

ON THE IMPACT OF USING JIGSAW II TECHNIQUE ON THE DEVELOPMENT OF WRITING PERFORMANCE OF IRANIAN INTERMEDIATE EFL LEARNERS

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ABSTRACT

Having been aware of the difficulties second language learners experience with writing skill and its important effect on language learning, the researcher of the present study decided to see whether the jigsaw II method has any impact on writing performance of Iranian EFL learners. Writing in the mother tongue is aching for many students, but when it comes to writing in the second language the students' difficulty and pain are deteriorated. Writing is a powerful way of thinking. But the students and some teachers tend to overlook its importance. For the sake of homogeneity of proficiency in EFL, the Nelson Test (1978) was administered to 57 students and 40 homogeneous female EFL learners were selected. They were between 16 and 20 years old. The aforementioned participants were then randomly split into control and target groups. The number of the participants was 20 for each. The jigsaw group was taught writing using jigsaw II technique four hours a week for an eight-week period. But the non-jigsaw group was taught writing in a traditional or teacher-centered way. Based on this hypothesis, the quasi-experimental method and two independent t-tests were used to analyze the data and examine the null hypothesis. After the results and scores of the pretest and posttest in two groups were carefully dissected, it was found that the jigsaw group outperformed the non-jigsaw group. Based on the results, it is suggested that in order to improve the writing ability of Iranian EFL learners, teachers can use jigsaw II technique.

KEYWORDS: Jigsaw, jigsaw II technique, intermediate EFL learners, cooperative learning, writing.

INTRODUCTION

Iranian EFL learners' writing performance is almost poor. Different exams have shown that the writing sections usually get fewer scores than reading, listening and speaking sections. Therefore,

in order to ensure students' mastery of the writing skills, teachers need to employ methods and approaches which produce positive outcomes in the students' learning.

Rote learning has been a common practice in the Iranian educational scene in language learning. Most teachers and educators are in dubiousness of the students' ability to acquire knowledge on their own. Most of the time, students are treated like empty vessels which need to be filled with facts in order to activate their cognitive capability. Thus, the outcome of this insight leads to the strictness of the teaching approach which is more teacher-centered. It also leads to the regular spoon-feeding on the teachers' part and students' dependency on the teacher in the quest of acquiring knowledge. In Iranian educational practice including in schools, teacher-centered method still remains a broadly used instructional strategies to convey knowledge. Teacher lectures, presents information, disciplines the students and gives instructions. This method is a popular method because of its ease for the teachers since they can convey a large amount of information and knowledge to many students. Scholars think that Iranian schooling system should move beyond the rote learning method which most considered as methods of the past.

The common phenomenon among learners is a passive role they presuppose in the process of learning; they rely on teachers too much and are unwilling to expand a sense of responsibility for the result of their learning. Teachers can reduce these problems in class by some teaching tasks and techniques and strategies like group work and, jigsaw task, intergroup competition, intra-group competition, cooperative learning, etc. The aim of small group instruction is to enhance the participation of students, positive interdependence, individual accountability, equal participation, and simultaneous interaction. The purpose of jigsaw technique is to urge students to participate in doing tasks. The prominence is on fun rather than on winning (Doris, 2009).

Writing in the mother tongue is aching for many students, but when it comes to writing in the second language the students' difficulty and pain are deteriorated (Gilmore, 2009). Writing is a powerful way of thinking. While writing essays, students learn things about both themselves and life and can convey their thoughts and feelings to others. It can provide the opportunity to self-develop and has effects on the change of world. Writing is also a tool to be successful at school and to find a good job in the future (Bradley-Johnson & Lesiak, 1989). According to the National Educational Statistics Centre, people from every kind of profession have to communicate intricate thoughts and information in the form of lucid and concise writing. Writing is a tool by which people reveal their knowledge (Graham & Harris, 2005). Writing is defined as a behavior including various closely interconnected complex skills such as punctuation, hand writing, spelling, creativity, and self-expression (Shapiro, 1996) as well as specific writing components such as grammar, mechanics, production, order of writing, linguistics, and understanding. Given the complexity of writing, it is very difficult to determine which interrelated special skills are most important and which tasks are most difficult for students to accomplish (Bradley-Johnson & Lesiak, 1989).

Teaching writing English as second or foreign language (L2) writing is different from teaching other language skills in two ways. First, even as late as 1970s, L2 writing was not seen as a language skill to be taught to learners. As an alternative, it was used as a support skill in language

learning to, for example, practice handwriting, write answers to grammar and reading exercises, and write dictation. In fact, while graduate programmes in TESOL frequently present ED courses in other skill areas, almost no coursework was accessible in teaching L2 writing. Second, as the theory and practice of L2 composition teaching slowly expanded, it pursued the way of US native English speaker (NES) composition theory. Only lately has English L2 composition theory and pedagogy begun to suggest English first language (L1) researchers and teacher perception and pedagogical practices (Silva et al., as cited in Carter & Nunan, 2001).

Kennedy-Kalafatis and Carleton (1996) indicate that writing is a type of communication and it cannot exist without audience. Therefore, the absence of communication means the loss of the aim of writing. Cooperative learning is one of the tools which can be used in educational settings in order to develop individuals' writing skills in their first language. Cooperative language learning methods are very useful in multi-level classes, in that they allow both homogeneous and heterogeneous grouping in terms of language proficiency. Cooperative learning is one of the approaches most frequently evidenced in the areas of research and educational applications in addition to being a concept drawing attention among teachers, school administrators and educationalists. Cooperative learning, proven to have positive effects on achievement in learning process, is increasingly used in more and more areas every day. Cooperative learning approach helps students learn many things from each other as well as it encourages them to discuss on a topic and make some evaluations on it (Parker, 1985).

Cooperative learning can be defined as an approach in which students help each other with an academic topic for a common intention forming small groups both in and outside the classroom, in which they gain self-confidence, expand their communicative skills, reinforce critical thinking abilities, and take part in teaching-learning process actively (Bolling, 1994). Cooperative learning imposes the students in group two different responsibilities: Learning the targeted behavior and making sure that other members of the groups also learn it (Johnson & Johnson, 1999). Johnson and Johnson signify that a student in a group can individually accomplish his / her aims as long as the other members can be successful; and, Hawkins, Douck and Liskner, asserts that cooperative learning makes a student depend on others for positive outcomes, rewards (Miller, 1989). Cooperative learning is a procedure in which students can achieve a task given to them by working in groups (Slavin, 1995). Other definitions of cooperative learning cover the descriptions of classroom settings in which students perform some academic tasks in small groups in contact with each other (Parker, 1985).

Jigsaw, one of the cooperative learning techniques, including two different treatments with different small groups in order to help learning and improving cooperation between students, was first designed by Aronson in 1978 (Hedeem, 2003). In the application of Jigsaw technique, students separate from their own groups and form new groups with the other students who are responsible for preparing the same subjects. These groups, called "groups of experts" try to make other students understand the subject; they make plans about how they can teach the subject to their friends, and prepare a report. Afterwards, they turn to their own groups and teach their subjects to them with the help of the reports they have prepared. In the last students in the Jigsaw groups discuss on the subject to make sure that they understood it completely. Later, students

return to home groups in which they would teach the material to the rest of the group members (Colosi & Zales, 1998).

LITERATURE REVIEW

Cooperative Learning

Johnson & Johnson (1999) emphasized that effective cooperative learning is noticeable by five significant characteristics. If all five are present, there is collaboration; if any one attribute is absent, there may be group work, but not collaboration.

- Face-to-Face Interaction - The physical arrangement of students in small, heterogeneous groups persuades students to assist, share and affirm each other's learning.
- Individual Accountability - Each student is responsible for the achievement and collaboration of the group and for acquiring the allotted task.
- Cooperative Social Skills - Students are trained, instructed and examined in the use of the cooperative social skills which increase the group work.
- Positive Interdependence - Students are prepared by role assignments, group rewards, general goal, and other means to help each other in accomplishing the learning task.
- Group Processing - Students reflect on how well they work as a group to perfect the task and how they can develop their team work.

Factors that Contribute to Achievement Effects of Cooperative Learning

Most of studies which were compared usually vary in subjects, durations, measures, and many other factors that could describe differing results. Better evidence is offered by studies that compared alternative forms of cooperative learning. In such studies, most factors, other than the ones being studied, can be held steady. The subsequent sections discuss both types of studies to further investigate factors that help the efficiency of cooperative learning for enhancing accomplishment.

Group Goals and Individual Accountability

Latane, Williams, and Harkins (1979) believed that if groups lacking individual accountability, one or two students may do the group's work, while others engage in "social loafing". For example, in a group asked to complete a single project or solve a single problem, some students may be discouraged from contributing. A group trying to complete a common problem may not want to stop and explain what is going on to group-mate who doesn't comprehend, or may feel it is ineffective or non-advantageous to try to engage special group-mates.

Studies of behaviors within groups that connected most to accomplishment assets constantly prove that students who give each other clarification are the students who learn the most in cooperative learning. Giving or receiving answers lacking clarification normally diminish success (Webb, 1989, 1992). In any case, in hypothesis, group objectives and individual accountability should inspire students to involve in the behaviors that enhance success and keep away from those that decrease it. If a group member wants her group to be doing well, she must teach her group-mates (and learn the material herself). If she simply tells her group-mates the answers, they will fail the quiz that they must take individually. If she ignores a group-mate who does not

understand the material, the group-mate will fail and the group will fail, too. Methods of this type, for instance, may give groups certificates based on the mean of individual quiz scores of group members, where group members could not assist each other on the quizzes. Instead, group members might be selected at random to characterize the group, and the whole group might be rewarded based on the chosen member's presentation.

Quite the reverse, methods missing group goals give students only individual scores or other personal feedback, and there is no group outcome for doing well as a group. Methods missing individual accountability might honor groups for doing well, but the basis for this reward would be an only project, worksheet, quiz, or other creation that could hypothetically have been done by only one group member.

Slavin (1995) declared the importance of group purposes and individual accountability is in preparing students with an inducement to aid each other and to persuade each other to set forth maximum effort. If students appraise doing well as a group, and the group can thrive only by guaranteeing that all group members have learned the material, then group members will be encouraged to train each other.

The proof from research on cooperative learning powerfully affirms the importance of group objectives that can be accomplished only by guaranteeing the learning of all group members. The most new complete analysis of this topic by Slavin (1995) offered one kind of evidence to support this end. Studies of methods that include individual accountability and group objectives created a much higher median effect size than did studies of other methods. As mentioned earlier, the median effect size across 52 studies was +.32, compared to a median of only +.07 across 25 studies that did not incorporate group goals and individual accountability. Seventy-eight percent of studies of methods using group goals and individual accountability discovered considerably positive effects, and there were no drastically negative effects. In methods lacking these elements only 37% of studies found significantly positive effects, and 14% found meaningfully negative effects.

Structuring Group Interactions

Research on Reciprocal Teaching also shows how direct strategy training can augment the influence of a technique related to cooperative learning. In this method, the teacher works with small groups of students and models such cognitive strategies as summarization and question creation. The teacher then gradually turns over responsibility to the students to carry on these activities with each other (Palincsar & Brown, 1984).

They (1984) did some studies about Reciprocal Teaching. These studies have normally found positive impacts of this method of reading comprehension. The effects of group rewards based on the individual learning of all group members are obviously not direct; they only stimulate students to involve in specific behaviors, like providing each other with detailed clarification. Nonetheless, there is also a increasing number of evidence to offer that a mixture of strategy training and group rewards create much better results than either alone (ibid.).

While it is obvious that all other things being the same, individual accountability and group rewards deeply increase the attainment outcomes of cooperative learning, there is some evidence that cautiously structuring the interactions among students in cooperative groups can also be efficient, even in the lack of group rewards. Meloth and Deering (1992), for instance, compared students working in two cooperative situations. In one situation, students were instructed certain reading comprehension strategies and given “think sheets” to tell them to use these strategies (for example, character mapping, summarization, prediction). If their members progressed each week on quizzes students received team scores in the other group. A comparison of the two groups on a reading comprehension test showed larger gains for the strategy group (Meloth and Deering, 1994).

Jigsaw II Technique

The implementation of Jigsaw II, which was developed by Robert Slavin, having adapted Elliot Aronson’s Jigsaw technique consists of five steps: (1) reading; (2) expert group discussion; (3) home group reporting; (4) testing; and (5) group recognition.

A concise overview of its implementation, followed by an explanation with examples will be given here. First, the materials to be learnt are separated into four pieces with directing questions. Each pupil in a group is asked to focus on reading one piece of the materials. Upon finishing the reading, pupils from different groups who have read the same part of the materials shape an expert group to discuss the materials. After the discussion, the group members go back to their home group stating what they have discussed in the expert group. After listening to each “expert” in the group, all group members become familiarized with all the four pieces of the materials. Finally, testing is administered on individual members to compare their presentation. Each group member takes an individual quiz and the score is compared with the base score to estimate the individual development score, based on which a group average score is exercised. The group with the highest average group development score is granted group recognition by obtaining a group reward.

Steps to Use Jigsaw II in Classroom

Step 1: Reading. Similar set of materials related to the topic and an expert sheet is given to each participant. For groups of four, the expert sheet comprises of four questions, each of which focuses on one of the four topics of the reading materials. Every member of the group is has to find answers to one of the questions in the expert sheet from reading the relevant piece of the materials. Each participant reads the relevant materials for half an hour. The reading of the materials can be made as homework before the class to save the lesson time alternatively, particularly when the materials are long (Slavin, 1995).

Step 2: Expert group discussion

This step can also last half an hour. Members who are exercising the same question in the expert sheet shape an expert group. Four expert groups are thus shaped. To smooth the progress of the discussion, some directing questions can be planned for each expert group. Each member is stimulated to take notes of what they have discussed in order that they can train their members in their home group after the expert group discussion. Whenever a problem exists, the participants

should try to solve it by themselves before asking for help from the teacher. Arguments should be solved by using suitable social skills. Depending on the type of questions, group consensus may not be necessary (ibid.).

Step 3: Home Group Reporting

In the expert groups, participants return to their first home group to teach group-mates the lessons they have discussed. They are wanted to help each other to learn the materials as much as possible. It is practical for the teacher to perform a short whole class discussion after each member has shared his / her expert knowledge with each other. The reason of the class discussion is for clarifying doubts, and for rousing additional discussion of the topic. This step may take an hour to one and a half hours to finish (ibid.).

Step 4: Testing

All members of the groups take a short test after mastering the materials. Directly after the test, members swap their test papers to mark the answers. The individual test scores are then computed as development scores by comparing with the base scores that stand for students' past performance. This step takes about half an hour to complete (ibid.).

Step 5: Group recognition

Each member of the group will be given a group reward if the average group development score reaches a prearranged level. The reward may be a certificate or other forms that the group members value. Each member of the group gets identical reward, without regard to of their individual performance in the test. The aim is to reinforce their cooperation. This final step takes 10 minutes to complete (ibid.).

Success of Jigsaw II

Slavin (1995) has constructed in the design of Jigsaw II four components which add to its success: (1) mixed ability grouping, (2) individual accountability, (3) group reward; and (4) equal opportunity to success. These four components will be discussed below.

Mixed-ability Grouping

Hooper et. al. (1989) found that in the case of high ability students, research confirms that incompatible consequence for their learning outcome. Some research recommends that there is no regression among high ability students; others indicate that they perform as well in heterogeneous as in homogeneous groups (Nastasi & Clements, 1991; Hooper & Hannafin, 1988).

The member are cautiously allotted to heterogeneous groups in the sense of teaching experience, ability and gender, in order that each group is a cross sectional representation of the whole class. Research proves that the performance of low ability students develops in heterogeneous grouping (Webb & Cullian, 1983) since these students get more elaborated clarification from their high ability group-mates about the learning materials (Webb, 1992).

He claimed that high ability students learn more in heterogeneous than in homogeneous groups because when giving elaborated explanations to the low ability group-mates, they reorganize and

explain information in different ways, which increase the expansion of their meta-cognition (ibid.).

Individual Accountability

The meaning of individual accountability is that the triumph of a group relies on the individual learning of all the group members (Slavin, 1995). Each member has to be responsible for facilitating the learning of the rest of the group apart from responsibility for one's own learning. Individual accountability exist when the performance of each individual member is assessed, the results are given back to the individual and the group to compare against a norm of performance, and the member is held responsible by group-mates for denoting his or her equitable portion to the group's success (Johnson and Johnson,1999). For itself, individual accountability stimulates the group members to help one another to apply maximum attempt in the learning process (Slavin, 1995).

Group Reward

Instructors can promote individual accountability by the effectual use of group reward according to individual performance. Most members know that for each to receive a group reward, the performance of the group must reach an expected level. The performance of the group is established by the sum of each member's improvement score. The members are prompted to learn with great effort for themselves by this extrinsic reward, and to assist each other to learn well, too. Individual accountability and group reward augment the attainment results of cooperative learning, with other things being the same (Slavin, 1995).

Equal Opportunity to Success

Development scores rather than test scores are utilized in Jigsaw II technique for calculating the group score. Members of low ability will be identified as a load to group since it is impossible for them to acquire as high test scores as those of cleverer members if test scores are used. It is implausible that they will see themselves giving as much role to the group as other members. Members of different ability are given an identical chance to earn lessons towards the group score, with improvement scores, on condition that they make improvement over their past performance, without regard to of their real score. The only competitor is the self whereas the other members of the group are friends (ibid.).

RESEARCH QUESTION

This study intends to answer the following question:

- 1) Does using Jigsaw II technique has any significant effect on the development of writing proficiency of Iranian intermediate EFL learners?

METHODOLOGY

Participants

Fifty-seven EFL learners, about 16-20 years of age who are currently studying English in Tehran, Iran participated in this study. Their L1 was Persian and were all female. After they had taken the

Nelson Test, the students whose scores fell within the range of one standard deviation (10.29) above and below the mean of 28.91 were chosen as homogeneous participants for this study. These 40 students were randomly assigned to control and target groups with 20 students in each one. The proficiency level of the participants was intermediate. Table 1 displays mean standard deviation, range, maximum, minimum, and variance on Nelson Proficiency Test. A look at this table reveals that minimum and maximum scores were 6 and 48 respectively with a large range of 42. It shows that participants are highly heterogeneous.

Table 1: Descriptive Statistics for Nelson Proficiency Test Scores

N	Range	Min.	Max.	Sum	Mean	SD	Variance
57	42.0	6.0	48.0	1648.0	28.91	10.29	105.99

Instrumentation

Three sets of paper and pencil tests were administered to the participants, the Nelson Proficiency Test (1976), Writing Test Part 2 of PET (Quintana, 2003) as pretest, and Essay Writing Part 3 of PET as posttest respectively. The Nelson Proficiency Test was administered to the population of the study for the purpose of measuring the participants' level of proficiency. The Nelson Test consists of 50 multiple-choice items. Although the questions are not separated to different parts, they measure the examinees' general knowledge on grammar as well as vocabulary and meaning.

Part 2 of PET, which was administered as pretest describes a situation and the students should write about the situation between 35-45 words to complete the task. The instruction of pretest of this research was this: "You are going to visit your aunt in the countryside. Write a card to your aunt. In your card, you should thank her for the invitation, say when you're going to arrive, and describe what you hoped to do there. Write 35-45 words on your paper".

Part 3 of PET, which was administered as posttest, asks two questions and participants should write their answers in about 100 words. We asked only one question in this study in order for the scoring to be more reliable. The instruction of posttest of this research was this: "Your English teacher has asked you write a story. Your story must begin with this sentence: *Late in the evening I heard a loud knock on the door.* Write your story in about 100 words on your paper".

A pilot study was carried out with 18 intermediate students in order to estimate the reliability of the Nelson Test. Through the application of KR-21 formula as one of the methods of estimating reliability, the reliability of the test is estimated at .91. It proves to be considered as a highly reliable test.

Procedure and Time Frame

There are some practices related to principles of Jigsaw II technique and instructional teacher-centered teaching method which are valid in both theory and practice. The researcher determined the number of the participants and the course which was appropriate for working in groups in the preparation stage of the research. After some analyses, the book "Paragraph Development" was chosen for the application. The subjects on this book were viewed and divided into sub-titles

taking the number of group members into account. Subjects of writing course were taught to the groups through the mentioned method and technique 4 hours a week for 8 weeks.

In the target group, group information were formed and formulated for the sub-groups of the target group. In the form, names of groups, number of members, subjects to be worked on by each member, and group leaders were identified. Depending on these forms, heterogeneous groups of five members were formed and each of them was coded by a letter. By this way, four groups coded A, B, C, and D were formed. The members in groups were coded according to the subjects. For example: A1, A2, A3, A4, A5 with the same subject were given to all groups. The sub-titles of the writing lessons were distributed among the members by the group leader. The sub-titles of the writing course were formed. The topics were distributed among the students in the way that members with the same codes took the same topics (A1, B1, C1, and D1) and studied the same topics. Getting the students with the same codes together, Groups of experts were formed in Jigsaw groups and they were asked to work on their topics and turn to their groups. The procedure was started by forming home groups, getting the members with the same codes together (forming expert groups).

In the control group, writing topics were taught through the instructional teacher-centered teaching method. In the non-Jigsaw (control) group, during the first six weeks, theoretical information on all the topics was taught by the researcher. Daily plans belonged to the lessons that were planned to be taught through the instructional teacher-centered teaching method were designed in a way that they covered all the behaviors the students needed to acquire. The tools and materials were prepared in advance. In the theory-based classes, the researcher gave the information on the topic of the day in a plain instruction.

At the end of the lesson, the topic was summarized. Students were given assignments. After the theoretical lessons, the researcher took feedbacks from the groups and repeated the points that had not been completely understood. These feedbacks and reinforcements were given by the researcher and the lessons were completed. The course was conducted in both groups by the researcher 4hours a week for an eight-week period. After the course, target (Jigsaw-II) and control (Instructional teacher-centered teaching) groups were given Writing proficiency Test as post-tests and it was attempted to find whether there were significant differences between the two different techniques in their effects on students 'writing performance in it. The data collected through the pre-tests, post-tests in both target and control groups were analyzed through SPSS.

RESULTS AND DISCUSSION

Reliability Statistics

Nelson Test, Writing Pretest and Posttest that were used in this study were piloted to estimate their reliability. The piloting results as presented in Table 2 indicate that these three tests were piloted with 25 intermediate EFL learners having similar characteristics with the main participants of this study. The reliability of Nelson Test was estimated .91 through KR-21. The reliability of Writing Pretest and Posttest was assessed .82 and .84 using Inter-rater Reliability

(Pearson Correlation Coefficient) since two raters (the researchers themselves) scores the writing papers.

Table 2: Reliability Statistics of Nelson Test, Writing Pretest and Writing Posttest

Test	No. of St.	No. of Items	Reliability Value	Sig.	Reliability Method
1. Nelson Test	25	50	r = .91	-	KR-21
2. Writing Pretest	25	1	r = .82	.000	Cronbach Alpha
3. Writing Posttest	25	2	r = .84	.000	Cronbach Alpha

Nelson Proficiency Test Results

Nelson Test was administered to 88 participants to select homogeneity intermediate participants. Table 3 below displays the descriptive statistics of the participant's scores on Nelson Test. The table shows that the mean, median and mode of the Nelson scores were 28.91, 30, and 30 respectively. These central parameters are not very different from each other. This implies that the scores are normally distributed.

Table 3: Descriptive Statistics for Nelson Homogenizing Test Scores

N	Range	Mean	Median	Mode	SD	Skewness	Kurtosis
57	42	28.91	30.00	30	10.29	.151	-.590

Based on the results gained on Nelson Test, those 40 students who scored one standard deviation (10.29) above and below the mean (28.91) were selected as homogeneous intermediate participants for this study. Figure 1 below displays the distribution of the Nelson scores on a normal curve. The normality is approved since the ratios of skewness and kurtosis (see Table 2) over their respective standard errors are not beyond the ranges of +/- 1.96.

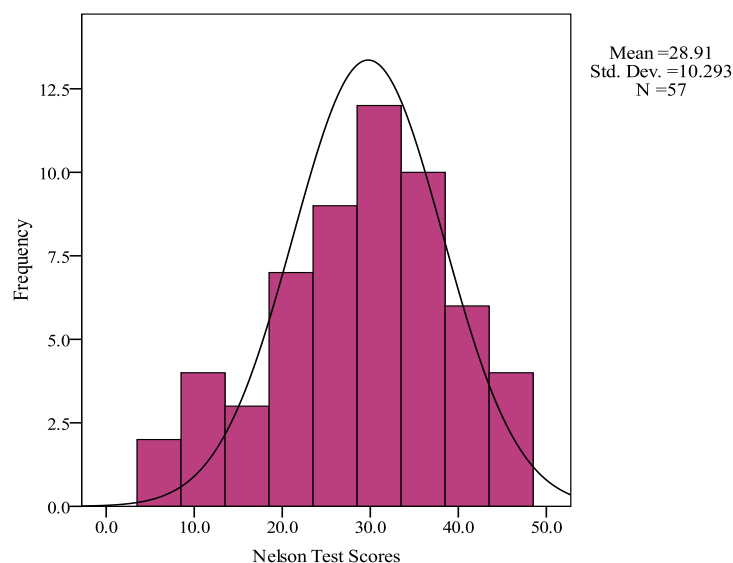


Figure 1: Distribution of Nelson scores

Testing Assumptions

Four assumptions of interval data, independence of subjects, normality and homogeneity of variances should be met before one decides to run parametric tests (Field, 2009). The first assumption is met because the present data are measured on an interval scale. Bachman (2005, p. 236) believes that the assumption of independence of subjects is met when —the performance of any given individual is independent of the performance of other individual.

The third assumption concerns the normality of the data which is tested through One-Sample Kolmogorov-Smirnov Test. The results of normality test in Table 4 indicate that the p value was higher than the selected significant level, i.e. .05. for the writing score of the two target and control groups on both pretest and posttest. Thus all four sets of scores are normally distributed. Therefore, parametric Independent Samples Test was utilized to compare the mean score of two groups on both pretest and posttest otherwise the nonparametric Mann Whitney U Test would be used.

Table 4: One-Sample Kolmogorov-Smirnov Test of Normality for Target and Control Groups' Scores on the Pretest and Posttest of Writing (Average of the Two Raters)

Test	Group	N	Mean	Kolmogorov-Smirnov Z	Sig.
Pretest	Target	20	9.20	.583	.886
	Control	20	10.35	.482	.975
Posttest	Target	20	21.30	.541	.932
	Control	20	19.05	.636	.813

The last assumption – homogeneity of variances – will be discussed when reporting the results of the inferential statistics.

Descriptive Statistics

In order to scrutinize the similarity between two groups in their pretest and posttest, their descriptive statistics for writing scores for the samples of both target and control groups is provided in Table 5. It must be noted here that the descriptive statistics presented here is the average result of the two raters who scored the students' writing papers. As obvious in the table, the difference score between the pretest and posttest in target group is 10.67 which is considerably high. This is while the average difference score in the control group is 3.40. Although control group showed a change of 3.40 points in its pretest and posttest, it is of a little importance comparing it with this change in the target group.

Table 5: Descriptive Statistics for Writing Scores on the Pretest and Posttest in both Groups (Average of the Two Raters)

Group	N	Pretest		Posttest	
		Mean	Std. Deviation	Mean	Std. Deviation
Target	30	9.20	2.62	21.30	2.27
Control	30	10.35	2.41	19.05	2.56

Figure 2 below graphically illustrates the data in Table 5.

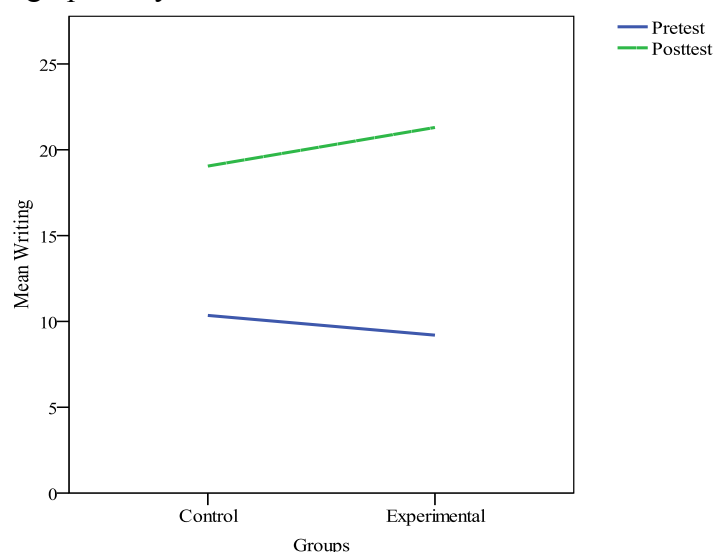


Figure 2: Histogram of scores obtained on the pretest and posttest of writing

Inferential Statistics to Investigate the Research Question

In order to answer the research question of the current study, two Independent *Sample Tests* were conducted. One was used on the scores of participants in non-jigsaw and jigsaw groups to compare their means and variances. I need to prove that the two groups are homogeneous and at the same level of writing ability (have equal variances and means) before experiencing the treatment. Another Independent T-test was run in order to compare the scores of two groups after the target group experienced the Jigsaw II Technique on learning writing skill.

Table 6 displays the results of Independent Sample Test to compare to compare two target and control groups' writing scores on the pretest. The table shows that the hypothesis of equal of variances was supported because Sig. of Levene's Test (.74) was more than .05 ($p = .74, p > .05$).

Table 6: Independent Samples Test to Compare Two Groups' Scores on the Pretest of Writing

Levene's Test for Variances			T-test for Means			
	<i>F</i>	<i>Sig.</i>	<i>t</i>	<i>df</i>	<i>Sig. (2-tailed)</i>	Mean Diff.
Equal variance assumed	.104	.74	1.44	38	*.15	1.150

* $p < .05$ = It shows significant difference

Independent Samples Test results in Table 6 indicates that there was no statistically significant difference in means between the two groups on the pretest of writing with ($t(38) = 1.44, p = .15, p > .05$), in which the t -observed (1.44) was below the t critical (2.00), and the p value (.15) was higher than .05. Further, the researcher conducted another analysis of Independent Samples Test to compare two groups' writing scores on the posttest, and the related results are provided in Table 7. According to the table, the *Sig.* of .72 in Levene's Test, which was lower than .05, revealed that the assumption of equal of variances was met ($\text{Sig.} > .05$).

Table 7: Independent Samples Test to Compare Two Groups' Scores on the Posttest of Writing

Levene's Test for Variances			T-test for Means			
	<i>F</i>	<i>Sig.</i>	<i>t</i>	<i>df</i>	<i>Sig. (2-tailed)</i>	Mean Diff.
Equal variance assumed	.111	.72	-2.93	38	*.006	-2.25

* $p < .05$ = It shows significant difference

Independent Samples Test (see Table 7) failed to find any statistically significant difference in reading scores between the two introvert and extrovert groups with ($t(38) = 2.93, p = .006, p > .05$), in which the p value (.38) was less than .05 level of significance, and our t value (2.93) was more than the t critical (2.00). As a result, the answer to the research question of this study was positive and it can be claimed that using Jigsaw II technique influences the writing proficiency of Iranian intermediate EFL learners.

The participants of target and control groups on both pretest and posttest had equal variances. It means that they were homogeneous. Although the participants' scores in both groups at pretest and posttest had equal variances, they did not give equal means at posttest. The mean of essay writing test for control group at pretest was 10.35 which was very near to that for target group by a value of 9.20. But at posttest the results showed different values. The mean of essay writing test for control group was 19.05 which was far away from that for target group by an index of 21.30. By .95 confidence his statistical difference ($p = .006, p < .05$) was due to the treatment of jigsaw II technique, which was utilized for the participants in target group in opposition to the placebo of teacher-centered approach in teaching writing skill.

After the analysis of the data, it was found that Jigsaw II technique was more effective than instructional teacher-centered teaching in the development of writing skills of the students, in the target group. This study that focused on Jigsaw II and was related to teaching conditions that should be provided for small groups for cooperative learning to be more effective. Those home groups and expert groups in the target group provide activities that are rich in cooperation to teach the subject, solutions, and suggestions shows that Jigsaw II technique is effective in terms of teaching contents and atmosphere. In addition, by using quizzes in Jigsaw II groups, expert

groups contributed to a complete understanding of subjects. The results of the retention test conducted a while after the experiment revealed that Jigsaw II was effective on learning and retention.

In the control group, it was noticed that students had difficulties in learning materials. However, control group managed to be successful, too, at the end of the process. In addition, since the students in Jigsaw II group found solutions by sharing ideas on the topics during expert group studies, they could completely understand the topic and when they returned to their groups they did not have any difficulty in teaching it to their friends. When participants worked with their team members to learn the assigned materials, positive interdependence, promotive interaction, social skills and group processing was abundant in the study.

CONCLUSIONS AND IMPLICATIONS

The following conclusions were made from the results of this study: It is concluded that the learning with their classmates in Jigsaw II method, the students can learn in a supportive environment, and they are not passive learners because they play the role of teacher in class. They do not sit dumbly and silently in the class because they need to discuss with their group members and teach other students. Every student need to make active responses to ensure successful teamwork of the group. On the contrary, in traditional English classes, students are passive learners sitting in the classroom listening to the teacher's lectures, and trying to learn the subjects solely from English teachers' demonstration in class.

In addition, based on the theoretical principles underlying this research and the findings reported here, the participants worked in the expert groups to master different parts of each lesson, and then became teachers to teach their classmates in the home groups. Compared with the competitive learning atmosphere in traditional English classrooms, the learning environment in the Jigsaw classroom was rather positive, supportive and active. To achieve communal success, the students helped each other understand the learning materials, discussed with the team members, and tried to find out the solutions to their questions. Besides, the results obtained in this study indicate that the participants' English writing ability had significant improvement after the eight-week instruction in the cooperative learning method, the Jigsaw method. There were a number of possible explanations for the progress of participants' writing abilities. First participants had more opportunity to read the assigned parts on their own. In the traditional English classroom, students tended to receive the lessons directly from English teacher, but they did not have enough chances to think and discover the lessons on their own. On the contrary, the students learning in Jigsaw method needed to work with their team members to master the assigned lesson, and the teacher was just a backstage helper. Second, the responsibilities of being teachers in the class could have encouraged the participants to learn more clearly. The participants confessed that they used to roughly understand their materials before, but now they needed to understand the materials more precisely in the Jigsaw classroom because they had to teach their classmates.

The outcome of this study could be supportive in the following ways:

Those taking care of language teaching that can help their students to improve their writing proficiency. Interaction among students is one part of language learning which has been unnoticed to the present time. Teachers can put emphasis on interaction which can bring about many positive outcomes. This study is significant to understanding better how we can encourage fun cooperative competitive learning atmospheres that permit students to act together and develop both socially and intellectually. By using jigsaw task, students can have more chances to write in groups and to compete with each other. Also, it can bring about face to face interaction, positive interdependency, as well as competition which are part of life. Therefore students are not tired of cooperative group work without competition. They can learn writing like football. They can taste both cooperation as well as interaction in a motivating fun environment. Step by step, they will be involved in cooperative learning and cooperative environment. This study has also pragmatic relevance as it can be used to develop guidelines to help instructors to structure better fun cooperative classes for EFL learners to learn writing in such a way as they play games. It can help intermediate learners to develop a range of strategies and tasks for creating a cooperative competitive fun class. Jigsaw tasks enable students to be motivated and activated and engaged in the process of learning writing skill.

Jigsaw tasks can help material developers design and incorporate more motivating and challenging exercises, activities, tasks, and materials which can encourage students to participate more effectively and eagerly in English classes.

1. The results of this study are useful for language testing. Instead of the threatening and unpleasant testing, teachers can evaluate students in a fun cooperative-competitive class during the term.
2. These findings lead us to believe that the participants had the abilities to correct their misinterpretation or errors in group work. In the JigsawII method, the role of a teacher should be the backstage helper who believed students could modify their mistakes after some discussion. When a teacher noticed a students' mistakes, it would be important for the teacher to hold the impulse of correcting those mistakes directly and providing the right answer right at the moment. After students completed the task, they might be able to detect the their own mistakes. It might be inappropriate to interrupt students' discussion, because students might be using metacognition to learn their mistakes, instead of being pointed out by the teacher. If the teacher directly corrected students' errors and provided help, it might deprive students of the opportunities to apply what they had learned to correct their mistakes.

Limitations of the Study

The findings are appropriate for Iranian EFL students who are currently studying English at different foreign language institutes, schools, and universities in Tehran. EFL learners of other nationalities were not included in this research. So caution should be considered in generalizing the current findings beyond this student population, or indeed to other wider populations. Also, the age of the students who took part in this study was 16 - 20, and the results may not be generalized to different ages. Also, In addition, the number of the students in this research did not exceed 40 because of the long and time taking process of teaching as well as the limitations impressed by the institute. Besides, the participants of this study were all females and sex factor was not taken into account.

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