

The Effects of Critical Thinking on Reading Comprehension of English Majored University Students

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Abstract: *Critical thinking is believed to play a crucial role in human life. Especially with the development of the global economy and information technology, critical thinking becomes extremely necessary for students to achieve academic learning as well as to get a high-qualified job. With good critical thinking skills, readers can get high reading comprehension level. This study was conducted in order to investigate the critical thinking skill and reading comprehension of English majored juniors at tertiary level in the Mekong Delta of Vietnam. It also aimed to look into the effects of critical thinking on reading comprehension. The results from critical thinking and reading comprehension tests showed the students' critical thinking and reading comprehension levels were below. Importantly, their critical thinking and reading comprehension levels were correlated. When the students had high critical thinking, their reading comprehension was also high, and vice versa. It implies that critical thinking sub-skills need to be focused on and improved in the integration with the teaching and learning process of not only English but also other subjects at school.*

Keywords: Critical Thinking, English Majored Students, Reading Comprehension

1. Introduction

In the context of globalization, people in different countries need a lingua franca like English in the process of integration and cooperation. To catch up with those changes and developments, people need not only English skills but also critical thinking skill in order to become active, confident and quick in conducting and expressing their opinion and get success in communication. Nowadays, understanding the importance of critical thinking skill to human, some universities and colleges have focused on developing critical thinking skill in the teaching and learning process.

However, it is found that many students are too often being passive receptors of information (Budiana & Nurwaliah, 2019). In the age of information explosion and rapid technological changes, students need to develop critical thinking and effectively apply it to their studying, to the complex problems that they will face, and to the critical choices they will be forced to make (Oliver & Utermohlen, 1995). Therefore, it is necessary to explore students' levels of text comprehension and critical thinking as well as the correlation between these two skills in order to raise the teachers and students' awareness of the effects of critical thinking on reading comprehension, and identify proper solutions for the improvement of their information process and perception.

2. Literature Review

2.1. Definitions of Reading Comprehension

Reading comprehension is one of five elements identified as central to the instruction of reading. Reading comprehension is the result of many different mental activities by a reader, done automatically and simultaneously, in order to understand the meaning communicated in a text.

Ennis (1993) supposes reading comprehension is one of the pillars of the act of reading. When a person reads a text, he engages in a complex array of cognitive processes, and simultaneously uses his awareness and understanding of phonemes (individual sound "pieces" in language), phonics (connection between letters and sounds and the relationship between sounds, letters and words) and ability to comprehend or

construct meaning from the text. This last component of the act of reading is reading comprehension. It cannot occur independent of the other two elements of the process. At the same time, it is the most difficult and most important of the three.

In addition, Kruidenier (2002) elaborates that comprehension is an active process and the reader must interact and be engaged with the text for it to work well. It is also a strategic process which can be taught. As comprehension takes place, words are decoded and associated with their meaning in the reader's memory and phrases and sentences are processed rapidly or fluently enough to that the meanings derived from one word, phrase, or sentence are not lost before the next is processed. Reading comprehension can be described as understanding a text that is read, or the process of constructing meaning from a text.

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2.2. Definitions of Critical Thinking

Critical thinking approach to learning has been applied for 2000 years, for the first time by Socrates and it is developed till today. This term has been considered and defined by many researchers.

Schafersman (1991) assumes that critical thinking means correct thinking in the pursuit of relevant and reliable knowledge about the world. Another way to describe it is reasonable, reflective, responsible, and skillful thinking that is focused on deciding what to believe or do. Moreover, a person who thinks critically can ask appropriate questions, gather relevant information, efficiently and creatively sort through this information, reason logically from this information, and come to reliable and trustworthy conclusions about the world that enable one to live and act successfully in it. Critical thinking enables an individual to be a responsible citizen who contributes to society, and not be merely a consumer of society's distractions.

Critical thinking is the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action. In its exemplary form, it is based on universal intellectual values that transcend subject matter divisions: clarity, accuracy, precision, consistency, relevance, sound evidence, good reasons, depth, breadth, and fairness (Scriven & Paul, 1987).

2.3. The Relationship between Critical Thinking Skill and Reading Comprehension

The relationship between critical thinking and reading comprehension is well established in the literature. For example, Abdulmohsen (2012) points out that reading is more than just saying what is on the page; it is thinking. Moreover, Yu-hui et al. (2010) states clearly that reading is thinking process to construct meaning. They explain that critical thinking provides a means of explaining the ability to work out ambiguous texts by generating alternative interpretations, considering them in light of experience and world knowledge, suspending decision until further information is available, and accepting alternative explanations. They conclude that critical thinking is the process which the reader uses to comprehend the text, and it can determine the level of his or her comprehension (Aloqaili, 2011).

Critical thinking skill is also believed to have correlation with reading comprehension speed. When people read, people need to remember everything. People's goals for reading can determine what the readers need and do not need to remember (Redway, 1992). With a critical eye, people can jump around on the page, skim it, and process new terms or blocks of information to catch the messages with speed.

2.4. Academic Research on Critical Thinking as A Good Tool to Improve Reading Comprehension

Hosseini et al. (2012) point out that there is a large positive relationship between critical thinking and reading comprehension ability of Iranian EFL learners in general. Moreover, a large, positive relationship was observed between their critical thinking and their reading strategies. In terms of the sub-strategies of

reading, a large, positive relationship was found between EFL readers' use of cognitive and metacognitive strategies and their critical thinking ability. It was also shown that effective strategies along with critical thinking and general reading strategy use were among the predictors of learners' reading comprehension ability. These findings are very helpful to those who are developing and training reading and other skills. In addition, it might be beneficial to those who teach English, particularly reading courses to employ their creativity and include appropriate tasks and activities to enhance learners' critical reading skill along with critical thinking ability.

Concerning the effects of critical thinking on reading comprehension, Fahim et al. (2010) conducted a study to find if there was any significant relationship between test takers' critical thinking ability and their performance on the reading section of TOEFL. The findings indicated a statistically significant advantage for those with greater critical thinking skill. The researchers concluded that critical thinking is very important for answering reading comprehension questions, especially those related to main ideas.

2.5. Ways to Test Critical Thinking Skill

The Watson-Glaser Critical Thinking Appraisal, the California Critical Thinking Skills Test and the Cornell Critical Thinking Tests (Soukup, 1999) are also known as commercially available standardized general critical thinking tests. These tests are designed in form of multiple choice answers, and they are used to test six aspects of critical thinking such as analysis, interpretation, inference, recognizing of assumptions, assessing credibility and detecting fallacies in reasoning. These tests bring some advantages because they are easier to test students and to give scores.

In the Ennis-Weir Critical Thinking Essay Test (Ennis & Weir, 1985), students have to read essays with other topics and issues that including reasoning errors and the students have to deduce their own answers. This test brings more advantages than multiple choices test because it helps students outside more carefully the questions before answering, enhance the effectiveness of deducing students' own answers. With the various topics, it can test students' knowledge in other situations. However, this test is costing and the various topics cause difficulties for students. Because of the limited time, and the unfeasible scoring way, it was not employed in this study.

Besides, Thinking Skills Assessment (TSA) involves seven kinds of questions including matching arguments, applying principled, detecting reasoning errors, assessing impact of additional evidence, drawing conclusion, summarizing main conclusion and identifying an assumption. This test satisfies reality, reliability and validity with various topics in which students can have experience. This multiple choice test is also a free test, so it is easier for students at each level and age to do. Therefore, it was employed in this study.

3. Research Methodology

3.1. Research Questions

The study aimed to find out the answers to the following research questions:

1. What are the levels of the students' reading comprehension?
2. What are their critical thinking skill levels?
3. Is there any relationship between critical thinking skill and reading comprehension?

3.2. Research Design

This descriptive research was carried out to answer the research questions presented in the section above. This study was to test the students' critical thinking and reading comprehension levels and the effects of critical thinking skill on reading comprehension. This research was carried out with the participation of English majored students at a university in the Mekong Delta of Vietnam. In the research, critical thinking

skill test and reading comprehension test were adapted and employed to get quantitative data for the analysis.

3.3. Participants

This study is conducted with the participation of 30 Vietnamese students including ten males and twenty females. Their ages were about twenty-one years old. The students all speak Vietnamese as their first language and English is as their foreign language. They had learnt English for over ten years, and they all used Interaction and Mosaic textbooks for their reading courses.

3.4. Research Instruments

The instruments used in this study were a Thinking Skill Assessment test and a Reading Comprehension test.

3.4.1. The Thinking Skill Assessment Test

The test was adapted from the Thinking Skills Assessment (TSA) and it was translated into Vietnamese to facilitate students' understanding. It consisted of fifteen multiple choice questions with five options - one key and four distracters as summarized in Table 1.

Table 1: Description of the Critical Thinking Skill Test

Test Items	Sub-Skills	
Items 1,12	Detecting reasoning errors	Evaluation
Item 14	Assessing impact of additional evidence	
Items 2, 9	Applying principles	Explanation
Items 10, 15	Matching arguments	
Items 3, 6, 13	Identify an assumption	Analysis
Items 4, 8, 11	Summarizing main conclusion	Interpretation
Items 5, 7	Drawing conclusion	Inference

3.4.2. The Reading Comprehension Test

The reading comprehension test was taken from a TOEFL test which has been verified by many previous researchers. It consisted of twenty questions in English with four options – one key and three distracters as summarized in Table 2.

Table 2: Description of the Reading Comprehension Test

Describing Test Items	Sub-Skills
Items 2, 3, 8, 11, 18, 19, 20	Guessing the meaning
Items 1, 10	Getting Main idea
Items 4, 7, 12, 16, 17	Finding detail information
Items 5, 15	Synthesizing the passage
Items 9, 13	Remembering information

4. Results

4.1. Students' Critical Thinking Skill Level and Reading Comprehension Level

4.1.1. The General Report of Students' Critical Thinking

The TSA test was employed in this study to measure the students' critical thinking level. The scale for each answer ranges from 0 (the lowest for a wrong answer) to 1 (the highest for the right answer). Therefore, the answer scores scale from 0 as minimum to 1 as maximum). The mean score of each question was obtained by adding the students' right answers, and then divided the total by thirty students. And the mean score of each student was calculated by the sum of the students' right answers and then divided the total by 15 questions. Table 3 presents the TSA test results.

Table 3: The Students' Critical Thinking Level

Test	N	Min	Max	Total mean
Critical thinking test	30	0.16	0.40	0.31

The data analysis shows that the students' critical thinking level was low. The total mean score ($M_T=0.31$) of the test was lower than the average mean score ($M=0.5$). This is a negative signal of the juniors' thinking skill.

4.1.2. The Detailed Report of Students' Critical Thinking

The results of the students' critical thinking test are detailed in the following table.

Table 4: The Students' Critical Thinking Skill Test Scores

Sub Skills	Items	Mean of each question	Mean of each skill	Min	Max	Total
1. Detecting reasoning errors	Q1	0.50	0.40	0.13	0.50	0.31
	Q12	0.30				
2. Applying principles	Q2	0.13	0.20			
	Q9	0.30				
3. Identifying an assumption	Q3	0.20	0.16			
	Q6	0.05				
	Q13	0.23				
4. Summarizing main conclusion	Q4	0.23	0.23			
	Q8	0.20				
	Q11	0.28				
5. Drawing conclusion	Q5	0.25	0.21			
	Q7	0.18				
6. Matching arguments	Q10	0.20	0.20			
	Q15	0.20				
7. Assessing impact of additional evidence	Q14	0.33	0.33			

As stated in the above table, the total mean score of all sub-skills was 0.31, and most of the critical thinking sub-skills had mean scores lower than the average level 0.5. This shows that the students' critical thinking level was rather low.

Specifically, the highest mean score, the mean score of the sub-skill detecting reasoning errors was just 0.40 and the lowest one was the sub-skill identifying an assumption with 0.16. The mean score of the sub-skill assessing impact of additional evidence just came second ($M_{Ass}=0.33$), just a bit higher than the total mean score 0.31. The other sub-skills Applying principles, Summarizing main conclusion, Drawing conclusion and Matching arguments had the mean scores just around 0.2. This result can be shown clearly on the following chart.

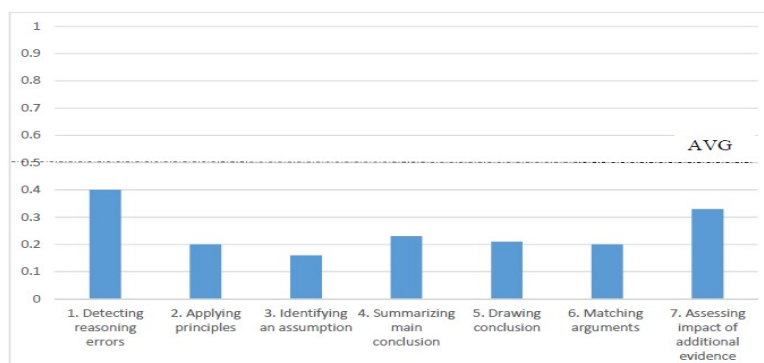


Figure 1: The Students' Critical Thinking Sub-Skills

Figure 1 shows the students' low level of critical think level as well as the differences of thinking sub-skills. This implies a need for the improvement of these sub-skills.

4.1.3. The General Report of the Students' Reading Comprehension Level

Table 5: The Students' Mean Score of The Reading Test

Test	N	Min	Max	Total mean
Reading test	30	0.13	0.57	0.34

Table 5 shows the total mean score of the reading test was low ($M=0.34$), much lower than the average mean score ($M=0.5$), although the maximum ($M_{max}=0.57$) was a bit upper than the average one. The minimum mean score ($M_{min}=0.13$) was quite low. The reading test was extracted from the standard TOEFL test, so it might be some more difficult than normal reading tests in class.

4.2. The Correlation of the Critical Thinking and the Reading Comprehension

The following figure shows the correlation between critical thinking mean scores and reading comprehension mean scores.

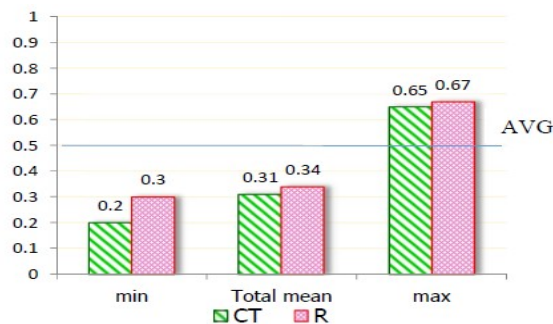


Figure 2: The Highlighted Correlation between Critical Thinking and Reading Comprehension

The students who had a minimal mean core of critical thinking ($M=0.2$) also had a low mean score of reading comprehension ($M=0.3$). Similarly, the student who got a maximum mean score of critical thinking ($M= 0.65$) also got a little bit higher reading mean score ($M=0.67$). The figure shows that there was a correlation between the critical thinking mean scores and the reading comprehension mean scores. Actually, when the students' critical thinking level was low, his/ her reading comprehension level was at a similar level, and it increased when the critical thinking became higher. Although reading comprehension level was a bit higher than critical thinking which is believed to be hard to cultivate or achieve, these two skills are really correlated. It can show if critical thinking is improved, the students may have higher reading comprehension, and the gap between the critical thinking score and reading score becomes narrowed when critical thinking becomes higher. The following figure shows the distribution of the mean scores of critical thinking and reading comprehension in detail.

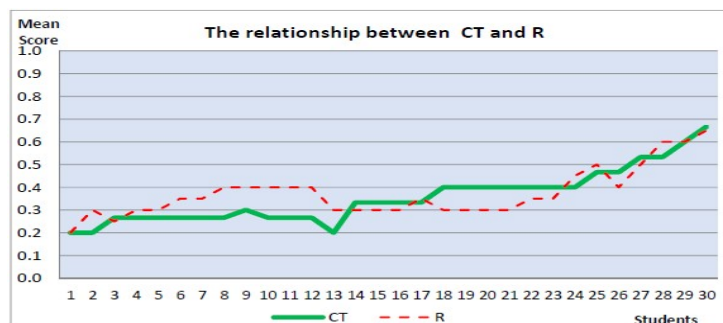


Figure 3: The Correlation between Critical Thinking and Reading Comprehension

The line graph helps to confirm the parallel structure of the students' critical thinking skill and their reading comprehension level. The lowest point and the highest point of both items nearly meet. The line of critical thinking may be a bit higher or lower in some cases, but still indicates the relationship between these two factors. This once shows that for most of the part, critical thinking and reading comprehension are really correlated. The students with high critical thinking level may have a high level of reading comprehension level and vice versa.

In addition, the graph also shows that the mean score of critical thinking was low, and just a few students had critical thinking higher than the average one. This can be concluded that the students' critical thinking was not very good, and teaching critical thinking for the students might not be focused much. This skill should be taught explicitly as early as possible from level to level and together other language subjects as sub-skills. In the Interaction textbook series, the authors integrated critical thinking skills into the curriculum so that students are able to cultivate this important skill. Teachers should not ignore the critical thinking exercises even when they think it is difficult. Training this is really significant as training other language skills because it can help to develop the level of developing other skills.

Critical thinking is a skill that is important not only in reading skills but also in other skills such as writing, listening and speaking. Therefore, teachers should train critical thinking skills for students from basic to advanced, allowing students to practice and interact with critical thinking to change their attitude toward critical thinking and habit of using critical thinking in more effective way.

5. Conclusions

The results from the tests present that the students' critical thinking and reading comprehension levels were low. The causes of their low critical thinking abilities may be because the sub-skills matching arguments, applying principles, assessing impact of additional evidence, drawing conclusion, summarizing main conclusions, detecting reasoning errors and identifying an assumption were not practiced enough in and outside the class. Another reason may be because these sub-skills were difficult for them to employ, or they did not know how to employ these sub-skills effectively. So, critical thinking should be infused into each subject at schools for all grades and ages to raise the awareness of the importance of critical thinking for both teachers and students. From the research results, teachers can estimate their students' levels of critical thinking and reading comprehension. Thanks to that, they can find the way to practice the sub-skills of critical thinking more frequently to improve their students' critical thinking skills as well as develop their reading comprehension level because they are correlated. In addition, students should be aware of the importance of critical thinking as well as try more to practice critical thinking sub-skills in studying and in daily life. From that, students have some ways to cultivate their critical thinking skills and habitually consider others' opinions, assess reliable information as well as evaluate every situation in reading.

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