

The Comparative Effect of Practicing Cooperative Learning and Critical Thinking on EFL Learners' Writing

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Abstract

During the last decades various researchers noticed that the traditional approaches to teaching had failed to teach learners to their utmost actual ability, therefore they put great efforts into developing post-modernist approaches and techniques such as critical thinking (CT) and cooperative learning (CL) for improving learning. The present study was an attempt to investigate the comparative effect of practicing CL and CT skills on EFL learners' writing in a process-based approach to writing on EFL learners' writing. Sixty Iranian female EFL learners at the intermediate level of English proficiency at Kish Language School were selected among a total number of 90 based on their performance on the Preliminary English Test (PET) and randomly assigned into two groups of CL and CT. Then the researchers administered an argumentative paragraph writing test to ensure the homogeneity of the two groups regarding argumentative writing before the treatment. Both groups were taught the same content through process-based approach throughout the 20-session treatment. Finally, the participants took a paragraph writing posttest including three writing prompts in argumentative genre. The mean scores of the two groups on the posttest were compared through an independent samples *t*-test. The results led to the rejection of the null hypothesis with the conclusion that CT instruction was significantly more effective than CL in improving EFL learners' argumentative paragraph writing.

Keywords: writing, process-based writing, critical thinking (CT), cooperative learning (CL)

INTRODUCTION

Nowadays, learning English has turned into a necessity almost throughout the world and the ability to communicate in English has become one of the main goals of many people. One of the important skills that should be mastered in learning English as a foreign language as Elbow (1973) asserts, is writing. Referring to the importance of writing, Rao (2007) asserts that, "On the one hand, it stimulates thinking, compels students to concentrate and organize their ideas, and cultivates their ability to summarize, analyze, and criticize. On the other hand, it reinforces learning in, thinking in, and reflecting on the English language" (p. 100).

As a result of the important role that writing plays in language learning, different approaches have been developed in the history of teaching writing during which a shift can be observed from product-based to process-based approaches. With the change of the approach to process-based writing in the mid-1970s, involvement of students in each stage of writing was taken into account (Furneau, 1999).

Process approach, as Brown (2001) claims, is advantageous to students in language learning because students are required to act as the creators of language to focus on content and message and to have their own intrinsic motives. Shih (as cited in Brown, 2001) believes that this approach helps student writers understand their own composing process, build repertoire of strategies for different stages of writing, write and rewrite, attach central importance to the process of revision, and receive feedback on the process, not just on the final product, from both the instructor and the peers.

Likewise, Zamel (1983) claims that the investigation of students' written products tells the teacher very little about their instructional needs while studying the process of composing helps the teacher to gain insights into how to teach it. Moreover, Khabiri and Rouhani-Tonekaboni (2009) assert that the recognition of the fact that different learners face different problems at different stages of writing leads to the undeniable insight that considering writing as a product is completely "naïve" (p. 54), thus assisting learners in improving the process they go through seems to be necessary to come up with desirable writing products.

Nevertheless, handling different stages of writing seems to be a real difficulty for many learners (Khabiri & Rouhani-Tonekaboni, 2009). Hyland (2003) asserts that despite considerable research into the writing

process, still there is no comprehensive idea of how learners go about a writing task or how they learn to write. Therefore, it is certain that much more research should be completed to offer learners better teaching (Onozawa, 2010).

To minimize the problems related to EFL writing in general and process-based writing in particular, effective teaching techniques and approaches should be used by teachers to facilitate learning (Almugren, 2009). Harmer (2007) believes that writing in groups is effective in process approach since students find the discussion on the topic, peer evaluation for achieving the group's goal, and the whole activity of writing motivating. Likewise, Nunan (1991) and Spencer (1983) believe that collaborative work increases learners' motivation and develops positive attitudes towards the writing activities.

In the same vein, Mariam and Napisah (as cited in Ismail & Maasum, 2009) suggest that incorporation of peer interaction into learning writing helped their students to produce more concrete, accurate, and creative pieces of writing. Mandal and Willing (2009) also assert that cooperative learning develops higher level thinking skills, creates an environment for active and exploratory learning, and improves the performance of the weaker students when grouped with higher achieving students. Furthermore, the effectiveness of CL in learning writing skill is supported by the results of the empirical studies (e.g., Adeyemi, as cited in Nudee, Chatupote, & Teo, 2010; Almugren, 2009; Ismail & Maasum, 2009; Jones & Carrasquillo, as cited in Ismail & Maasum, 2009; Kagan & High, 2002; Mohamed, Nair, Kaur, & Fletcher, 2008; Nudee et al., 2010; Sirikhun, as cited in Nudee et al.). Nevertheless, there are studies which reveal that at times cooperative groups failed to be productive and in effect collaborative (e.g., Johnson & Johnson, 1996) and Wang and Burton (2010) assert that researchers criticized the "transient quality" (p. 3) of collaborative learning and the fact that it may easily fail to prove effective results.

To continue the advancement of the English teaching field, practicing CT skills seems to be an urgent need. According to the Center for Critical Thinking (1996), "Every field stays alive only to the extent that fresh questions are generated and taken seriously" (thinking is driven by questions section, para. 1). As Carr (1988) mentions, "Every teacher should create an atmosphere where students are encouraged to read deeply, question, engage in divergent thinking, look for relationships among ideas, and grapple with real life issues" (p. 73). Writing instruction

in foreign/second language education apparently is not an exception in this regard. Particularly writing which is the reflection of what the writer thinks. As Brown (2001) asserts, "Writing is indeed a thinking process" (p. 336), that is, writers produce a final written product after going through the thinking process.

In fact, there is great evidence for the close connection between thinking and writing. According to Applebee (as cited in Onozawa, 2010), writing is the externalization of thinking. Similarly, Bean (as cited in Damron & High, 2008, p. 17) asserts that "writing is both a process of doing critical thinking and a product communicating the results of critical thinking". As Kurland (2000) states, a good piece of writing reflects the aspects of critical thinking. Thus, it seems that a well-written text should be a manifestation of the aspects of critical thinking.

Moreover, the empirical studies have supported the important role of CT in writing and the results of these studies are clearly indicative of the fact that CT is highly correlated with students' achievements in writing performance (Gorjian, Pazhakh, & Parang, 2012; Harirchi, 2010; Marashi & Jodeiri, 2006; Shangarffam & Mamipour, 2011).

LITERATURE REVIEW

Process-Based Approaches

Process approaches to writing predominantly focus on the processes and stages which gradually lead to the writing product and thus help the learners to demonstrate improvement at each stage in order to come up with an effective writing outcome. According to Badger and White (2000), these approaches deal with linguistic skills such as planning and drafting. Richards and Schmidt (2002) also consider process writing as "an approach which emphasizes the composing processes writers make use of in writing and which seeks to improve students' writing skills through developing their use of effective composing processes" (p. 421).

According to this approach writing is not a linear but a cyclical and recursive process (Harmer, 2004, Shaughnessy, Flower & Hayes & Hedge; as cited in Kim & Kim, 2005; Zamel, 1982) in which the writers can move backwards and forwards while writing to add, change, or modify even the very initial ideas. So the composing process is of an exploratory and generative nature which involves not only the act of writing itself, but prewriting and rewriting, which all are interdependent

(Zamel, 1982, 1983). On the importance of process writing, Zamel (1983) claims that the investigation of students' written products tells teacher very little about their instructional needs while studying the process of composing helps teacher to gain insights into how to teach it.

According to this approach, writers should pass some stages in order to produce any piece of writing. Although there are different views on these stages, Tribble (as cited in Badger & White, 2000) mentions that a typical model recognizes four stages including prewriting, composing/drafting, revising, and editing.

Cooperative Learning

Over the past few decades, research has demonstrated the potential of CL to enhance students' academic achievement and social relations (Cohen; Johnson & Johnson; Slavin, as cited in Veenman, Denessen, Akker, & Rijt, 2005). Slavin (1992) states that, "CL refers to instructional methods involving small heterogeneous groups working together usually toward a common goal" (p. 115). According to Johnson and Johnson (2002), "Cooperative learning occurs when group members collaborate to accomplish mutual learning goals and, either formally or informally, to engage in small groups to promote their own learning, as well as those of their fellow group members". Johnson and Johnson (2009) consider positive interdependence, individual accountability, promotive interaction, the appropriate use of social skills, and group processing as the essential principles for the effective implementation of cooperation.

Moreover, CL is "a method in teaching and learning in which classroom is organized so that students work together in small cooperative teams with clearly defined roles" (Artz & Newman; Beachler & Glycer-Culver; Goosell, Maher, & Tinto; Johnson, Johnson, & Holubec; Slavin, as cited in Nudée et al., 2010, p. 2). The goal of this method is "to ensure interdependence, to create less threatening learning environment for students, to increase the amount of student participation, to reduce competitiveness, to reduce the teacher's dominance, to create a student-centered environment, and to promote healthy psychological adjustment" (p. 2). Hence, it might be plausible to assert that CL is an approach in which learners responsibly collaborate for the group's success in a less competitive and stressful environment in which not only their learning abilities but also "negotiation skills" (Yong, 2010) may improve.

Critical Thinking

One may ponder upon and doubt the possibility of thinking without indeed being critical. Critical thinking is, “the ability to analyze, criticize, and advocate ideas; to reason inductively and deductively and to reach factual or judgmental conclusions based on sound inferences drawn from unambiguous statement of knowledge or belief ” (Freely & Steinberg, 2000, p. 34). Halvorsen (2005) asserts that generally CT involves considering an issue from various perspectives, challenging any possible assumptions underlying the issue, and exploring its possible alternatives. And more specifically, it involves finding our own relationship to the issue and the way we personally fit into the context of that issue. Moreover, CT seems to entail various skills. Facione (2011) considers interpretation, analysis, evaluation, inference, explanation, and self-regulation as the cognitive skills underlying CT.

Being described as such, CT seems to be central to education (Kuhn, as cited in Condon & Kelly-Riley, 2004). Emphasizing the importance of CT in education, Woodward (as cited in Twyman, Ketterlin-Geller, McCoy, & Tindal, 2003) asserts that developing CT skills is considered as the cornerstone of learning. He believes that students’ achievement should be measured not only by the acquisition of content knowledge, but also by the use of information in new and meaningful ways; this necessitates developing CT skills.

In fact CT is a noble approach which proposes “to teach learners how to evaluate, analyze, solve problems, and make rational decisions. It steps up to make learners discover different concepts instead of teaching them directly to help learners keep them in mind permanently and act as active members” (Gorjian et al., 2012, p. 114).

Halvorsen (2005) considers two sides to the advantages of CT for EFL/ESL programs by stating that, “Firstly, classes which involve elements of critical thought tend to be generally more interesting and engaging. Secondly, using issues that encourage critical thinking helps to give the classroom a more meaningful and cohesive environment” (how critical thinking makes classes better section, para. 1). He believes that ESL/EFL instructors and their students can greatly benefit by attempting to understand and incorporate some of the key elements of CT into their classrooms.

Empirical Studies

Several empirical studies have supported the important role of CT and CL in writing and the results of these studies are clearly indicative of the fact that CT and CL are highly correlated with students' achievements in writing performance. In the area of CL, the results of the empirical studies conducted by many researchers such as Sirikhun (as cited in Nudée et al., 2010), Kagan and High (2002), Mohamed et al. (2008), Almugren (2009), Adeyemi (as cited in Nudée et al., 2010), Jones and Carrasquillo (as cited in Ismail & Maasum, 2009), Ismail and Maasum (2009), and Nudée et al. (2010) have supported the effectiveness of CL in learning or improving writing. However, Wang and Burton (2010) suggest taking into account various contextual factors such as how learners react to cooperation and maintain that certain problems may occur when CL is put into practice which may be due to the identity salience of the learners.

Moreover, in the area of CT, the experimental studies have revealed the positive effect of teaching critical thinking skills on learners' writing performance. Studies by Shangarffam and Mamipour (2011) and Gorjian et al. (2012) have proved that teaching critical thinking skills improves the learners' writing ability significantly. Moreover, the results of the correlational studies indicate that CT is highly correlated with students' achievements in writing performance (e.g., Harirchi, 2010; Marashi & Jodeiri, 2006).

However, despite the effectiveness of CL and CT in the improvement of writing, it seems that they have not received the deserved attention by Iranian EFL practitioners. Moreover, in the context of teaching EFL in Iran, writing has not yet earned the decent attention it merits (Zahedi, as cited in Mousavi, 2011). Nevertheless, in EFL contexts like Iran, learners have limited exposure to English language and teachers are bound to the limited hours of instruction in the classroom which often does not permit the integration of all effective approaches to teaching writing. Finally, despite the fact that CL has proved to have positive effect on learning in general, studies show that many groups of learners failed to produce collaborative actions (Wang & Burton, 2010). Inspired by the above mentioned issues the researchers of this study intended to compare CT and CL approaches in practicing argumentative writing. Furthermore, research on the comparative effect

of CT and CL on writing does not exist as the researchers of the current study were not able to spot any study with such a focus.

PURPOSE OF THE STUDY

Considering the importance of improving EFL learners' writing ability in today's world where writing in English is needed in many daily activities, even in a foreign language learning context, it seems that CL activities, CT skills, and process writing in the instruction of writing are among the factors that may contribute to the development of desirable writing outcomes. Furthermore, since the integration of both CL and CT approaches, which have proved to be effective in isolation, may not always be possible in all teaching contexts, the researchers intended to conduct a comparative study. Moreover, particularities of context may influence the priority of one approach to another when it comes to learners' preferences and characteristics.

In case the result of this research reveals no significant difference between the impact of CL and CT on the students' writing, teachers and syllabus designers can adopt both or either of them in different situations having more techniques and approaches at their disposal to choose from. However, if there is a significant difference between the effect of CT and CL on argumentative writing, EFL teachers will choose the more effective approach when it comes to focusing on argumentative genre. Hence, the aim of this study was to see whether there was a significant difference between the impact of practicing CL and CT techniques on the EFL learners' argumentative writing in a process-based approach to writing. In other words, this study attempted to answer the following research question:

Is there any significant difference between the effect of practicing cooperative learning and critical thinking techniques in a process-based approach to writing on EFL learners' argumentative writing?

METHOD

Participants

The participants in the present study were 60 Iranian female young adult EFL learners at the intermediate level of English proficiency studying at

Kish Language School. The participants were selected among 90 students on the basis of their performance on a Preliminary English Test (PET) administered to them before conducting the study. The selection was based on convenient non-random sampling. Following the administration of the PET to the 90 students, 60 of the participants whose scores fell between one standard deviation above and below the sample mean were selected as the main participants of the study and randomly assigned to the two experimental groups, namely CT and CL groups.

Moreover, a group of 30 intermediate students with similar characteristics and the same language proficiency level as the target sample participated in the piloting of the PET test. An experienced English language teacher also participated in the study for rating the writing section of PET, the writing test before the treatment, and the writing posttest along with one of the researchers.

Instrumentation

The instruments that were utilized in this study can be divided into three main categories: assessment instruments, instructional materials, and the rating scales. The *assessment instruments* that were used included a test of general English proficiency (PET) (except for the speaking section), an argumentative writing test before the treatment, and an argumentative writing posttest. The piloted sample PET (Preliminary English Test) was utilized for homogenizing the participants of the study in terms of their English proficiency and it covered three skills of Reading, Writing, and Listening. After piloting the PET, all items went through an item analysis and malfunctioning items were omitted. The internal consistency estimates before and after removing the nine malfunctioning items were found to be 0.84 and 0.85, respectively. An argumentative paragraph writing test including a prompt in argumentative genre was given at the onset of the study to homogenize the participants in terms of their argumentative writing ability before the treatment. At the end of the instruction, the learners took a paragraph writing posttest including three writing prompts in argumentative genre.

There were also two scales for rating the writing tasks. PET writing rating scale named General Mark scheme developed by Cambridge was used for rating the second part and third part of the writing section of PET. Moreover, a holistic rating scale developed by Unrau (1991) for scoring argumentative writing was used for rating the

writing test before the treatment and the argumentative writing posttest. For all ratings, Pearson correlation and Spearman's rho (in cases where the distribution was not normal) were used to check inter-rater reliability and since significant correlation existed (0.78 and 0.83 before and after treatment), the average rating was considered as the final score in each case. Finally, the *instructional* material was Pacesetter Intermediate (Strange & Hall, 2011) as the course book, Pacesetter Intermediate workbook, and the pertinent CDs.

Data Collection Procedure

As the first step, a sample of PET was piloted among 30 students with almost the same characteristics of the main participants.

Then the researcher non-randomly selected 90 students at the intermediate level of Kish Language School to take the piloted sample of PET which was administered to homogenize the participants regarding their general English proficiency before the study, as the result of which 60 participants whose scores fell between one standard deviation above and below the sample mean were selected as the participants and were randomly assigned to the CT group and the CL group. Then the researchers administered the argumentative paragraph writing test to ensure that the students in the two groups were homogeneous regarding the argumentative paragraph writing ability before the treatment.

One of the researchers taught both groups the same material. The course consisted of 20 sessions of 90 minutes spanning over a period of approximately two months for both groups. Each session, the teacher devoted 30 minutes of the class time to the related treatment. The writing instruction in both groups was based on a process approach in which the learners were guided in managing different stages of drafting, editing, and redrafting their writings. During the course, the participants were given five prompts which required writing in argumentative genre and for each topic they were encouraged to produce at least five drafts.

The CL group practiced writing cooperatively which involved students working in small groups at every stage of the writing process. The students were divided to groups of four or five and they selected a name for their group to have an identity. The students were then given a topic to think about and find ideas and materials about it and bring it to the class for the next session. Then, in the first stage of the writing activity they shared their ideas in groups and generated as many ideas as

possible about the topic. The Think-pair-share (Lyman, 1981) and Round Robin (Kagan, 1994) were used as the techniques for the first stage.

For the next stage the students outlined the generated ideas in pairs and then in groups. For the third stage, which was drafting, Paired Annotations technique (Kagan, 1992) was used. Accordingly, students were paired up to write the first draft on the basis of the cooperatively-developed outline. Then the paired members joined and shared the drafts and came up with the composite annotation by making note of the points to be added, deleted, or revised. Finally, the group collaboratively wrote the second draft based on the composite annotation.

In the final stage, the groups were required to re-read their own second draft which was written cooperatively to revise and edit it based on the required criteria. Then groups exchanged their writings and gave feedback. Based on the group reflection and received feedback, they made necessary modifications to the second draft and wrote the final draft together and submitted it to the teacher.

In the CT group, the participants went through the stages of process writing in a way that in each stage of writing they practiced a technique or task that enhanced CT including critical reading (Carr,1988), debate (Halvorsen, 2005), and classification (Carr, 1988). Critical reading (Carr,1988) was used as the first step for each topic of writing. The students received different texts on the same topic and were required to evaluate the texts by finding the strong and weak points of each, and to select the best one stating their own reasons. After critical reading, the students would involve in a debate on the topic by forming groups who shared the same idea. Next, the teacher summarized the views of the two sides and let the students decide themselves which opinion was more convincing. Then, they wrote down their ideas.

For the second stage, which was structuring and outlining, the students practiced classification technique (Carr, 1988) in which they compared ideas and sought patterns and connections between them and finally prepared an outline. Next, they wrote their first draft based on the outline and made the second draft at home after re-reading and reflecting critically on their first draft. In the following session, the students would discuss each writing in groups and offered suggestions and revisions which would result in writing the final draft.

At the end of the course, all the participants in both groups took the argumentative writing posttest to determine whether there was a

significant difference between the two groups' mean scores after the treatment.

Data Analysis

In this study both descriptive and inferential statistics were used. After piloting the PET, all items went through an item analysis procedure. The IF and ID were calculated and the malfunctioning items were omitted. The mean and standard deviation of all the raw scores as well as the Cronbach Alpha reliability were calculated. The Pearson Product Moment and Spearman's rho Correlations were also used to calculate the inter-rater reliability between the raters who rated the writing sections of the PET and the argumentative writing tests. Finally, an independent samples *t*-test was used to investigate whether there was any significant difference between the posttest mean scores of the CL and CT groups.

RESULTS

To investigate the impact of the independent variable (type of writing instruction with two modes of practicing CL and CT skills) on the dependent variable of argumentative writing, different descriptive and inferential statistics were used. Moreover, language proficiency and argumentative writing ability were the control variables, since the researchers homogenized the participants with respect to their overall language proficiency and their argumentative writing ability.

Homogenizing the Participants

As mentioned in the instrumentation section, after piloting PET, analyzing the items and omitting the mal-functioning items, reliability of the test was estimated and then the piloted and modified test was used for homogenizing the participants of the study. Ninety students participated in this administration. The mean and standard deviation for the 90 participants equaled 47.74 and 8.58, respectively. Therefore, 60 participants, who scored one standard deviation above and below the mean (between 39.16 and 56.32), were selected as the main participants which were then assigned randomly into CL group and CT group. An equal number of 30 students were thus selected in each group. Since the students came from intact groups to ensure that the participants in both

groups were homogeneous in terms of their general proficiency, the mean scores obtained by each group on the PET were compared by means of an independent *t*-test. Table 1 demonstrates the descriptive statistics for the PET administered before the treatment.

Table 1: Descriptive statistics of the two groups before the treatment

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness Statistic	Std. Error	Ratio
CL	30	41.00	54.00	47.55	4.41	-.04	.42	-.09
CT	30	40.00	56.00	47.61	4.66	-.07	.42	-.17

The results of the skewness analysis demonstrated that the assumption of normality was observed in both distributions of scores (the ratio of -0.096 for the CL and -0.17 for the CT group, both indices falling within the range of ± 1.96). Table 2 shows the results of Levene's test and the *t*-test.

As illustrated in Table 2, the two groups turned out to have homogeneous variances ($F = 0.085$, $p = 0.772 > 0.05$). Therefore, with equal variances assumed, the *t*-test results indicated that there was no significant difference between the mean scores of the two groups on the PET, ($t = -0.057$, $df = 58$, $p = 0.955 > 0.05$, two-tailed) and thus, the two groups belonged to the same population in terms of general proficiency.

Table 2: The comparison between variances and means of the two groups on the PET test before the treatment

		Levene's Test for Equality of Variances		<i>t</i> -test for Equality of Means						
								95% Confidence Interval of the Difference		
Score	Equal variances assumed	<i>F</i>	Sig.	<i>T</i>	df	Sig. (2- tailed)	Mean Difference	Std. Error Difference	Lower	Upper
		.08	.77	-.05	58	.95	-.06	1.17	-2.41	2.28

Then, the mean scores obtained by each group on the argumentative writing test were compared by means of an independent *t*-test prior to the treatment, the results of which are presented in Table 3.

Table 3: Descriptive statistics of the two groups before the treatment to check the normality of the distribution of the writing scores

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		
						Statistic	Std. Error	Ratio
CT 3C	1.00	4.00	2.61	.73	-.22	.42	-.52	
CL 3C	1.00	4.00	2.50	.79	.16	.42	.38	

As illustrated in Table 4, the two groups turned out to have homogeneous variances, ($F = 0.131$, $p = 0.719 > 0.05$) and the *t*-test results indicated that there was no significant difference between the mean scores of the two groups on the argumentative writing test ($t = 0.58$, $df = 58$, $p = 0.559 > 0.05$, two-tailed) and thus homogeneity was ensured.

Table 4: The results of the *t*-test on the argumentative writing test scores before the treatment

	Levene's Test for Equality of Variances		<i>t</i> -test for Equality of Means						
	F	Sig.	<i>t</i>	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
CT & CL	.13	.71	.5	58	.55	.11	.19	-.28	.51

Testing the Research Question

To answer the research question of the study the researchers conducted an independent samples *t*-test between the posttest mean scores of the two groups. Table 5 demonstrates the descriptive statistics for the writing posttest.

Table 5: The descriptive statistics of the participants' scores on the writing posttest

	N	Minimum	Maximum	Mean	SD	Variance	Skewness		
							Statistic	Std. Error	Ratio
CT group	30	3.00	6.00	5.01	1.03	1.07	-.74	.42	-1.73
CL Group	30	3.00	6.00	4.45	.87	.76	-.12	.42	-.29

Table 6 depicts the results of the Levene's test and the independent *t*-test on the writing posttest results.

Table 6: Results of independent samples *t*-test for comparing the writing posttest mean scores of the two groups

	Levene's Test for Equality of Variances		<i>t</i> -test for Equality of Means					95% Confidence Interval of the Difference	
	<i>F</i>	Sig.	<i>t</i>	df	Sig. (2- tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Equal variances assumed	1.50	.22	2.28	58	.026	.56	.24	.070	1.06

According to the above table with ($F = 1.501$, $p = 0.225 > 0.05$), the two distributions enjoyed equality of variances. Moreover, the results of the *t*-test indicated that there was a significant difference between the mean scores of the two groups, ($t = 2.287$, $df = 58$, $p = 0.026 < 0.05$, two-tailed). That is, the CT group (Mean = 5.01) outperformed the CL group (Mean = 4.45). The conclusion was that the CT had a significantly more effective impact on EFL learners' writing performances, that is, argumentative paragraph writing, as compared to the CL.

Subsequent to finding a significant difference between the mean scores of the two groups, the researchers had to determine how much of the obtained difference could be explained by the effect of the treatment. Therefore, effect size was computed by Cohen's *d* and *r* using the *t*-value and *df* since these estimates allow for meta-analysis across a range of different studies with different sample sizes. Cohen's *d* came out to be 0.6. According to Cohen's standard, values between 0.5-0.8 are considered to be moderate effect size (Mackey & Gass, 2005). Cohen's *d*

of 0.6 corresponds with r value of 0.287 yielding eta square of 0.082 which indicated that practicing CT skills accounted for 8.2% of the variability in the writing scores of the CT group. Therefore, the data moderately suggested that practicing CT skills was more effective than using CL instruction in improving the intermediate EFL learners' writing.

DISCUSSION

As reported in the results section the data moderately suggested that CT instruction was significantly more effective than CL in improving EFL learners' argumentative paragraph writing. Several possible justifications could be presented for the findings of this study. According to Condon and Kelly-Riley (2004), CT is one of the noble methods which coaches learners to their utmost actual ability, so this might be considered as one of the reasons for the effectiveness of CT in writing. Moreover, there is evidence in the literature that collaborative learning activities are not always successful (Wang & Burton, 2010). Wang and Burton argue that researchers who did not find promising results with CL indicated that the failure of collaborative learning activities was mainly due to perceived group status, social loafing, and group tension (p. 3). In their own study, Wang and Burton also discovered that relational, collective, and individual identity salience participants behaved differently in terms of maintaining leadership inside the group, reacting towards the free-rider, and considering the importance of the success of the group and thus determined to the extent to which collaborative learning turned out to be effective for them.

The results of the current study that supported the important role of CT in writing are in line with the findings of the empirical studies carried out by Gorjian et al. (2012), Harirchi (2010), Marashi and Jodeiri (2006), and Shangarffam and Mamipour (2011). The results of these studies are clearly indicative of the fact that CT is highly correlated with students' achievements in writing.

Moreover, Halvorsen (2005) asserts that "classes which involve elements of critical thought tend to be generally more interesting and engaging" (how critical thinking makes classes better section, para. 1). Since interest is a determining factor in learning, employing CT instruction might have been more successful in developing the learners' interest in writing as compared to CL.

One of the employed CT techniques was critical reading. In the process of critical reading, the learners needed to spend a long time dealing with each text because reading critically, according to Goldman and Wiley (as cited in Khabiri & Pakzad, 2012) and Thistlethwaite (1990), involves a wide range of effortful cognitive processes, including comprehension, analysis, and evaluation of the text. As a result, the researchers believe that this critical reading provided the learners with not only many ideas for writing, but also the opportunity to employ many cognitive abilities which were necessary for writing and developing arguments. Moreover, spending a longer time on the text might have resulted in providing opportunities for the CT group to keep the ideas in their minds better than the CL group.

Another employed CT skill was debate. When the students were engaged in the process of debate, they got acquainted with both sides of the argument which then might have helped them in developing more convincing and reasoned arguments and counterarguments in comparison with the CL condition. This is in line with what Halvorsen (2005) states. He believes “debate forces students to think about the multiple sides of an issue and it also forces them to interact not just with the details of a given topic, but also with one another” (debate section, para. 1).

The other practiced CT strategy was classification. Seeking patterns and comparing ideas to find connections between them may have resulted in maintaining unity and coherence in their writing. Moreover, classification as Carr (1988) states “is one of the thinking skills which plays a significant role in the development of logical thinking” (pp. 70-71). And developing logical thinking in writing, especially in argumentative writing, plays a significant role.

In CT group, the students were required to reflect critically on their own writing to see how it needed to be improved on the basis of the required criteria. This self-reflection might have had a significant role in the improvement of the learners’ writing. Therefore, the CT group might have outperformed the CL group in writing because of the fact that this self-reflection cognitively involved them more, and gave them more responsibility for their own writing.

Another justification for the better effect of CT instruction in comparison with CL instruction might be related to the fact that the researchers focused on the argumentative genre of writing. Argumentation necessitates criticizing which itself requires CT. That might be why the CT group outperformed the CL group. In other words,

had other genres of writing been taken into consideration, a different result might have been obtained.

Yet, another possible explanation for the finding might be that there is a close connection between good thinking and good writing. According to Kurland (2000), for producing a good piece of writing, writers need to generate some content, to put forth assumptions, evidence, and arguments that they can then defend, and draw conclusions from; and these all require thinking. So, as Alagozlu (2007) asserts, a thinking mind needs to be reflected in writing.

Moreover, “Expertise in writing is seen as an indication that students have mastered the cognitive skills required for their work” (Shangarffam & Mamipour 2011, p. 120). In other words, learners’ expertise in writing is seen as a sign that students possess the appropriate thinking and reasoning skills needed to succeed. The researchers believe that the CT group seemed to be able to develop such thinking and reasoning skills which in turn enabled them to analyze the topics and information in a better way and finally reach a more informed opinion and write arguments to support their stance. This is in line with what Bean (as cited in Bekurs & Santoli, 2004) and Bekurs and Santoli state. They maintain that students need to think critically to be able to reach an educated opinion about it rather than accepting it at face value.

According to Woodward (as cited in Twyman et al., 2003) developing CT skills is considered as the cornerstone of learning and the researchers of this study believe that writing is not an exception in this regard. Consequently, attempts should be made to employ CT skills in argumentative writing instruction. However, note has to be taken that the findings of this study should be generalized with caution and not beyond the contextual features of the study. The results of such a comparison on different genres of writing or with participants who are at a different proficiency level may yield different results.

CONCLUSIONS AND IMPLICATIONS

In fact, “One of the most important skills in the digital age is one of the oldest — writing” (Condon & Kelly-Riley, 2004, p. 56) which at the same time is the most complex and difficult one (Baradaran & Sarfarazi, 2011; Blackmore-Squires, 2010; Pakdel Estalkhbijari & Khodareza, 2012; Pourdana, Karimi Behbahani, & Safdari, 2011). Undoubtedly, communication of ideas through writing is central to all disciplines

whether one is in college or the workplace (Condon & Kelly-Riley), therefore developing competent writers is one of the main purposes of language teaching (Nudee et al., 2010). Fulfilling this end necessitates adopting effective teaching techniques which are contextualized, practical, and motivating to minimize problems related to EFL writing. The finding of this study suggests that despite the popularity of CL in EFL contexts and in spite of the fact that writing in a CL situation may bear the advantage of engaging students in social interaction and socially-constructed ability, when the objective of writing is persuasion and when writing is practiced in a process-based approach, CT is a more effective option for EFL teachers to select.

In this study, CT methodology was inferred to accomplish this privilege by necessitating students' active involvement (Halvorsen, 2005), arousing learners' interest (Halvorsen, 2005), activating a wide range of cognitive processes (Thistlethwaite, 1990), and developing logical thinking (Carr, 1988). Consequently, attempts should be made to employ CT skills in argumentative writing instruction.

The results of this study, along with those of the previous studies, can help a diversity of professions concerned with language teaching/learning. Among all, we can name teachers, syllabus designers, material developers as well as curriculum developers in language schools. In addition, another group concerned with language teaching/learning, that is, language learners can also take advantage of such techniques to write more efficiently.

By means of CT instruction and the procedure of this study language teachers can engage learners in the process of writing more effectively by letting them think more logically and analyze the topic more critically which in turn enables the learners to develop more reasoned arguments in a more coherent way. On the other hand, textbooks play important role in teaching and learning, so the material developers can incorporate CT tasks and activities into writing parts whenever they intend to design tasks which result in argumentative writing.

This study does not put an end to the research studies on the comparative effect of CT and CL practices. Further study is needed to investigate their comparative effect at different levels of language proficiency, with males, and with learners with different age or learning styles. Moreover, the effect of these techniques on other skills or other genres of writing can be investigated. Also the effects of other types of

CL and CT activities can be compared. Finally, since an integration of both CL and CT may produce a different result, other studies can compare integration of the two approaches with the sole practice of CT.

Bio-data

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