



Original Article

## Effect of Critical Thinking-infused Paragraph Writing Instruction on University First-year Students' Argumentative Paragraphs Writing Performance

Getachew Bekele<sup>1\*</sup>, Assoc. Prof. Tamiru Olana, PhD<sup>1</sup> & Assoc. Prof. Sherif Ali, PhD<sup>1</sup>

<sup>1</sup> Wollega University, P. O. Box 395, Nekemte, Oromia, Ethiopia.

\* Author for Correspondence ORCID ID: <https://orcid.org/0000-0002-5479-1675>; Email: [getwork71@gmail.com](mailto:getwork71@gmail.com)

Article DOI: <https://doi.org/10.37284/eajes.5.1.624>

Date Published: **ABSTRACT**

19 April 2022

**Keywords:**

*Argumentative Paragraph,  
Critical Thinking,  
/Infusion Approach,  
Writing Performance.*

The purpose of this study was to investigate the effect of critical thinking-infused paragraph writing instruction on university first-year students' argumentative paragraph writing performance. In order to achieve the purpose, two randomly selected intact classes with 31 and 32 participants were involved in the study as a non-treatment group and a treatment group respectively. The treatment group was provided with critical thinking-infused paragraph writing instruction, but the non-treatment group received a conventional paragraph writing instruction. The embedded design was employed in the study since it was mainly conducted using quantitative data gathered through tests before and after the intervention, and a semi-structured interview was also employed to gather data about the treatment from some randomly selected participants in the treatment group. The quantitative data were entered into SPSS version 20 and analysed using descriptive statistics and one-way between groups ANCOVA while the qualitative data were analysed by narrating the reactions of the randomly selected participants using words. The one-way ANCOVA results for argumentative paragraph writing performance scores  $F(1, 60) = 106.555, p = 0.000, \text{partial Eta squared} = 0.640$  showed that there was statistically a significant difference between the non-treatment and the treatment groups in their argumentative paragraph writing performance due to the intervention (Critical thinking-infused paragraph writing instruction). The interview analysis result also revealed that the intervention guided participants in the treatment group to perform better while they wrote argumentative paragraphs.

Thus, it was recommended that EFL instructors, curriculum (syllabus) designers, and material developers need to integrate critical thinking instruction into argumentative paragraph writing lessons in order to promote first-year students' argumentative paragraph writing performance.

#### APA CITATION

Bekele, G., Olana, T. & Ali, S. (2022). Effect of Critical Thinking-infused Paragraph Writing Instruction on University First-year Students' Argumentative Paragraphs Writing Performance. *East African Journal of Education Studies*, 5(1), 170-181. <https://doi.org/10.37284/eajes.5.1.624>.

#### CHICAGO CITATION

Bekele, Getachew, Tamiru Olana and Sherif Ali. 2022. "Effect of Critical Thinking-infused Paragraph Writing Instruction on University First-year Students' Argumentative Paragraphs Writing Performance". *East African Journal of Education Studies* 5 (1), 170-181. <https://doi.org/10.37284/eajes.5.1.624>.

#### HARVARD CITATION

Bekele, G., Olana, T. & Ali, S. (2022) "Effect of Critical Thinking-infused Paragraph Writing Instruction on University First-year Students' Argumentative Paragraphs Writing Performance", *East African Journal of Education Studies*, 5(1), pp. 170-181. doi: 10.37284/eajes.5.1.624.

#### IEEE CITATION

G. Bekele., T. Olana & S. Ali. "Effect of Critical Thinking-infused Paragraph Writing Instruction on University First-year Students' Argumentative Paragraphs Writing Performance", *EAJES*, vol. 5, no. 1, pp. 170-181, Apr. 2022.

#### MLA CITATION

Bekele, Getachew, Tamiru Olana & Sherif Ali. "Effect of Critical Thinking-infused Paragraph Writing Instruction on University First-year Students' Argumentative Paragraphs Writing Performance". *East African Journal of Education Studies*, Vol. 5, no. 1, Apr. 2022, pp. 170-181, doi:10.37284/eajes.5.1.624.

## INTRODUCTION

Effective language learning involves the effective use of language skills, and critical thinking (CT) may contribute to learning those skills efficiently. In this regard, Paul and Elder (2014) suggest that CT and language skills are indispensable aspects to be considered in the academic world as well as in everyday life.

CT could play a vital role in writing because writing in general and argumentative writing in particular needs both having good language proficiency and being a critical thinker to examine various viewpoints, to express one's stand, and to provide strong reasons in order to convince the target audience. In this regard, Vallis (2010) states that employing CT in academic writing assists a writer to recognize: the rules of written discourses, how to structure thinking, the elements that influence the way that s/he thinks, and how those influences can bias her/his thinking. McLaughlin and Moore (2012) also assert that a basis of approaching the writing task is open-minded thinking – the thinking that initiates the writer to consider alternative

approaches and possible outcomes. Further, Wadyastuti (2018) argues that writing should reflect a thinking mind – which means thinking critically is the foundation of effective writing in general and argumentative paragraph writing (APW) performance in particular. In this study, APW performance refers to the manifestation of claim, opposing view, reason, evidence, coherence, conventions and conclusion in the argumentative paragraphs written by participants in both groups.

CT and argumentative writing seem intertwined phenomena as they both require strong reasoning, tangible evidence and considering opposing views. Supporting this idea, Pei, Zheng, Zhang and Liu (2017) claim that argumentative writing needs intellectual capacity for thinking critically as a good piece of writing should reflect the aspects of CT. Wadyatuti (2018) also states that CT is one of the essential aspects of argumentative writing. From the views of the researchers mentioned above, it is possible to infer that explicit infusion or integration of CT into language instruction in general and writing instruction, in particular, is important to enhance L2 students' writing performance.

Lin (2018) defines that the infusion approach, in L2 education, is characterized by explicit instruction of both the CT dimensions and knowledge of the L2 in classroom teaching. As she states, the concept of infusing CT into writing instruction was taken from the work of Robert Swartz and Sandra Parks published in 1994 as these scholars first developed infusion as an approach to teaching thinking skills with content instruction. The current researcher assumes that this approach may help students compose pieces of argumentative writing that focus on decision making, problem-solving, expression of arguments, and explanation of opinions that involve a process of CT. This, in turn, may guide students to compare alternative views, seek possible solutions, and clarify ideas. In line with this view, Lin (2018) asserts that engaging in writing can indicate practicing relevant thinking and cognitive skills. This, in turn, facilitates the development of mental processes during writing about a certain issue.

In the current study, CT-infused writing instruction refers to explicit integration of CT into EFL APW instruction, and the concept of CT-infused paragraph writing instruction was adapted from Dong's (2015) work. Dong (2015) considered L2 writing as a thought-provoking process and emphasized the purpose of integrating CT into L2 writing to develop the students' ability to think critically in the L2 writing process. Specifically, this study intended to deal with explicit integration of CT instruction into APW lessons as APW is one aspect of writing. Though their study focused on an argumentative essay, Fahim and Hashtroodi (2012) found out that teaching techniques of CT assisted the students who participated in their study to become critical thinkers as the improvement was positive. Younes and Ayyoub (2017) also claimed that CT-based activities affected first-year secondary school students' argumentative paragraph writing quality positively.

Regarding argumentative writing, Richards and Schmidt (2010) define it as a piece of writing composed to support or not to support a controversial point or defend a position on which there is a difference of opinion. To support one side of a controversial issue and not to support the opposite side, a writer needs not only the language but also how to put ideas in a convincing way and the conventions of the language which L2 students

usually struggle to demonstrate in their composition. In line with this view, Richards and Schmidt (2010) assert that among various modes of writing, argumentative writing is the most complex one, and it is the most difficult mode of writing for EFL students to learn. Sanchez (2018) also contends that [argumentative] writing becomes meaningful when the writer uses critical thinking in her/his composition to present an argument.

From the researchers' experiences, while teaching English language common courses at Wollega University, they have been observing that argumentative paragraphs written by first-year students seemed poor. The researchers questioned why first-year Wollega University first-year students failed to compose convincing argumentative paragraphs on controversial issues or topics, and they assumed that though there could be other factors or problems, the students' lack of the ability to think critically could be one. The students' inability to compose convincing argumentative paragraphs concerns the researchers because many activities at a tertiary level call for writing with reasons, supporting the reasons with relevant pieces of evidence and making a sound conclusion to convince their instructors.

The researchers have also reviewed from the existing literature that some local researchers, such as Geremew (1999); Haregewain (2008); and Italo (1999) concluded that Addis Ababa University students' writing proficiency was below their instructors' expectations. The researchers inferred that the conclusion reached by these researchers could also work for the current study site because students join both universities from different corners of Ethiopia. On the other hand, as far as the researchers' readings go, there were a few studies conducted locally (Adege, 2016; & Solomon, 2019) by relating CT and argumentative writing. Hence, the researchers' informal observations of Wollega University first-year students' argumentative paragraphs and the related literature they have reviewed initiated them to deal with the issue of integrating CT into APW lessons in their study to see its effect in enhancing Wollega University first-year students' APW performance.

Each participant's APW performance from both groups was examined using a rubric adapted from

various writing rubrics employed in earlier research works, such as Andrade (2000); Del Vecchio (2016); and Nakkaew and Adunyarittigun (2019) to assess the students' APW performance. The rubric involves seven descriptors (claim, opposing view, reason for claim, evidence, coherence, conventions and conclusion) against which the students' paragraphs were assessed.

### Statement of the Problem

At the tertiary level, a student is expected to clearly show her/his position and convincingly compose a paragraph and/or an essay on a given controversial issue using reasons and pieces of evidence. However, from the researcher's personal experience and the complaints heard from EFL instructors, many of Wollega University first-year students' pieces of writing in general and argumentative paragraphs in particular seem mere gathering of words with almost no meaning. In this regard, from various factors, the current researchers assumed that lack of integrating CT instruction into APW lessons could be one factor for the students' inability to write convincing argumentative paragraphs. In line with this assumption, Adege (2016) insisted that, in the EFL context in Ethiopia, there was almost no practice of challenging students to critically think and to develop their reasoning abilities when they write about academic issues.

Hence, this study attempted to address the following research questions:

- Is there statistically a significant difference in the post-test APW mean scores between first-year students who received CT-infused paragraph writing instruction (treatment group) and those who received the conventional paragraph writing instruction (non-treatment group) after controlling for the pre-test mean score?
- Which of the APW criteria were improved in the treatment group after the intervention?
- How do participants in the treatment group reflect on the experience they have got from the CT-infused paragraph writing instruction?

### THEORETICAL FRAMEWORK

Jean Piaget's cognitive constructivist theory (Piaget, 1977) and Lev S. Vygotsky's (Vygotsky, 1978) social constructivist theory were employed as a base for the theoretical framework of this study. The cognitive constructivist theory supports the active engagement of an individual student in constructing knowledge instead of passively taking in knowledge from the teacher like a dry sponge that absorbs liquid. For instance, according to Powell and Kalina (2009), the cognitive constructivist theory insists that ideas are constructed in individuals through a personal process, as opposed to the social constructivist theory's assumption which emphasizes that ideas are constructed through interaction with the teacher and other students. In line with this view, Aljohani (2017); Kouicem and Nachoua (2016); and Kouicem (2020) state that constructivist theory deals with how each student constructs knowledge individually as well as socially. Based on this theory, in the current study, every participant in both groups were involved first in generating relevant ideas about the issue or topic given, organizing the generated ideas, and writing the first draft argumentative paragraph – which is acknowledged by the cognitive constructivist theory.

From the social constructivist viewpoint, according to Wertsch (1997), it is important to consider the background and culture of the learner throughout the learning process, as background helps to shape the knowledge and truth that each student creates, discovers, or attains in the learning process. Hence, students are expected to interact with each other on a given issue, share ideas and experiences in order to construct better knowledge or meaning of the issue. To bring such an environment into the classroom, the role of the students should be active participants and that of the teacher should be a facilitator in the teaching-learning process. Consequently, in this study, the participants were placed in pairs and were told to exchange their drafts for reviewing her/his partner's argumentative paragraph to interact with each other by asking questions and giving comments (based on social constructivist theory).

The four-step writing process (brainstorming, drafting, peer-reviewing, and re-writing) that Dong



(2015) employed in her study was also used to employ the constructivist theory. For the treatment group, the APW activities were guided by a CT-oriented brainstorming worksheet and a CT-oriented peer review checklist with the intention to help the participants use the worksheet and the checklist as guides while writing their argumentative paragraphs and reviewing their partners' argumentative paragraphs respectively in order to enhance their APW performance. However, participants in the non-treatment group were told to follow the four-paragraph writing process without providing the CT-oriented brainstorming worksheet and peer review checklist. Finally, each participant wrote the second draft based on her/his partner's comments and questions.

### **The Importance of Critical Thinking**

CT is one of the learning outcomes of post-secondary institutions as the ability to think critically is likely to be an essential element of life-long learning (Moon, 2008). In this vein, Suhor (1984) maintains that language and learning are inseparable phenomena. More specifically, L2 students need CT to read beyond the literal, to write convincing pieces of writing, to express their ideas with adequate supporting evidence, and to challenge others' positions in English language learning (Zhao, Pandian & Singh, 2016). Further, Zhao et al. (2016) insist that explicit instruction in EFL classrooms requires that teachers must not only understand how CT relates to language learning, but also be able to explain, model, and infuse the concept of CT into their lesson designs and classroom activities. Though CT is not consistently integrated into tertiary-level foreign language instruction (Snider, 2017), many researchers, such as Halpern (2007); Swartz (2004); and Van Gelder (2005) argue that explicit instruction of CT in foreign language courses would strengthen CT which some researchers, for example, Guth (2016) equate with higher-order thinking.

### **Argumentative Writing**

Crème and Lea (2008) underline that argumentative writing should be concerned with developing a number of themes that support a writer's central idea and therefore provide evidence for the argument that s/he is making. Further, Crème and

Lea (2008) suggest that getting a good argument can be equated with thinking critically, and for the scholars, making an argument in writing is about having a stand on a topic and engaging the reader in order to persuade the reader to adopt one's point of view.

With regard to an argumentative paragraph, Folse, Muchmore-Vokoun, and Solomon (2010) claim that a paragraph which focuses on a controversial issue is an opinion paragraph, also termed as 'persuasive paragraph', since a writer attempts to persuade her/his audience about a certain point of view by providing not only opinions but also facts that support her/his viewpoint. In this vein, Bukhalter (1993) insists that in persuasive writing not only must a writer formulate arguments and backs them up with appropriate data, but also s/he must find a unifying claim that ties all the material together. Further, Folse et al. (2010) insist that a good opinion paragraph indicates the writer's opinion(s) about a topic, explains facts, is often about a controversial issue, causes the reader to consider the issue seriously (even may cause the reader to reconsider her/his own opinion about the issue) and considers both sides of an argument (though it gives more attention to her/his side of an issue). To sum up, an 'opinion paragraph' and a 'persuasive paragraph' can be used interchangeably with an argumentative paragraph, and such a paragraph deals with defending one's stand or position about a given debatable issue by providing convincing reasons and pieces of evidence.

### **RESEARCH METHODOLOGY**

This study aimed at examining the effect of CT-infused paragraph writing instruction on university first-year students' APW performance. Hence, the embedded design was employed as the design supports the researcher to integrate the quantitative data with the qualitative data to better understand the issue under study. In order to understand the study clearly and to come up with better findings and conclusions, the researcher primarily focused on an intervention study – that involved a treatment group and a non-treatment group. According to Creswell (2012), the embedded design gives room for the researcher to gather qualitative data to augment the intervention study.

**Research Setting and Participants**

Wollega University first-year students taking the EFL common course “Communicative English Language Skills II (FLEn 1012)” in the academic year 2020/21 were the target population of the study. However, it was unlikely to involve all Wollega first-year students because the study employed intervention to examine the effect of the intervention on students in the treatment group. Hence, the researcher randomly selected Social Science Stream from the two streams in the Fresh Students College (Natural and Social Science streams). Then, he randomly selected two Social Science Stream sections with 32 students (treatment group) and 31 students (non-treatment group) for it was still difficult to involve all Social Science Stream students in a study that employed intervention. Consequently, CT-infused paragraph writing instruction (the intervention) was provided to the treatment group, and conventional paragraph writing instruction (without providing CT-infused paragraph writing lessons) was offered to the non-treatment group.

**Research Instruments**

Quantitative data were gathered through tests (pre-treatment and post-treatment tests). To obtain more robust findings, qualitative data were gathered through interviews from participants in the treatment group.

Participants in both groups were administered two familiar and controversial topics before and after the treatment (‘Should abortion be encouraged?’ and ‘Should students at all levels wear school uniform?’

respectively). Then, the argumentative paragraphs composed by participants in both groups before and after the intervention were rated by two raters. Each participant’s APW performance was assessed based on some features of a good paragraph like organization and conventions, and some components of an argumentative paragraph, such as claim, reason, evidence, and conclusion.

The researchers adapted a rubric from the writing rubrics employed in research works of Andrade (2000); Del Vecchio (2016); and Nakkaew and Adunyarittigun (2019) to assess the participant’s APW performance. The adapted rubric involves about seven descriptors (claim, opposing view, reason for claim, evidence, coherence, and conventions, conclusion,) against which the students’ paragraphs were assessed. The rubric employed a five-point scale that was represented as 5 = ‘Exemplary’, 4 = ‘Proficient’, 3 = ‘Developing’, 2 = ‘Emerging’ and 1 = ‘Below emerging’ (to mean ‘very poor performance’). In this regard, the maximum score for APW score was 35 and the minimum score was 7 since the rubric had 7 criteria that were measured on the above five-point scale. The total APW scores obtained from the two raters were added up and divided into two to express the average total score of each participant’s APW score. Then, the average total scores were divided to the number of participants in the non-treatment group and in the treatment group (31 and 32 respectively).

Based on the above concept, as depicted in Table 1, the researchers prepared a scale that guided them to analyse the APW performance of the participants in the argumentative paragraphs they composed before and after the intervention.

**Table 1: Scale employed in analysing the participants’ APW performance**

Range	Interpretation
1.00 – 1.49	Below emerging
1.50 – 2.49	Emerging
2.50 – 3.49	Developing
3.50 – 4.49	Proficient
4.50 – 5.00	Exemplary

Further, the researcher employed a semi-structured face-to-face interview to gather data from three randomly selected participants about the role of the intervention – CT-infused paragraph writing

instruction – in enhancing their APW performance after the intervention.

## The Procedure of Data Gathering

The quantitative and qualitative data were gathered concurrently – the data were gathered in one phase. Quantitative data through tests (APW tests before and after treatment) were collected at the very beginning and at the end of the treatment. Qualitative data were gathered through interviews soon after the post-test to get adequate and relevant data from the fresh memory of each interviewee about the role of the intervention in enhancing her/his APW performance.

## Method of Analysis of Data

The quantitative data gathered through argumentative paragraph writing tests before and after the treatment were analysed using descriptive statistics and inferential statistics. From the descriptive statistics, mean scores (M) and standard deviations (SD) were employed. The mean score was calculated to indicate the arithmetic average of each group and to roughly see the difference between the treatment group and the non-treatment group in their scores. The standard deviation was computed to examine the average distance of all the scores in the distribution from the mean for each group. With regard to the inferential statistics, the researcher employed analysis of covariance (ANCOVA) – specifically, one-way between groups ANCOVA as it statistically adjusts the initial group differences before the intervention, and it helps to confirm that the difference revealed between the groups after the intervention was really due to the intervention. Further, ANCOVA is convenient when a researcher is unable to randomly assign her/his participants to different groups, for instance, when s/he uses existing groups like classes of students (Pallat, 2010). The mean score of each APW performance criterion was also calculated to examine which criterion was improved after the intervention was provided in order to address the second research question.

The thematic analysis method was used for the qualitative data from the face-to-face interviews. The interviewees' responses were analysed against the predetermined themes: 'The importance of CT-oriented brainstorming worksheet', 'The role of CT-oriented peer review checklist in enhancing their APW performance', and 'The experience the

participants had got from the training after the intervention'.

## RESULTS AND DISCUSSION

This section presents the analysis results of both the quantitative and qualitative data gathered through tests (pre-test and post-test), and semi-structured interviews respectively. The quantitative data (the APW performance in participants' argumentative paragraphs) were gathered and analysed in order to address the research question, "Is there statistically a significant difference in the APW performance scores between first-year students who received CT-infused paragraph writing instruction (treatment group) and those who received the conventional paragraph writing instruction (non-treatment group) after controlling the pre-test scores?". The quantitative data were analysed employing descriptive statistics and one-way between groups ANCOVA to explain the effect of the intervention provided to the treatment group on students' APW scores. Further, the qualitative data gathered through the interviews were analysed using the thematic analysis method to look into the role of the intervention in enhancing the treatment group's APW performance.

With regard to quantitative data analysis, mean (M) and standard deviation (SD) from the descriptive statistics were calculated and depicted in Table 2. The results were also interpreted based on the scale guide provided in Table 1 ('Below emerging' = 1.00 – 1.9; 'Emerging' = 1.50 – 2.49; 'Developing' = 2.50 – 3.49; 'Proficient' = 3.50 – 4.49; 'Exemplary' = 4.50 – 5.00). Accordingly, before the intervention, though the numbers had a slight difference (non-treatment: M = 1.23; treatment: M = 1.31), both the non-treatment group and the treatment group's APW performance scores were in the same scale range ('Below emerging'). However, the results of the descriptive statistics for post-test mean scores revealed that there was a difference between the treatment group and non-treatment group participants' APW performance mean scores after the intervention (non-treatment: M = 1.35; treatment: M = 2.84) as the treatment group's APW performance mean score was in the 'Developing' range while that of the non-treatment group remained in the 'Below emerging' range.

The SD results also indicated that two-thirds (68%) of the scores deviate one SD of the mean. In this regard, in the pre-test, the scores deviate  $\pm 0.43$  and  $\pm 0.47$  for the non-treatment group and the treatment group respectively. The SD results for the post-test also showed that the scores in the non-treatment

group and treatment group deviated  $\pm 0.61$  and  $\pm 0.63$  from the mean scores respectively. This revealed that the scores in the treatment and non-treatment groups were approximately dispersed from the mean scores equally both before and after the intervention.

**Table 2: Descriptive Statistics for APW Scores**

Test	Group	N	Statistic	
			Mean	SD
Pre-test	Non-treatment	31	1.23	.43
	Treatment	32	1.31	.47
Post-test	Non-treatment	31	1.35	.61
	Treatment	32	2.84	.63

The one-way ANCOVA was computed after the data had been checked for some ANCOVA assumptions, such as normality and homogeneity of regression slopes. For instance, the Shapiro-Wilk test was calculated to check the normality of APW performance scores for both the non-treatment group and the treatment group. The output depicted that the scores in the pre-test and the post-test were approximately normally distributed as the p-values for the scores were greater than the cut point, i.e., 0.05 (non-treatment group: pre-test  $W_{31} = 0.519$ ,  $p = 0.051$ ; post-test  $W_{31} = 0.585$ ,  $p = 0.59$  and treatment group: pre-test  $W_{32} = 0.619$ ,  $p = 0.057$ ; post-test  $W_{32} = 0.776$ ,  $p = 0.069$ ).

their APW performance mean scores after the intervention while the effect of the pre-test (covariate) was statistically controlled. The results in Table 3 showed that there was statistically a significant difference between the non-treatment group and the treatment group in their APW performance post-test mean scores, i.e.,  $F(1, 60) = 106.555$ ,  $p = 0.000$ ). The results for the independent variable (group) indicated that the non-treatment group and the treatment group were significantly different ( $p < 0.05$ ) in terms of their mean scores on the dependent variable (APW performance mean scores). Based on Cohen (1988), one can understand that the result of the partial eta squared for the ‘Group row (0.640) also revealed that the intervention had a large effect on promoting the treatment group participants’ APW performance.

Then, the one-way between-groups ANCOVA was computed to examine the difference between the treatment group and the non-treatment group in

**Table 3: One-way ANCOVA Results for APW Performance Scores**

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	40.215 <sup>a</sup>	2	20.108	66.999	.000	.691
Intercept	10.900	1	10.900	36.318	.000	.377
APWPr <sup>1</sup> Mean	5.308	1	5.308	17.688	.000	.228
Group	31.979	1	31.979	106.555	.000	.640
Error	18.007	60	.300			
Total	339.000	63				
Corrected Total	58.222	62				

*a. R Squared = .691 (Adjusted R Squared = .680)*

<sup>1</sup> APWPr: Argumentative paragraph writing pre-test



### Improvement of APW Performance in the Treatment Group

The researchers employed the following scale depicted in Table 1 to analyse the data gathered for examining the improvements revealed in the participants' APW performance.

As mentioned under the 'Research Instruments' sub-section, seven APW criteria were used in rating the argumentative paragraphs written by the participants in both groups before and after the intervention in order to examine whether or not there is a mean difference between the two groups in their APW performance. Those criteria involved 'claim, opposing view, reason, evidence, coherence, conventions, and conclusion'. Each criterion was rated based on the five-scale indicated in Table 1, i.e., from 1('Below emerging') to 5 ('Exemplary').

To identify the criteria improved in the treatment group after the intervention was provided – which was intended to address the second research question in this article – each criterion was added up at a time for pre-intervention and post-intervention. The sum was considered out of 155 and 160 for the non-treatment and the treatment group respectively because there were 31 participants in the non-treatment group and 32 participants in the treatment group (31x5 and 32x5). In order to get the mean score for each criterion, each sum was multiplied by 5 (the scale), and then, it was divided to 155 for the non-treatment group and to 160 for the treatment group. During analysis, the researchers rounded decimals to the nearest number in order to make the interpretation fit the scale in Table 1 and to make the analysis more precise. For instance, they rounded 1.28 to 1.00, and 1.69 to 2.00.

**Table 4: The APW performance mean scores of the participants**

	Group	N	APW Criteria						
			Claim	Opposing view	Reasons	Evidence	Coherence	Conventions	Conclusion
Pre-intervention	NTG	31	1.69	1.00	1.26	1.03	1.00	1.00	1.08
	TG	32	1.78	1.08	1.28	1.09	1.00	1.00	1.09
Post-intervention	NTG	31	1.90	1.00	1.68	1.40	1.15	1.00	1.09
	TG	32	2.88	2.65	2.83	2.63	2.54	2.59	2.68

As depicted in Table 4, the treatment group showed some improvements in all the criteria up to the least expected level ('Developing Level') while participants in the non-treatment group remained at the level where they were before the intervention. However, the APW performance of participants in the treatment group at least improve from 'Below emerging' level to 'Emerging' level thought the improvement was not up to the expected level ('Developing', 'Proficient' or 'Exemplary' level).

Three randomly selected participants from the treatment group were interviewed, and the interview analysis results also showed that the intervention supported them to enhance their APW performance when they wrote argumentative paragraphs.

Accordingly, ES6 opined that the intervention supported him to improve his APW performance. For instance, he replied;

*The other experience I have got [from the training] is: I understood that the [argumentative] paragraph I write should have quality, depth and adequate information or explanation.... I also understood that I can reduce the errors I commit in my writing by focusing on the writing conventions [spelling, vocabulary, grammar, and punctuation marks].*

ES17 also expressed his opinion about the experience he got from the training was that the training guided him to minimize the errors he was committing while composing paragraphs. He reflected on the question about the experience he gained from the instruction saying, "The training

helped me a lot in order to eliminate the errors in a paragraph or to make the paragraph as a whole meaningful.”

Similarly, ES23 expressed that due to the experience she has got from the intervention, and she said that her APW performance became better when she composed argumentative paragraphs after the training. She stated in her actual words about the importance of the intervention,

*It [the training] support us to write better argumentative paragraphs because it guided us to consider the claim, the reasons, the pieces of evidence, the opposing view, the coherence of the ideas in the paragraph, etc. while writing.*

## CONCLUSION

The findings from the quantitative and qualitative data analyses indicate that the intervention provided to participants in the treatment group guided them to compose relatively better argumentative paragraphs as compared to participants in the non-treatment group. Specifically, participants in the treatment group outperformed in providing claims, reasons, pieces of evidence, in considering an opposing view, in maintaining coherence and conventions, and in giving a strong conclusion. Hence, the worksheet and the checklist (CT-oriented brainstorming worksheet and CT-oriented peer review checklist) provided to participants in the treatment group guided them to think more critically while they composed argumentative paragraphs on different controversial topics provided. This implies that the intervention (CT-infused paragraph writing instruction) had a positive effect on treatment group participants' APW performance. Hence, EFL instructors, curriculum (syllabus) designers and material developers need to integrate CT instruction with argumentative paragraph writing in order to promote first-year students' APW performance in their writing. Further, it is recommended that future studies are to be conducted on English major EFL students who take different writing courses in order to address the topic or the issue more comprehensively. It is also suggested that when a future study focuses on English major students, it will be better to focus on essay writing as English majors learn advanced level writing.

## REFERENCES

- Adege, A. (2016). The effects of explicit instruction in critical thinking on student achievement in writing academic papers, general critical thinking ability, and critical thinking dispositions. (Doctoral dissertation). Addis Ababa: Addis Ababa University. <https://paperzz.com/download/9143024>
- Aljohani, M. (2017). Principles of “Constructivism” in foreign language teaching. *Journal of Literature and Art Studies*, 7(1), 97-107. [https://pdfs.semanticscholar.org/2a77/c3406c16c6734455b675e4dd1a402b32f90b.pdf?\\_ga=2.43531621.1178971715.1647430909-468660081.1622886890](https://pdfs.semanticscholar.org/2a77/c3406c16c6734455b675e4dd1a402b32f90b.pdf?_ga=2.43531621.1178971715.1647430909-468660081.1622886890)
- Andrade, G. H. (2000). Using Rubrics to Promote Thinking and Learning. *Educational Leadership*, 57(5), 13- 18. <https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.452.5684&rep=rep1&type=pdf>
- Brown, D. H., & Lee, H. (2015). *Teaching by Principles: An Interactive Approach to Language Pedagogy* (4<sup>th</sup> edition). Pearson.
- Bulkhater, N. (1993, November). How persuasive writing aids critical thinking. A paper presented at the Speech Communication Association Meeting in Miami Beach, Florida: ERIC. <https://files.eric.ed.gov/fulltext/ED366988.pdf>
- Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences* (2<sup>nd</sup> edition). Routledge. <http://library.lol/main/AAA90371CD9C588DC5530CFEB909F3F2>.
- Crème, P. & Lea, R. M. (2008). *Writing at University: A guide for students* (3<sup>rd</sup> edition). England: Open University Press. [https://www.academia.edu/21545993/Writing at University \\_a\\_ Guide\\_for\\_Students](https://www.academia.edu/21545993/Writing_at_University_a_Guide_for_Students)
- Creswell, W. J. & Plano Clark, V. L. (2011). *Designing and conducting mixed methods research* (2<sup>nd</sup> edition). SAGE. <http://libgen.is/book/index.php?md5=90195962B37F7A4C9922A8909810C1DF>

- Creswell, W. J. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (4<sup>th</sup> edition). Pearson. <http://repository.unmas.ac.id/medias/journal/EBK-00121.pdf>
- Del Vecchio, A. (2016). Developing Scoring Rubrics for ESL Writing Assessment. *Journal of Bunkyo Gakuin University, Department of Foreign Languages* (16), 1-11. [https://www.u-bunkyo.ac.jp/center/library/2016\\_001-011%EF%BC%88Anthony%20Del%20Vecchio%EF%BC%89.pdf](https://www.u-bunkyo.ac.jp/center/library/2016_001-011%EF%BC%88Anthony%20Del%20Vecchio%EF%BC%89.pdf)
- Dong, Y. (2015). *Critical thinking in second language writing: Concept, theory and pedagogy*. (Doctoral dissertation). The University of British Columbia. <https://open.library.ubc.ca/soa/cIRcle/collection/ubctheses/24/items/1.0166763>
- Fahim, M. & Hashtroudi, P. (2012). The effect of critical thinking on developing argumentative essays by Iranian EFL university students. *Journal of Language Teaching and Research*, 3(4), 623- 638. <http://www.academypublication.com/issues/past/jltr/vol03/04/06.pdf>
- Folse, S. K., Muchmore-Vokoun, A., & Solomon, V. E. (2010). *Great writing 2: Great paragraphs* (3<sup>rd</sup> edition). Boston: Heinle Cengage Learning. <http://ngoangu.vimaru.edu.vn/wp-content/uploads/documents/Great-Writing-2-Great-Paragraphs-3-edition.pdf>
- Geremew, L. (1999). *A Study of the Requirements in Writing for Academic Purposes At Addis Ababa University: Four Departments in Focus* (Unpublished PhD Dissertation) Addis Ababa University.
- Guth, D. K. (2016). *Assessment of HOTS in a literature-based curriculum: Challenges and guidelines* (Doctoral dissertation). South Africa: University of South Africa. <https://uir.unisa.ac.za>
- Halpern, D. F. (2007). The nature and nurture of critical thinking. In R. J. Sternberg, H. L. Roediger, & D. F. Halpern (Eds.). *Critical thinking in psychology* (pp. 1-14). Cambridge: Cambridge University Press.
- [https://beckassets.blob.core.windows.net/product/readingsample/675977/9780521608343\\_excerpt\\_001.pdf](https://beckassets.blob.core.windows.net/product/readingsample/675977/9780521608343_excerpt_001.pdf)
- Haregewoine, A. (2008). *The Effect of Communicative Grammar on the Grammatical Accuracy of Students' Academic Writing: An Integrated Approach to TEFL* (Unpublished PhD thesis) Addis Ababa University. <http://etd.aau.edu.et/handle/123456789/7963>
- Italo, B. (1999). *A comparison of the effectiveness of teacher versus peer feedback on Addis Ababa University students: writing revisions* (Unpublished PhD Dissertation) Addis Ababa University. <http://etd.aau.edu.et/handle/123456789/28230>
- Kouicem, K. (2020). Constructivist theories of Piaget and Vygotsky: implications for pedagogical practices. *Psychological & Educational Studies*, 13(1), 359-372 <https://dirasat-nafsiyat-wa-tarbawiyat.com/index.php/DNWT/article/view/88/53>
- Kouicem, K., & Nachoua, K. (2016). Constructivist theories of Piaget and Vygotsky: general teaching implications. *The second national conference on language, mind and learner's cognitive capacities*, 65-75. <http://dspace.univ-eloued.dz/handle/123456789/2775>
- Lin, Y. (2018). *Developing critical thinking in EFL classes: an infusion approach*. Springer Nature. <http://libgen.is/book/index.php?md5=B39ADDBFACD42AA54C8F38A96C8221F3>
- McLaughlin, F. & Moore, M. (2012). Integrating critical thinking into assessment of college writing. *Teaching English in the Two-Year College* 40(2), 145-62. <https://library.ncte.org/journals/tetyc/issues/v40-2>
- Moon, J. (2008). *Critical thinking: An exploration of theory and practice*. NY: Routledge. <http://library.lol/main/5CDD5598F36AA1A48DF837E36003E6C8>
- Nakkaew, N., & Adunyarittigun, D. (2019). *An Initial Development of an Analytic Rubric for Assessing Critical Thinking in English Argumentative Essays of EFL College Students*.

- rEFLections, 26(2), 51-74. <https://files.eric.ed.gov/fulltext/EJ1267622.pdf>
- Pallat, J. (2010). SPSS survival manual: A step-by-step guide to data analysis using SPSS (4<sup>th</sup> edition). McGraw- Hill. <http://libgen.rs/book/index.php?md5=75E40D7E5D841194FB70A6AECAD7A899>
- Paul, W. R. & Elder, L. (2014). Critical thinking tools for taking charge of your professional and personal life. NY: Pearson Education, Inc. <http://libgen.rs/book/index.php?md5=946BE27801E33D72D943F9342CFCBFCE>
- Pei, Z., Zheng, C., Zhang, M., & Liu, F. (2017). Critical thinking and argumentative writing: inspecting the association among EFL learners in China. *English Language Teaching*, 10(10), 31-42. <http://doi.org/10.5539/elt.v10n10p31>
- Piaget, J. (1977). The development of thought: Equilibration of cognitive structures. Viking. <https://psycnet.apa.org/record/1979-20791-000>
- Powell, C. K., Kalina J. C. (2009). Cognitive and Social Constructivism: Developing Tools for an Effective Classroom. *Education*, 130(2), 241 – 250. <http://www.docdrop.org/>
- Richards, J. C., & Schmidt, R. (2010). Longman dictionary of language teaching and applied linguistics (4<sup>th</sup> edition). Longman (Pearson Education). [http://www.saint-david.net/uploads/1/0/4/3/10434103/linguistic\\_term\\_dictionary.pdf](http://www.saint-david.net/uploads/1/0/4/3/10434103/linguistic_term_dictionary.pdf)
- Snider, D. (2017). Critical Thinking in the Foreign Language and Culture Curriculum. *Journal of General Education: A Curricular Commons of the Humanities and Sciences*, 66(1–2), 1-16. <https://watermark.silverchair.com>
- Solomon, A. (2019). Effects of Problem-Based English Writing Instruction on Students' Critical Thinking Dispositions, Writing Self-Efficacy, and Argumentative Writing Skills (Doctoral dissertation), Bahir Dar University.
- Suhor, C. (1984). Thinking skills in English--and across the curriculum. *Arizona English Bulletin*, 27(2), 1-4. <https://files.eric.ed.gov/fulltext/ED250693.pdf>
- Swartz, E. (2004). Casing the self: A study of pedagogy and critical thinking. *Teacher Development*, 8(1), 45-65. <https://www.tandfonline.com>
- Teddle, C., & Tashakkori, A. (Eds.). (2009). *Foundations of Mixed Methods Research: Integrating Quantitative and Qualitative Approaches in the Social and Behavioral Sciences*. SAGE. <https://b-ok.cc/book/5003787/34f674>
- Vallis, L. G. (2010). Reason to write: Applying critical thinking to academic writing. Kona Publishing. <https://www.academia.edu/2946411>
- Van Gelder, T. (2005). Teaching critical thinking: Some lessons from cognitive science. *College Teaching*, 53(1), 41-48.
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press. <http://ouleft.org/wp-content/uploads/Vygotsky-Mind-in-Society.pdf>
- Wertsch, J. V. (1997). *Vygotsky and the formation of the mind*. Cambridge: Cambridge University Press. <http://library.lol/main/BCC77F1DA07EC714DE0E8B19C5F32A56>
- Widyastuti, S. (2018). Fostering critical thinking skills through argumentative writing. *Cakrawala Pendidikan*, Th. XXXVII (2), 182-189. <https://doi.org/10.21831/cp.v37i2.20157>
- Younes, K. & Ayyoub, B. (2017). The influence of critical thinking-based activities on argumentative paragraph writing quality: a case of first-year Moussa IBN Nossair secondary school literary stream pupils (MA Dissertation). Algérie: University of Ahmed Draia Adrar. <http://dspace.univ-adrar.edu.dz/xmlui/handle/123456789/3039>
- Zhao, C., Pandian, A., & Singh, M. K. M. (2016). Instructional Strategies for Developing Critical Thinking in EFL Classrooms. *English Language Teaching*, 9(10), 14-21. <https://files.eric.ed.gov/fulltext/EJ1111989.pdf>