

# The Effects of Jigsaw Puzzle and Literature Circle Techniques on Argumentative Writing of Iranian Intermediate EFL Learners

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## Abstract

The main objective of the current study was to check two collaborative techniques, i.e., Jigsaw Puzzle and Literature Circle, to see their impact on argumentative writing improvement among Iranian EFL language learners. To this end, a quantitative design and a pretest-treatment-posttest method were used. The sample of this study was sixty Iranian learners who were assigned randomly to two homogeneous experimental groups, group A: Jigsaw Puzzle, and group B: Literature Circle; each one consisted of 30 participants, based on their performance on the OQPT. They sat for an argumentative writing pretest, then the treatments were implemented for every group, and finally, they sat for an argumentative writing posttest. The results implied that implementing the Literature Circle technique leads to a statistically significant improvement in argumentative writing by Iranian EFL learners. Moreover, the findings revealed that using the Jigsaw Puzzle technique results in a statistically significant improvement in argumentative writing essay performance by Iranian EFL learners. Furthermore, the comparison of the effects of the treatments of the study showed that the Literature Circle group outperformed the Jigsaw Puzzle group. The study provides implications for EFL teachers, learners, and curriculum developers.

*Key terms:* Jigsaw Puzzle; Literature Circle; Collaborative Learning; Argumentative Writing

## 1. Background of the Study

Writing is the most challenging area in learning a second language. It is based on the appropriate and strategic use of language with structural accuracy and communicative potential (Hyland, 2003). Kellogg (2001)

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states that writing is a cognitive process that tests memory, thinking ability and verbal command to successfully express the ideas; because the proficient composition of a text indicates successful learning of a second language (Perkins, & Smith, 2014). Therefore, learning how to write has gained considerable importance over the last two decades due to two factors: its use as a tool for effective communication of ideas, and the extensive research work carried out in this area to examine various issues faced by L2 writers (Dar & Khan, 2015).

Weigle (2002) opines that writing is an essential part of the curriculum in schools from the earliest grade to the university level. Argumentative writing is considered an important mode of written discourse. However, argumentative writing is a difficult type of text for both ESL and EFL students. The main rationale why argumentative writing is difficult arises from the complexity of argumentative writing features. Argumentative writing is a complex task in which the writer takes a stance on a controversial issue and offers reasons and supporting ideas to persuade the audience to accept his or her position (Anker, 2004). In the same vein, Connor (1987) posits that writing an argumentative essay is an intricate cognitive process that is associated with the writer's purpose, the audiences' expectations, the expected rhetorical patterns, and the contextual position.

Furthermore, argumentative writing is represented by Flower (1979) as a reader-based approach or referred to by Bereiter and Scardamalia (1987) as a knowledge-transforming approach that is largely similar as they both concentrate on the audiences' expectations. However, it is difficult for unskilled students to write based on these two approaches as each requires a rhetorical pattern of argumentation, the integration of content, and critical thinking from the student's point of view. Galbraith and Rijlaarsdam (1999) suggest that argumentative writing is difficult even for expert writers due to the innate difficulty of self-expression and the existence of a set of external constraints; in an effort to meet the external constraints, the writer is likely to forget what he/ she needs to write.

In L1 contexts, Crowhurst (1991) figured out the problems that occur in argumentative writing and revealed that native English speakers also have poor performance in writing an argumentative essay in the school system. The problems in argumentative writing analyzed in those studies were insufficient context and ideas, shorter texts than narration, failure to support the point of view, poor organization due to a lack of knowledge, and concerns of stylistic inappropriateness and argumentative structure.

Collaborative Learning (CL) dates back to at least the 1970s and finds support in many theories of learning, including Sociocultural Theory (Vygotsky, 1978), Social Interdependence Theory (Johnson & Johnson, 2006), Humanist Psychology (Maslow, 1968), Social Constructivism (Palincsar, 1998) and Multiple Intelligences Theory (Gardner, 1993). Additionally, a great deal of research has been done on CL. This research covers a wide range of learners, subjects, and modes of learning, including online learning. In general, the research suggests positive effects of CL on both cognitive and affective variables (Ibáñez, García Rueda, Maroto, & Kloos, 2013; Johnson, Johnson, & Stanne, 2000; Slavin, 1991).

CL can be defined as principles and techniques for helping students collaborate with peers and others. Hundreds of CL techniques have been developed. The key point about CL is that it is so much more than asking students to push their desks together in a classroom or to connect to each in an online environment, and then hoping that they will collaborate successfully. Instead, CL provides teachers and students with a large and growing body of ideas for taking further steps toward making it more likely that student-student interaction will realize its potential. Additionally, the hope is that the collaborative skills and attitudes that students develop in the process of interacting with their peers will serve students well throughout their lives in whatever contexts they find themselves.

### ***1.1. Statement of the Problem***

EFL students need to study various types of written discourse such as narration, description, exposition, and argumentative writing. Argumentative writing is considered the most important task for students as they need to use it in exams. Therefore, writing an argumentative essay has been set as a common type of assignment for EFL students. Unfortunately, most EFL students struggle with a variety of difficulties in English writing because of their low competence in English. Numerous researchers (Chaya, 2005; Kongpetch, 2006; Boonsiri, 2007; Prommas & Sinwongswat, 2013) also confirm that most EFL students struggle to compose effective argumentative essays because of their weaknesses in the English language. This is because they have inadequate exposure to argumentative writing structure and have little knowledge of this genre. Therefore, they are unable to write well-organized argumentative essays. In other words, most EFL students do not know how to handle syntax and ideas in their argumentative essays because of the drawback of language teaching methods of the past in which most writing programs are still

taught using the traditional teacher-centered model, emphasizing grammatical structure, accuracy, and vocabulary. Moreover, EFL students have very few actual opportunities to present their ideas and knowledge in a written mode. Because of this, most EFL students have linguistic problems, lack vocabulary knowledge, and do not know how to vary purposes and audiences. Furthermore, they do not acknowledge rhetorical patterns and organization of ideas when they engage in argumentative essay writing (Siriphan, 1988; Wongsothorn, 1994; Clayton & Klainin, 1994).

In the Iranian context, there is much detailed information relating to students' difficulties in writing an argumentative essay. According to Abdollahzadeh, Amini-Farsani, and Beikmohammadi (2017), it is recognized that Iranian EFL students tend to write narration and build up their own patterns to write an argumentative essay. Besides, insufficient implicit knowledge about argumentative conventional patterns is revealed in students' writing. Consequently, they do not know how to write a good argumentative essay. They are unable to write an essay clearly and convincingly. In other words, Iranian EFL students do not know the importance of audience awareness to write explicit supporting evidence and refutation.

### ***1.2. Objective of the study***

One of the ways through which language teachers can encourage the argumentative schemas into learners' mentality is by employing collaborative strategies for promoting language learners' writing performance. Collaborative strategies are the factors that have a significant effect on writing skills. Collaborative strategies enable learners to express themselves freely without teacher's pressure, classmate's stress, and some other factors threatening their self-confidence. In each class, some shy students do not express themselves lest being criticized by their classmates or teacher.

Collaborative strategies including Jigsaw Puzzles and Literature Circles provide learners with a friendly environment to challenge their fears, stresses, and low self-confidence. They improve their poor characteristics and lead them to be brave in facing some conditions which force them to write individually. In many classes, teachers resist using collaborative strategies because they are afraid of losing control of classes. They do not prepare materials for their classes or teachers are not enough trained in collaborative teaching techniques (Zarei, 2012). Therefore, the main objective of the current study is to check two

scaffolding collaborative techniques, i.e. Jigsaw Puzzle and Literature Circle, to see their impact on argumentative writing improvement among Iranian EFL language learners.

### ***1.3. Research Questions***

In dealing with the mentioned issues stated above, the study purported to answer the following questions:

RQ1: Does Jigsaw Puzzle have any significant effects on Iranian EFL learners' argumentative writing?

RQ2: Does Literature Circle have any significant effects on Iranian EFL learners' argumentative writing?

RQ3: Is there any significant difference between the effects of Jigsaw Puzzle and Literature Circle on Iranian EFL Learners' argumentative writing?

## **2. Methodology**

### ***2.1. Research design***

The current study adopts a quantitative design. The study uses a pretest-treatment-posttest method, using two homogeneous experimental groups. There were two independent variables called 'Jigsaw Puzzle' and 'Literature Circle' as well as a dependent variable named argumentative writing performance.

### ***2.2. Participants***

The sample of this study was sixty Iranian learners from a language school, in Isfahan, Iran that were selected non-randomly. They sat for an OQPT, a pretest, and a posttest. They were between 16 and 30 years old and female native speakers of Persian. Their levels of English language proficiency were intermediate and advanced. The participants were assigned randomly to two homogeneous experimental groups; each one consisted of 30 participants, based on their performance on the OQPT.

### ***2.3. Instruments***

Three tests were used in each group: the Oxford Quick Placement Test (OQPT), a pretest, and a posttest of argumentative essay writing.

#### **2.3.1. Oxford Quick Placement Test (OQPT)**

For conducting this research, the researcher used an OQPT which is a standard examination to determine the students' level of proficiency. The OQPT test was administered to participants studying English in the

language school to identify their overall English proficiency. The rationale behind the application of OQPT is two-fold:

1. OQPT is considered to be more suitable than the other accessible tests for all levels of proficiency. That's to say, the participants in this study are expected to be more familiar with the structure of OQPT, and thus they are expected to take the test with complete peace of mind.

2. The reason why the researcher of the study utilized OQPT as the student's measure of proficiency is that the test was a standard test of capability, and its validity and reliability are confirmed.

### 2.3.2. Pretest

An argumentative writing essay (entitled: Benefits of clean eating) was used as a pretest to check the participants' initial argumentative writing ability. This type of essay is based on opinion and personal taste, so the author must make a compelling case based on his subjective reasoning. The challenge inherent in this type of argumentative essay is convincing others to share a personal opinion. In addition, all sides of the issue should be considered to further validate the author's point and convince the reader that it has been well developed.

### 2.3.3. Posttest

Another argumentative writing essay (entitled: Importance of organic cleaners) was employed as a posttest to check the participants' improvement in argumentative writing after implementing the treatment. Moreover, to evaluate the participants' essays, the human scoring rubric proposed by Yamamoto, Umemura, and Kawano (2018) was utilized.

## 2.4. Procedures

To conduct the present study a sample of 60 language learners out of 100 language learners was selected through convenience sampling. To homogenize the participants, the Oxford Placement test was conducted. After that the language learners were divided into two groups randomly, group A: Jigsaw Puzzle, and group B: Literature Circle. In the first three sessions, all participants were introduced to the principles of argumentative essay writing. They were trained to develop an argumentative essay according to the basic formula used for argumentative essay outlines as follows:

- **Introductory Paragraph** - containing a hook and thesis statement;

- **Body Paragraphs** - containing at least three striking arguments and one rebuttal to the opposing side;
- **Conclusion** - summarizing the main points and leaving a lasting mark on readers' minds.

Then, all participants in both groups were required to write an argumentative essay individually as a pretest.

After that, the treatment began. In group A, the researcher focused on argumentative writing through the Jigsaw Puzzle technique. For this purpose, the researcher identified a title for argumentative writing. Then, he assigned a section of the essay for a subgroup (each consisting of 10 participants) as follows:

- **Introductory Paragraph Section** - containing a hook and thesis statement for subgroup 1 (10 participants);
- **Body Paragraphs Section** - containing at least three striking arguments and one rebuttal to the opposing side for subgroup 2 (10 participants);
- **Conclusion Section** - summarizing the main points and leaving a lasting mark on readers' minds for subgroup 3 (10 participants).

The participants in every subgroup had to share their ideas and write their sections. After that, the researcher asked one of the participants in every subgroup to read out their section for the participants of other subgroups. Then, she posed some questions for each subgroup to discuss in their subgroups and make any revisions if required. In the next step, the researcher asked a representative of every subgroup to share their section with other representatives and hand in the final draft of the argumentative essay to the researcher, putting their sections together. This procedure was used for five sample argumentative essays developed through the Jigsaw Puzzle technique.

In experimental group two, Literature Circles (LC), students participated in LC, they were randomly assigned to five subgroups each consisting of 6 participants. Then they were given a title to develop an argumentative essay. After writing the essay independently in every subgroup, students discussed their individual essays within their subgroups. They had to revise their individual writings and then prepare together a single final draft as collaborative writing for their subgroups. Then, a representative member of every subgroup had to share and discuss their subgroup argumentative essay with a representative sharing and discussing her subgroup argumentative essay. In the end, the five representatives had to write an argumentative essay on that topic and hand in the final draft of the argumentative essay to the researcher as a single

collaborative argumentative writing task. The procedure was used for five sample argumentative essays developed through the Literature Circles technique.

At the end of the treatment, all participants in both groups were required to write an argumentative essay individually as a posttest.

### 3. Data Analysis

To analyze the findings of the current study, the software Statistical Package for Social Sciences (SPSS), version 24, was used, as the data analysis is a quantitative one. The required descriptive statistical parameters, including mean, standard deviation, variance, etc. were estimated. After checking the assumptions of inferential statistics, to answer the first research question a paired sample t-test was used because the data were normally distributed and there were no significant outliers. To answer the second research question, because the data were normally distributed and there were no significant outliers, another paired sample t-test was used. As for the third research question in which the two groups' post-test performances were going to be compared, an independent sample t-test was employed to analyze the data, after the normality of the data was assured.

#### 3.1. Results for the first research question

The first research question addressed the impact Jigsaw Puzzle technique on Iranian EFL learners' argumentative writing. To answer the first research question, the performances of the group on the pre-test and post-test were compared. The mean scores and standard deviations of the group's performances on the pre-test and post-test before and after the implementation of treatment are reported in Table 1.

Table 1. Descriptive statistics for pretest and posttest of Jigsaw Puzzle technique group

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PRE-TEST	13.26	29	2.92028	1.10061
	POS-TEST	16.07	29	1.88590	1.17006

The mean score of the Jigsaw Puzzle technique group on writing, according to Table 1, improved after the treatment. However, to make sure the improvement is not accidental and the difference between the group's pretest and post-test performances are significant a paired sample t-test was run.



Table 2. Paired Samples t-Test For pre- and post-test of the Jigsaw Puzzle technique group

		Paired Differences							
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
Pair 1	PRE-TEST - POS-TEST	2.81000	2.41300	3.41163	-11.0819	-.31810	-3.032	29	.021

As displayed in the above table, there is a significant difference between the pretest and posttest performances of the Jigsaw Puzzle technique group:  $t(29) = -3.032$ ,  $p < 0.021$ . Due to the means of pretest and posttest and the direction of the  $t$ -value, we can conclude that there was a statistically significant improvement in argumentative writing essay performance, because of implementing the Jigsaw Puzzle technique; an improvement of 2.8.

### 3.2. Results for the second research question

The second question of the current study explored whether Literature Circle has any significant effect on Iranian EFL learners' argumentative writing. To answer the second research question, the performances of the Literature Circle group on pre-test and post-test were compared. The mean scores and standard deviations of the group's performances on argumentative writing pre-test and post-test before and after the implementation of treatment are reported in Table 3.

Table 3. Descriptive statistics for pretest and posttest of Literature Circle group

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PRE-TEST	12.9567	29	3.55395	1.58755
	POS-TEST	18.3596	29	1.9276	2.17006

The mean score of the Literature Circle group on argumentative writing, according to Table 3, improved after the treatment. However, to make sure the improvement is not incidental and the difference between the group's pretest and post-test performances is significant a paired sample  $t$ -test was run.

Table 4. Paired Samples t-Test For pre- and post- test of Literature Circle group

		Paired Differences					t	Sig. (2- df tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference			
					Lower	Upper		
Pair 1	PRE-TEST POS-TEST	-5.4029	3.10024	2.63144	-11.08190	-.31810	-2.240 29	.001

As displayed in the above table, there is a significant difference between the pretest and posttest performances of the Literature Circle group:  $t(29) = -2.240$ ,  $p < 0.001$ . Due to the means of pretest and posttest and the direction of the  $t$ -value, we can conclude that there was a statistically significant improvement in argumentative writing, because of implementing the Literature Circle technique; an improvement of 5.40.

### 3.3. Results for the third research question

The third research question aimed at checking whether there is any significant difference between the effects of Jigsaw Puzzle and Literature Circle techniques on Iranian EFL Learners' argumentative writing. To answer the third question, an independent samples t-test was carried out on posttests scores of the Jigsaw Puzzle and Literature Circle groups whose descriptive data are displayed in Table 5.

Table 5. Groups Statistics on Posttest

	Groups	Mean	N	Std. Deviation	Std. Error Mean
Posttest	Jigsaw Puzzle	16.07	29	1.88590	1.17006
	Literature Circle	18.3596	29	1.9276	2.17006

The Literature Circle group outperformed the Jigsaw Puzzle group on the argumentative writing posttest, according to table to Table 5. However, to make sure the improvement is not incidental and the difference between the group's performances on the post-test is significant an independent sample t-test was run.

Table 6. Independent Samples t-Test for immediate posttests of the two groups

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Posttest	Equal variances assumed	1.491	.227	2.735	58	.007	2.2896	3.972	.418	12.039
	Equal variances not assumed			2.735	53.478	.007	2.2896	3.97	.418	12.041

As Table 6 reports, statistical analysis of the data reveals that the difference between the two groups' performances in argumentative writing posttest is significant:  $t(52) = 2.735, p < 0.007$ . It is inferred that the treatment of the study has led the Literature Circle group to outperform the Jigsaw Puzzle group as the mean difference between the Literature Circle and Jigsaw Puzzle groups' performances on the posttest indicates a value of 2.28.

#### 4. Discussions

The general objective of this study was to analyze the differential effect of two techniques of scaffolding, namely Literature Circle and Jigsaw Puzzle, targeted at improving learners' collaboration and their ability to write argumentative essays, thus improving the quality of the products generated by Iranian EFL learners when carrying out collaborative and individual writing skill.

Concerning the first hypothesis, the results corroborate the assumptions presented. EFL learners who were trained to write through the Literature Circle technique while doing their task, significantly improved after using the treatment in writing argumentative essays. The results are consistent with that found in a previous study (Mateos et al., 2018), underscoring that, the use of collaborative practice could be a key to a higher quality of writing argumentatively. Sherman (1998), states that in collaborative writing, the students are relying on peers for learning. It means that students work together to teach one another, and they alternate between the roles of student and teacher. Literature Circle as a collaborative technique combines elements of both motivational and

cognitive approaches to collaboration. The technique also promotes cognitive processing by using a structured approach to teaching and learning within a tutoring context. This technique also promotes active processing of material using activities that are strongly linked to achievement.

Regarding the second hypothesis, the results rejected the second hypothesis and it was proved that the Jigsaw Puzzle technique improves argumentative writing essay performance by Iranian EFL learners significantly. The results of this study are in line with Aronson et al. (1978) and Aronson and Bridgeman (1979) who stated in the Jigsaw method students become active learners in the classroom and the Jigsaw method promotes interdependent learning and has a collaborative structure. In addition, this study lends support to Al-Salkhi (2015) and Azmin (2016) who confirmed the effectiveness of using the Jigsaw cooperative learning method in improving students' language learning. The Jigsaw Puzzle technique in English writing seems to have a positive effect on students' interest. Jigsaw could be a variation of in-class activities to inspire and keep learners engaged and targeted on the text and task at hand. Besides that, the student can manage their teamwork in learning.

Jigsaw is one of the cooperative learning techniques that impact the students' teamwork in finishing the writing. In the writing process, every group must finish their writing. They identify information or data to support their argument in writing. The member of the groups must give data and write a section. It is teamwork learning. After that, peer assessment is done to get students' feedback. Then, the teacher and students discuss together to see some students' mistakes in their writing. All students working in a small group must understand to contribute by helping other classmates.

Testing the third hypothesis of the study revealed that compared to the Jigsaw Puzzle group, the Literature Circle group outperformed in argumentative writing essay performance. Although no previous study had compared the impact of Literature Circle and Jigsaw Puzzle on any English language skills or sub-skills performance, the explanation for the superiority of the Literature Circle to the Jigsaw Puzzle technique might be because the Literature Circle technique in comparison to the Jigsaw Puzzle technique was a more effective technique that not only provided students with an opportunity to collaborate but created an environment in which they felt comfortable doing so.

## **5. Conclusions and Implications**

The purpose of the current study was to compare the efficacy of two techniques of collaboration, namely Literature Circle and Jigsaw Puzzle, targeted at improving learners' collaboration and their ability to write argumentative essays. From the findings and discussions stated above, it can be concluded that Literature Circle and Jigsaw Puzzle as two collaborative writing technique have some advantages as follow: (1) They can promote effective learning; (2) They can combine both motivational and cognitive approaches to collaboration; (3) They can promote cognitive process through a structured approach to teaching and learning within a tutoring context; (4) They can promote the students' achievement.

Generally speaking, cooperative learning gives the learners a chance to put the language to use. This study may attract the attention of the English language teachers to the importance of applying the Literature Circle and Jigsaw Puzzle technique to add methods in teaching the English language. This study may improve students' performance in their writing skills and motivate them to learn English. Besides, this study can develop students' writing task performance collaboratively. It can be beneficial for the supervisors to conduct training courses for teachers of English to raise their awareness of the importance of using Literature Circle and Jigsaw Puzzle in teaching argumentative writing and collaboration. The findings of this study can give teachers a new way to connect writing skills and collaborative task performance. In addition, this study can give chances for researchers to apply the Literature Circle and Jigsaw Puzzle techniques to other language skills. Through using the two techniques, the classes become student-centered. Throughout the two techniques, students maintain an active role at the center of the learning. The practice is based on the assumptions that meaningful interaction among peers encourages knowledge building and that teachers can provide more timely and personalized guidance and feedback during in-class activities. Literature Circle and Jigsaw Puzzle techniques encourage cooperative learning among the students and this cooperation can lead to successful and meaningful learning. The two techniques put the responsibility of learning on the learners' shoulders and place the teacher in the role of the "facilitator" who works with the students to guide them through their individual/collaborative learning experiences. From a pedagogical perspective, this study sheds light on the importance of a learning environment that encourages active and cohesive interaction in classrooms. It also contributes to considering how the environment for

active learning can be better achieved by incorporating the Literature Circle and Jigsaw Puzzle techniques in pedagogical practices.

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