




EXPLORING THE CONNECTION BETWEEN CRITICAL THINKING SKILLS AND ACADEMIC WRITING




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ABSTRACT

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Discussions on critical thinking skills among students in higher institutions of learning continues to be an important topic for discussion. These discussions revolve around the facts that students are not capable of displaying critical thinking skills abilities or researchers suggesting on ways to improve critical thinking skills among learners. Teachers often report on learners' critical thinking (or lack of it) and how critical thinking skills influence classroom learning. Not many realize that writing and thinking are inter-related in many ways. The teaching of critical thinking skills can be embedded in the teaching of writing in the classroom. This study explores the connection between critical thinking skills and academic writing. It looks into how writing process mirrors critical thinking skills. This quantitative study is done on 207 first semester undergraduate students who signed up for academic writing course in a public university in Malaysia. Findings of this study revealed interesting implications for the teaching of writing process and critical thinking among undergraduates.

Contribution/ Originality: The study contributes in the existing literature on the connection between critical thinking and academic writing. Existing characteristics of critical thinking skills is merged with academic writing skills.

1. INTRODUCTION

1.1. Background of Study

There have been many discussions on critical thinking among learners in institutions of higher learning. According to Karakoc (2016) because of the way the world is moving, there is a need to make sure learners are able to think critically. Employers prefer recruiting candidates who display critical thinking abilities. It is hoped that employers who can think critically are able to solve problems on their own and make informed choices about work and personal issues. People are talking about critical thinking-;the lack of, how to improve, yet ,not internalizing much about the characteristics of critical thinking. Many articles have been written on how to improve critical thinking skills, or what institutions can do to increase the skills. Nevertheless, have we looked into what institutions are currently doing already?

Writing is a skill not many like for several reasons. According to Rahmat (2019) problems writers face (a) linguistic difficulty,(grammar, vocabulary, language use) (b) physiology difficulty (no interaction between writer and reader), and (c) cognitive difficulty (punctuation, capitalization and paragraphing). Some writers are considered weak because their language ability interferes with their ability to put ideas on paper. On the other hand, some writers can write , but all they wrote was the same idea over and over again!

Writing and thinking are inter-connected. The study by Rahmat (2020) explored the connection between thinking and writing. Figure 1 shows the cycle of thinking and writing. Good writing involves proper planning. This planning involves reading for information. This reading stage uses critical thinking skills to make decisions on the content of the article, the usefulness of the content , as well as how the content fits into the writer’s needs. The writer knows that the first completed writing is not the final stage. He/she needs to evaluate his/her own draft by reading critically to improve on the final write-up.

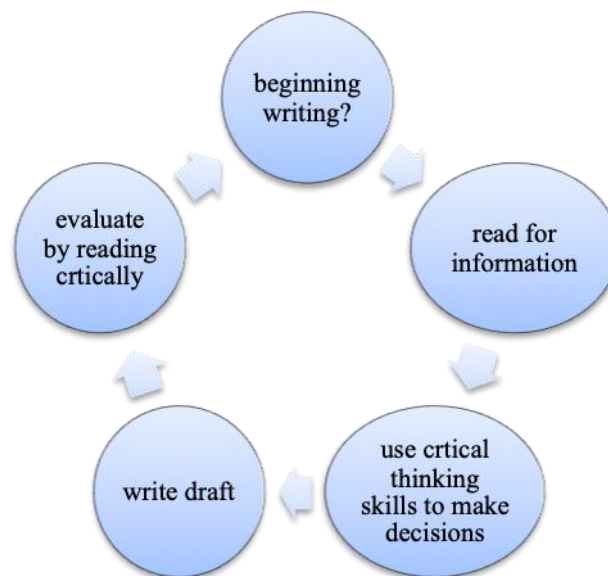


Figure-1. The cycle of thinking and writing (adapted from Rahmat (2020)).
Source: Rahmat (2020).

1.2. Statement of Problem

Past studies reveal that critical thinking skills are needed by learners. The study by Karakoc (2016) reports that the world is getting more technical and more complex. Decisions need to be made almost immediately after an idea crops up. Actions that follow the decisions need to be automatic. What if the decisions made have not been given much thought? What if the decision maker has no critical thinking skills?

Are critical thinking skills taught to learners? The study by Choy and Cheah (2009) pointed out that it is the duty of teachers to teach critical thinking skills. Many have raised concerns over the ability (inability) of teachers to teach critical thinking skills. Can critical thinking skills be taught? Are there any ways where learners can be trained to use critical thinking skills in normal classroom activities? Instead of saying learners need to be taught critical thinking skills, it would be interesting to explore if learners are already using critical thinking skills in their process of learning.

How is thinking related to learning? According to Rahmat (2020) thinking and writing is connected. The writing skills that learners do mirror what learners have to go through when they think critically. How much is writing connected to thinking?

1.3. Objective of the Study

The objective of this study is to explore the connection between critical thinking and writing. Specifically, this study investigates whether there are significant differences between writing process and critical thinking across secondary school English grade, of learners? This study also looks into the perception of writers on the writing process and their critical thinking skills. Hence, this study is done to answer the following questions.

1.3.1. How Do ESL Writers Perceive Writing Process?

1.3.2. How Do ESL Writers Perceive Critical Thinking Skills?

1.3.3. Is There Any Significance Difference Between Writing Process and Critical Thinking Skills Across Secondary School English Grade?

1.4. Analytical Thinking and Critical Thinking

There are some difference between thinking and critical thinking. Thinking involves the breaking down of complex information into smaller parts. On the other hand, critical thinking involves more than just analyzing information. Critical thinkers take outside knowledge into account while evaluating the information (Wabisabi Learning, 2019). The evaluation of information may still include breaking down of complex information in order to assist the evaluation of given information. It is safe to say, thinking is embedded in critical thinking.

2. LITERATURE REVIEW

2.1. Introduction

This section discusses information about the writing process, and critical thinking skills. The discussion is then focused on combining critical thinking and writing. Next past studies on writing and critical thinking skills are presented followed by the theoretical framework of the study.

2.2. Writing Process

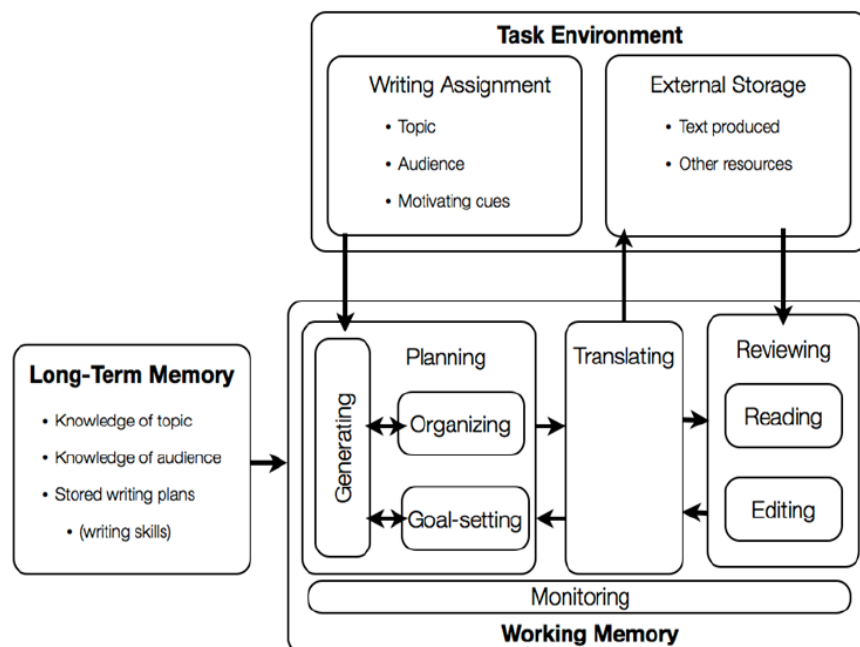


Figure-2. The cognitive process model of the composing process (Flower and Hayes, 1981). Source: Flower and Hayes (1981).

Figure 2 shows the cognitive process model of the composing process by Flower and Hayes (1981). The figure elaborates the whole writing process that the writer goes through. When a writer is given an essay to write, he or

she is faced with three important issues and they are the (a) task environment, (b) long term memory and (c) working memory. At the start of the writing activity, the writer is faced with task environment issues such as the requirements of the writing assignment. The writer may worry about the topic, the audience of the essay and even his/her motivating cues. He or she may or may not like the writing assignment given. The write may also depend on external storage (previous essays) to help support his/her essay. Next the writer uses his /her long term memory to decide if the writing assignment is familiar or otherwise. This long-term memory includes the knowledge of the topic, knowledge of the audience and also the stored writing plans he/she had learnt prior to the writing assignment. The writer begins activities in the working memory. The working memory is where the “real action” takes place for a writer. This is the stage where the writer goes through the planning, translating and reviewing stages.

2.2.1. Planning

At the planning stage, the writer organizes and sets goal for the writing task. This is the stage where the writer goes back and forth to generate ideas to prepare for the actual writing stage.

2.2.2. Translating

The translation stage can be understood in two ways. First, after reading from sources, the writer now translates his /her ideas from oral thoughts (through reading and research) into written form. Next, some writers discuss the ideas with their peers and the translation stage would be transferring spoken form into written form.

2.2.3. Reviewing

The reviewing stage is the stage where the writer reviews what he/she had written. He/she may or may not like what he/she has written. He edits and make improvements to the essay.

2.3. Critical Thinking Skills

The study by Haase (2010) categorized five abilities that display critical thinking skills. The categories are: Conceptualizing information a person is said to have conceptualized the information when after undergoing some activities, the person forms an idea or principle of how the newly learnt concept.

2.3.1. Applying Information

Writers may do some reading up before they begin writing. Some may use the information they have read up as details in their writing.

2.3.2. Analysing Information

Not many writers are able to make analysis of what they have read. Some use the read information into their essays without deciding on its relevance to their writing.

2.3.3. Synthesizing Information

Good writers are able to combine information from different sources to be used in their write-up.

2.3.4. Evaluating Information

The advent of open information system sometimes makes readers unaware of irrelevant information. Ideas that are not properly assessed are often used to support arguments that may end up being weak with flaws.

2.3.5. Writing Process and Critical Thinking Combined

Careful analysis of the characteristics refer to Table 1 of the writing process in the working memory reveal similar traits of those listed in the critical thinking process by Haase (2010). The planning stage mirrors skills found in conceptualizing and applying information. The write needs to perform these two critical thinking skills at the start of the writing process.

Next, the critical thinking skills of analyzing and synthesizing information is done at the writing up stage -also known as the translation stage in Flower and Hayes (1981). Finally, the evaluating of information in the critical thinking stage mirrors the reviewing stage mentioned by Flower and Hayes (1981).

Table-1. Relationship between writing process and critical thinking skills.

Writing process in the working memory	Relationship	Critical thinking skills
Planning	↔	Conceptualizing Information Applying Information
Translating	↔	Analysing Information Synthesizing Information
Reviewing	↔	Evaluating Information

Source: Flower and Hayes (1981) and Haase (2010).

2.4. Theoretical Framework of the Study

Figure 3 below is the theoretical framework of the study. This study compares the process of writing to that of critical thinking skills. The processes involved in writing is mapped onto the stages of critical thinking process of learner.



Figure-3. Theoretical framework of the study.

Source: Flower and Hayes (1981) and Haase (2010).

2.4.1. Planning vs Conceptualizing Information & Applying Information

During the planning stage of the writer, he/she needs to understand concepts before he/she can decide on what or how much to write. The next stage of planning is for the writer to apply the understood concept to be used in the essay.

2.4.2. *Translating vs Analyzing Information & Synthesizing Information*

This stage “translation” is a complex cognitive process and happens in the mind of the writer. The writer analyses the information into manageable chunks to be included in the essay. However, a better write would synthesize the gathered information before writing the essay.

2.4.3. *Reviewing vs Evaluating Information*

The last stage is the reviewing stage. This is the stage where the writer re-reads what he/she had written. He then evaluates whether the essay needs improvement or good the way it already is.

2.5. *Past Studies*

A study was conducted by [Choy and Cheah \(2009\)](#) on some teachers in institutions of higher learning in Malaysia. 30 respondents were asked to answer 8 questions and the questions were focused on drawing out their perceptions on critical thinking. The questionnaire used in the study was semi-structured in nature so that it allowed the respondents to answer in the best possible way. Topics for the questionnaire was based on literature review. An initial list of 15 topics were adjusted to 8. The analysis of the responses to the questionnaire was done using the process of topic ordering, a term used by [Radnor \(2002\)](#) to describe the process of preparing qualitative data for analysis. Using this process, the transcripts were analyzed inductively. The main categories were allowed to emerge from the data through repeated reading of the data. The transcripts were read a number of times in order for salient points that emerged to be placed into categories. The final categorization of the data was checked by another researcher for consistency in the categorization of the data. The findings revealed 6 categories of teachers’ perceptions of critical thinking. The teachers’ perceptions of critical thinking among students influence their behaviors in the classroom.

Another research was done by [Flores et al. \(2012\)](#) to explore the use of critical thinking skills among students. Students were reported to be deficient in critical thinking skills. They were unprepared to think critically once in the workforce. Past studies have reported that limited development of cognitive processing skills leads to less effective leaders. Various definitions of critical thinking are examined to develop a general construct to guide the discussion as critical thinking is linked to constructivism, leadership, and education. The study found that most pedagogy is content-based built on deep knowledge.

[Tuzlukova et al. \(2017\)](#) explored English Language teachers’ conceptual definitions of critical thinking, their beliefs about the importance of critical thinking for language teaching as well as connections between critical thinking and language teaching methods. The instrument was a survey. The survey was administered online on wiggio.com platform. The participants responded to the survey during and after the in-house professional development courses organized by the Language Centre. 24 teachers participated in the study. The results showed that the teachers’ preference for aligning their teaching methods with the functional-communicative approach, related to [Ennis \(2011\)](#) critical thinking categories.

[Nold \(2017\)](#) modified three business courses to include activities that research suggests help develop critical thinking skills. The Motivated Strategies for Learning Questionnaire (MSLQ) ([Pintrich et al., 1991](#)) was used to assess changes in 15 learning constructs during a class and correlated with grades. A modified MSLQ ([Boyer and Usinger, 2012](#)) was administered at the beginning and end of eight-week courses to provide insight into how students self-assess constructs for success. Results from classes over a 15-month period in 2013 and 2014 indicated improvement in 14 of 15 elements for success with three (intrinsic goal orientation, self-efficacy, and critical thinking) statistically significant.

The study by [Alidmat and Ayassrah \(2017\)](#) looked into how ESP courses can develop critical thinking skills through carefully selected writing tasks in English. The qualitative study used in-depth as the instrument. It explored a sample of 10 undergraduates’ perception on issues related to their writing tasks in English. Findings of

the study revealed that there is a low correspondence between writing tasks contained in the ESL programme and critical thinking skills. This is because the writing tasks that were featured in the programme pursued more mechanical writing than thinking.

3. METHODOLOGY

3.1. Research Design

This quantitative research is done to find out if writing process promotes the development of critical thinking skills. The instrument used is a questionnaire with 25 items using 5 Likert scales Section A is the demographic profile of the respondents, section B is the items on writing process, while section C is the items on perceived critical thinking skills. The Cronbach's alpha for the 25 items is 0.868 thus showing internal validity. 207 respondents were randomly chosen from first semester undergraduate students who attended a course on academic writing in a public university. Data was collected online through goggle from and analysed using SPSS.

4. DISCUSSION OF FINDINGS

This section discusses the findings based on the three research questions presented above. The questions were;

Research Question 1: How do ESL writers perceive writing process?

Research Question 2: How do ESL writers perceive critical thinking skills?

Research Question 3: Is there any significance difference between writing process and critical thinking skills across secondary school English grade?

4.1. Perception of Writers on the Writing Process

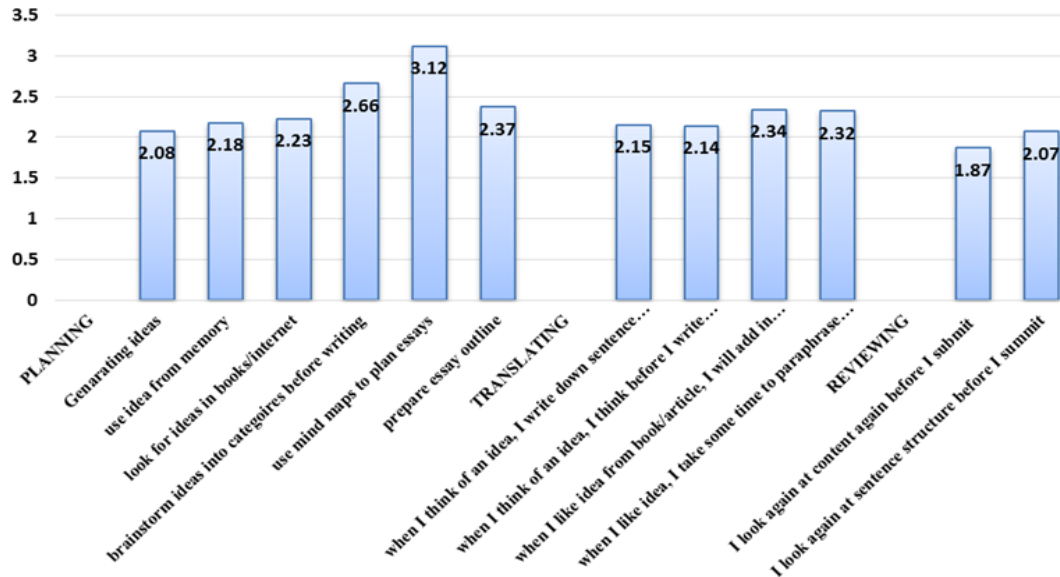


Figure-4. Mean for writing process.

Source: Rahmat (2020).

According to Flower and Hayes (1981) when a writer writes, he/she goes through three stages; planning, translating and reviewing. Figure 4 presents the mean for writing process. Interestingly, the mean for reviewing is low (1.87). Writers did not feel they needed to review the content and sentence structure after the writing the draft. There is a high mean score (3.12) for the “use of mind maps”. Another interesting observation was that the respondents “brainstormed ideas into categories before writing” (mean= 2.66).

4.2. Perception of Writers on Critical Thinking Skills

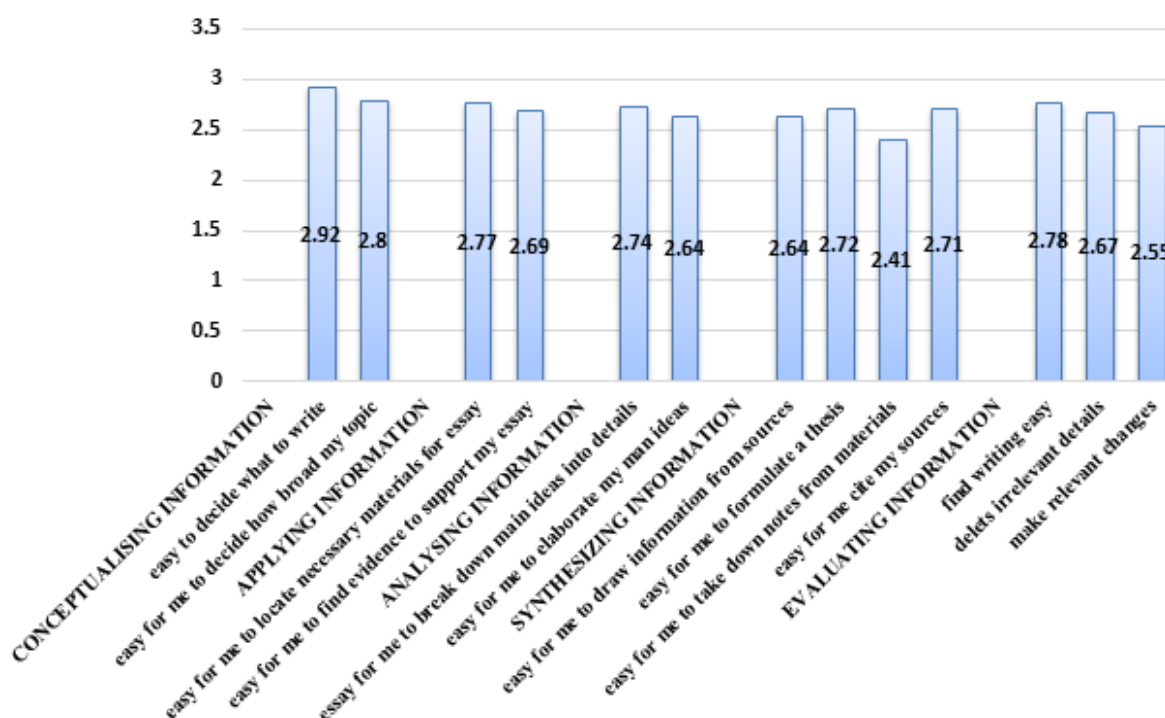


Figure-5. Mean for critical thinking skills.

Source: Rahmat (2020).

Haase (2010) categorised five abilities that display critical thinking skills. Figure 5 above presents the mean for critical thinking skills. Writers found it “easy to decide what to write” (mean= 2.92) and also “to decide how broad their topic is” (mean= 2.8). Interestingly, the lowest mean was “take down notes from materials” (mean= 2.41) although it was “easy for the writers to find evidence to support the essay” (mean= 2.77). Respondents also found that with the knowledge of finding ideas from materials searched, they found it “easy to find evidence to support their essay” (mean= 2.69).

4.3. Writing Process and Critical Thinking Skills across Secondary school English grade

4.3.1. Writing Process

Table-2. Mean statistic score based on secondary school English grade.

Secondary school English Grade	n	Mean	SD
D	8	26.17	4.82
C	35	27.18	4.51
B	104	25.49	4.93
A	60	24.92	4.76
Total	207	25.64	4.83

Source: Rahmat (2020).

Past studies have revealed that the current writing classroom environment is a contributing factor towards the learning of writing. The respondents in this study were mainly semester I who has just begun their undergraduate writing days. The study by Rahmat (2018) revealed that the learners' past knowledge on writing process and /or language proficiency may not be the main contributing factor towards their knowledge (or lack) of writing process. A one-way ANOVA between groups was performed to explore whether there was a difference in writing process on

students based on secondary school English grade. Students were compared by four different grades which is A, B, C, and D. The mean statistic scores of students' secondary school English Grade are presented in Table 2.

Table-3. One-Way ANOVA on writing process based on secondary school English Grade.

Source	Sum of square	df	Mean square	F	Sig.
Between groups	118.572	3	39.524	1.708	.167
Within groups	4696.957	203	23.138		
Total	4815.528	206			

Source: Rahmat (2020).

The one way ANOVA result in Table 3 indicates that there was no statistically significant difference at the $p < .05$ level in the mean writing process for the four grades, $F(3, 203) = 1.708$, $p = .167$. For this study, English proficiency does not influence the learners writing process.

4.3.2. Perceived Critical Thinking Skills

Teachers would agree that critical thinking skills are not easy to teach. Rahmat (2020) felt that critical thinking skills are taught beyond content. Again, the ability to think critically is neither related to past school English abilities. Table 4 shows the secondary school English grade for the respondents.

Table-4. Mean statistic score based on secondary school English grade.

Secondary school English grade	n	Mean	SD
D	8	34.45	6.55
C	35	33.86	5.42
B	104	33.05	5.55
A	60	31.18	6.29
Total	207	32.70	5.84

Source: Rahmat (2020).

A one-way ANOVA between groups was performed to explore whether there was a difference in perceived critical thinking skills on students based on secondary school English grades. Students were compared by four different grades which is A, B, C, and D. The mean statistic scores for secondary school English grades are presented in Table 4.

Table-5. One-Way ANOVA on perceived critical thinking skills based on secondary school English grade.

Source	Sum of square	DF	Mean square	F	Sig.
Between groups	222.643	3	74.214	2.214	.088
Within groups	6804.343	203	33.519		
Total	7026.987	206			

Source: Rahmat (2020).

The one way ANOVA result in Table 5 indicates that there was no statistically significant difference at the $p < .05$ level in the mean perceived critical thinking skills for the four grades, $F(3, 203) = 2.214$, $p = .088$. This indicates, for this study, past English proficiency is not an indicator of critical thinking abilities.

5. CONCLUSION

5.1. Summary of Findings

The findings of this study has shown interesting overlapping of skills in writing and critical thinking. The mirroring of writing process and critical thinking took place in the academic writing because writers focused on the content more than the technical skills of writing. In academic writing, writers needed to make decisions for

materials, for idea, and for the content of their writing. This study found that previous language proficiency had no influence on writing process and critical thinking skills.

5.2. Pedagogical Implications

When teachers commented that students could or could not write (academic writing), are teachers really saying they (the writers) had or did not have critical thinking skills abilities to help them through the process of writing? Sometimes I come across essays that showed low language proficiency; yet somehow, I know the essay is written in a “neat” way. What I mean by neat is -the structure is correct, the argument and elaborations were done based on sound proof from good in-text and end-of-text citation skills. Or, at times, I read a “good” write-up of literature review. The write-up is grammatically correct; yet, I know the writer merely regurgitates the information from past studies without any critical analysis of the articles. Is that good writing?

Critical thinking skills, just like writing skills can sometimes be taught through hands-on participation of writers throughout the classroom interaction. The whole thinking process in preparation of writing can be captured in the classroom when learners learnt from the choosing of materials to drafting

5.3. Suggestions for Future Research

It is suggested that future research explore the relationship between English language abilities and writing skills; English language abilities and critical thinking skills. Future research could also be done to identify which stages in the writing process can be used as a teaching spring-board for teaching critical thinking skills.

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