closely related to all major languages arts (listening, speaking, and writing).

The importance of critical thinking in reading comprehension

According to Aloqaili (2011), the connection between critical thinking and reading comprehension is related to schema theory. In addition, according to Gilakjani and Ahmadi (2011), readers construct a meaningful representation of text using their schemata. Schemata are considered to be necessary for regulating and organizing the readers’ reading experience and his ability to interpret the meaning of the text.
Alderson and Lukmani (1989) explain that there are six ways in which schemata function in thinking and remembering new information. Those are: 1) most new knowledge is gained by assimilating new information into existing structure; therefore, subject matter learning should build on prior knowledge whenever possible; 2) the students’ existing schemata help to allocate attention by focusing on what is pertinent and important in newly presented material; 3) schemata allows and directs the inferential elaboration of incoming information and experience; 4) schemata allow orderly searches of memory by providing learners with a guide to the types of information that should be recalled; 5) schemata facilitate the thinking skills of summarizing and editing; and 6) schemata permits inferential reconstruction when there are gaps in memory, which means that they help the learners generate hypotheses about missing information.

To be successful readers, they must have inferential and reasoning skills to establish meaningful connections between information in the text and relevant background knowledge. Meanwhile, metacognitive strategies to develop critical thinking. She suggests that improved critical thinking requires developing the processes of observation, analysis, inference, and evaluation.

Method

Research design

In this study, I used correlational study. Correlational study was applied since I mainly intended to find out the correlation among variables. Creswell (2005) states that a correlation is a statistical test to determine the tendency or pattern for two (or more) variables or two sets of data to vary consistently.

Research site, sampling, and participants

According to Fraenkel, Wallen and Hyun (2012), population is the larger group to which one hopes to apply the results. The population of this study was all the eleventh grade students of one Madrasah in Lubuk Linggau, South Sumatera. It consisted of 16 classes which the number of students from each class were varied. In this study, I chose the sample based on purposive sampling (judgmental sampling). Fraenkel, Wallen and Hyun (2012) explained that in purposive sampling, investigators used personal judgment, based on previous knowledge of population and the specific purpose of the research, to select a sample. It was a non-random sampling technique in which the writer selected the sample intentionally. I took the students who were taught by the same English teachers as sample. Therefore, 4 classes of Madrasah in Lubuk Linggau with total number of 160 eleventh grade students were considered as samples.

Data collection

To measure the students’ critical thinking skill, I used the Cornell Critical Thinking Test (CCTT). The CCTT is a standardized test developed by Ennis, Millman, and Tomko (2000). This test was considered valid and reliable to be used in the present study because it was claimed by its developers to be a general critical thinking test which attempts to measure the critical thinking skills as a whole and it is best used for grade 9 to 12, and college students. For CCTT,
the items are in the form of “Yes, No, Maybe” questions. The total numbers of questions were 44 questions. To measure the dependent variable, students’ reading comprehension, I used reading comprehension test which was taken from Cliff’s TOEFL Preparation consisted of 5 passages with 50 questions. The reading comprehension test involved the aspects mentioned by Cooper and Lewy (1988). They are: decoding vocabulary, identifying main ideas, identifying cause and effects, identifying detailed information, sequence, and making inferences or drawing conclusions, and identifying the writer’s purpose. The type of the question was multiple choices.

**Data analysis**

The instruments, both critical thinking test, and reading comprehension test, were analyzed in order to gain the data of the study. After giving the critical thinking test, and then I checked, and then scored the results manually to know students’ critical thinking level. The results of critical thinking level were analyzed by using percentage of students’ choice. To interpret the students’ individual score, the range of scores of critical thinking used as follows: High, Medium, and Low. The reading comprehension test consisted of 50 items. The highest score were 100 so it meant that the score of each item was 2. Then, the raw score were inverted to know the level of the students’ critical thinking and reading comprehension. It consisted of the percentage of range and the qualification. The percentage of range was used to know the students’ reading score.

In terms of correlation and regression, it was necessary to know whether the data were normal for each variable and linear between two variables. In this study, normality test was conducted to find out whether the data of critical thinking and reading comprehension were normal or not. I used I-Sample Kolmogorov-Smirnov in SPSS. If p-value is higher than .05 then it was normal and vice versa.

In this study, linearity test was conducted to know whether the data of critical thinking and reading comprehension test was linear or not. If the score was higher than 0.05, the two variables were linear. Next, linearity test in SPSS was used to see if the data was linear or not. After getting the result of critical thinking and reading comprehension test of students, I used Pearson– Product Moment Correlation Coefficient to find out whether or not there was a correlation between the variables. Regression Analysis was used to find out whether or not critical reading influenced students’ reading comprehension. I identified the influence of variables by using the result of R-Square. Simple regression analysis was used to measure two variables. The score of critical thinking as the independent variable and the students’ reading comprehension as dependent variable were calculated by SPSS.

**Findings**

**Students’ critical thinking and reading comprehension**

Critical thinking minimum score was 11 and the maximum score was 70. Critical thinking’s mean score was 48.42 and the standard deviation was 11.959. The last, reading comprehension minimum score was 16 and maximum score was 56. The mean score of reading comprehension test was 32.13 and the standard deviation was 8.937.
The descriptive statistical analysis for critical thinking and reading comprehension of the students, there were 0% students who had very high critical thinking, 62% had medium critical thinking, and 38% had very low critical thinking. From the data, it can be seen that there were students who 0% had a very good reading comprehension, 0% had good reading comprehension, 0% had average reading comprehension, 3% had poor reading comprehension, and 97% had very poor reading comprehension.

The result of normality test and linearity test

Based on the results, it was found that the significance value of critical thinking was 0.396, and the significance value of reading comprehension was 0.316. 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. Based on the ANOVA output table, value sig. deviation from linearity of 0.590 > 0.05, it can be concluded that there is a linear relationship between the variables of Reading Comprehension with Critical Thinking.

The correlation between critical thinking and reading comprehension

It was shown that the correlational coefficient of the test was 0.226 in which based on Fraenkel, Wallen, and Hyun (2012) state that correlation coefficients below 0.35 show very weak relationship between variables. These relationships have almost no value in any predictive sense. Moreover, from the statistical analysis, it was also shown that the p-value was 0.020 which was less than 0.05 (0.020 > 0.05). Therefore, these scores explicitly indicated that it was insufficient to reject the null hypothesis that is in the other words, there was a significant correlation between students’ critical thinking and their reading comprehension.

Table 1. Correlation between critical thinking and reading comprehension

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<tr>
<th></th>
<th>Critical Thinking</th>
<th>Reading Comprehension</th>
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<tbody>
<tr>
<td>Critical Thinking</td>
<td>Pearson Correlation</td>
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<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.226*</td>
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<tr>
<td>Reading Comprehension</td>
<td>Pearson Correlation</td>
<td>.226*</td>
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<td></td>
<td>Sig. (2-tailed)</td>
<td>.020</td>
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*, Correlation is significant at the 0.05 level (2-tailed).

The influence of critical thinking to reading comprehension

The result indicated that the students’ critical thinking skill significantly influenced reading comprehension with t-value (7.370) was higher than t-table (1.671) with sig. value (.00) was lower than probability (.05). Therefore, there was significant influence between student’s critical thinking and reading comprehension of eleventh grade students of one Madrasah in Lubuk Linggau, South Sumatera.
Table 2. The regression analysis of critical thinking and reading comprehension

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
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<tbody>
<tr>
<td>(Constant)</td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>Critical Thinking</td>
<td>.533</td>
<td>.072</td>
<td>.695</td>
<td>7.370</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Reading Comprehension

Table 3. Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.695a</td>
<td>.484</td>
<td>.475</td>
<td>5.003</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Critical Thinking

It revealed that the R-square was .484. It means that the students’ critical thinking skill gave significant effect in the level of 48.4% towards their reading comprehension, and 51.6% was unexplained factors value.

Discussion

First, the data distribution showed that most of the students were in the medium level of critical thinking. This finding was the same as the study conducted by Hosseini, Khodaei, Sarfallah, and Dolatabadi (2012). They state that the critical and analytical thinking skills among the engineering students at University Kebangsaan Malaysia were at moderate level despite their high academic achievement. This might happen because the students act as passive learners who think that they should memorize all the facts and information. It is in line with what Fahim and Ahmadian (2012) state that the practice in the academic setting usually views education as the transfer of knowledge. Moreover, Chaffee (1992) argues that critical thinking is barely taught explicitly and systematically within the educational framework. It results in the inability of the students to apply higher order thinking skills in evaluating information, situation, facts, assumptions, concepts or statements.

Next, for reading comprehension the data distribution shows that there was a big percentage of those are in poor and very poor achievement. However, there was no one in a very good level of reading comprehension. This might happen due to some factors involved in comprehension. Based on what happened during the research was conducted, it was found that they did not focus in doing the reading comprehension, because the research was done after they had taken another subjects at school. Some of them were also doing the test by chatting with their friends.
In addition, it is affected by the reader's knowledge of the topic, knowledge of language structures, knowledge of text structures and genres, knowledge of cognitive and metacognitive strategies, their reasoning abilities, their motivation, and their level of engagement. It might be that the students were not engaged fully during the test, or they had low motivation to do the test. Besides, their ability in thinking critically also influences their achievement in reading comprehension.

Furthermore, the finding revealed that there was significant correlation between critical thinking and reading comprehension achievement, and the strength of the correlation was high. It indicates that the more the students think critically, the higher the students’ achievement would be in reading comprehension. It is likely caused by the skills involved in critical thinking, i.e. analyzing, evaluating, and extending argument, which helped them in comprehending the reading passage. As asserted by Shihab (2011) that reading includes an interactive process in which the reader produces meaning through a set of mental processes actively. Readers should interpret, analyze, evaluate, and make inference in order to be able to grasp the meaning intended by the author. Further, Hosseini et al., (2012) supported the result of this study. They found there was a significant positive relationship between the readers’ critical thinking ability and the reading comprehension.

They found that students’ satisfaction critical thinking skill had significant positive correlations with reading skill. Results of this study show that students with higher critical thinking skill are more likely to receive higher scores in reading. 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. This is contrary showed a large significant positive correlation between critical thinking and reading ability of students in Florida State University; in reading activities for college students of Florida State University, students’ level of critical thinking skill affect students’ ability in reading. In short, the total contribution of students’ critical thinking and their reading comprehension skill showed significant correlation and influence. However, the unexplained factors also had contribution on student's reading comprehension. The findings of this study may have some pedagogical implications for teachers, students, and next researcher. Finally, this study was successful in investigating the correlation and the influence between critical thinking and reading comprehension of the students of one Madrasah in Lubuk Linggau, South Sumatera.

Conclusion

The correlation coefficient was .226, and the p-value was .20 which was higher than .05 (.20 < .05). It can be implied that there was a significant correlation between students' critical thinking skill and reading comprehension of the students of one Madrasah in Lubuk Linggau, South Sumatera. This result also meant that the students with high level critical thinking had good reading comprehension. Whereas, the students who had poor critical thinking skill tends to have poor reading comprehension as well. It is proven by the Pearson Product Moment correlation coefficient result which the value is 0.695. Furthermore, critical thinking skill has 48% contribution in the students’ reading comprehension. Therefore, it can be concluded that the more critical the students think, the more creative and critical they are in comprehending
the ideas. The ability can lead the students to have good reading, particularly in reading comprehension.

References


