



## **The Effect of Jigsaw Technique on the Learners' Reading Achievement: The Case of English as L2**

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### **Abstract**

Cooperative approach presents an example of an “innovative approach” (Ellis, 2003) that constitutes a paradigm shift in the area of language teaching. Instructors, principals and administrators continue to search for effective and reliable instructional strategies. The present study attempted to provide a comprehensive examination of the effects of the jigsaw teaching method on the success of Iranian EFL learners in terms of their reading comprehension achievement. To this end, 38 participants were exposed to the jigsaw instruction. In the experimental class the students were divided into groups which all had their own reading topic to study. After reading, each home group was split in such a manner that new groups had a single member from each of the old home groups. After the new groups had been assembled, each student in the expert group was responsible for integrating the knowledge of his/her topic into the understanding of the new group he/she was in. After gathering the required data, the results of a paired-samples T-test showed that the students' post-test reading scores improved significantly ( $P= 0.000$ ) when compared with their pre-test scores. Implications for teachers and materials developers are suggested.

**Key words:** cooperative teaching, jigsaw, reading comprehension.



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## Introduction

Bayraktar (2011) defined Cooperative Language Teaching in the following way:

It can be defined as a technique which helps students in and out of the class. This method fosters academic achievement and also gives self-esteem to pupils by creating small working groups, in which students help each other, improve their communication, problem solving and critical thinking skills... Students help each other to enhance their academic success and practice their skills as a result...in cooperative group work the Instructor determines the goals of the lesson, prepares the appropriate materials, explains the structure of cooperative goals, organizes student groups, reinforces students in necessary situations, and awards a prize to groups and active group members at the end of the activity. (p. 63)

This definition provided by Bayraktar clearly shows the main characteristics of the cooperative language learning approach. In another explanation, Larsen-Freeman (2000) argues that cooperative learning means that learners learn from each other in the groups. She highlights the issue that the way that learners and teachers work in the group makes an activity cooperative not merely the group configuration. She continues "in cooperative learning, teachers teach students collaborative or social skills so that they can work together more effectively" (p. 164).

Cooperative learning techniques, as opposed to conventional strategies, provide learners with opportunities to take more active roles in their own learning. Cooperative learning activities lead to peer interaction which itself promotes the development of language and the learning of concepts and content. This strategy is preferred to more solitary-oriented reading techniques. Jigsaw as one of the main task types advocated by CL proponents is an effective means of reaching satisfying conclusions with reading. Abd El Sami Ali (2001) conducted to find out the



effect of using the Jigsaw Reading technique on the EFL prospective teachers' reading anxiety and comprehension. The findings of the study showed that:

Students, through working together on reading texts, getting feedback from each other, exchanging experiences throughout the texts, as Epstein (1991) asserted, had a wide variety of learning opportunities in a relaxed atmosphere optimum for tension relieving. They also made use of other skills in addition to reading such as note-taking, note-making and sharing responsibilities with each other. (p. 14)

In the present study, too, the effects of the jigsaw strategy on the students' reading comprehension achievement were investigated.

### **Literature Review**

Jigsaw is a kind of cooperative learning task that requires learners to communicate with each other in order to fill in missing information and to integrate it with other information. Sahin (2010) argues that "Jigsaw technique allows students to actively participate in learning process. By being constantly subjected to this method, students should feel more comfortable about their roles" (p. 778).

Platt and Brooks (2002) regarded the requester-supplier relationship in the jigsaw task as an element making it a two-way task. Therefore, participants need to interact with each other to complete the task successfully. They assert that "the goal orientation in a jigsaw task is convergent and there is one possible outcome" (p. 376).

### **Cooperative Learning and the Reading Skill**

Reading is considered as an active process where the readers utilize their cognitive and mental capacities to figure out the internal meaning of the text. It is an interaction between the reader and the writer who has tried to convey a message to its readers. Therefore, in this process, the



readers should be provided with instructional opportunities that allow them to successfully derive the meaning intended by the writer. Following is a brief summary of the effect of cooperative teaching and jigsaw technique on the students' reading achievement.

Khorshidi (1999) examined the possible relationship between the cooperative method or the teacher-fronted method and the reading comprehension achievement of students. The study was also an attempt to compare the effectiveness of homogeneous and heterogeneous groups with regard to their reading comprehension performance. Heterogeneity and homogeneity were considered according to the criteria of field of study. Four different fields of study were included in the study as heterogeneous students. Results signified a statistically significant difference among the experimental groups and the control group. Specifically, the heterogeneous group outperformed the homogeneous group and both performed better than the control group.

Caposey (2003) selected the cooperative teaching method as a remedial method for compensating the problems that elementary and middle school learners had with vocabulary and reading skill. Students were unable to transfer the reading skill to content areas which were considered to stem from their lack of vocabulary knowledge. Treatment of ten weeks turned out to be successful in making the classroom atmosphere cooperative and in improving the students' reading skill.

Harjono and Wachyuni (2011) conducted a study in which there were two experimental groups and a control group compared to examine the efficiency of each with regard to the reading achievement of the participants. One experimental group received cooperative methods with workshops and the other received individualistic instruction with the workshops. The control group received individualistic instruction only. There were no differences found between the experimental and control groups.



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Durukan (2011) investigated Effects of cooperative integrated reading and composition (CIRC) technique and the traditional reading and writing teaching methods on reading-writing skills of students. The CIRC method was based on the principles of cooperative teaching and used small groups to integrate the reading and writing skills. However, the traditional approach was based on the conventional techniques which focused on the individualistic ways of teaching reading and writing skills. Having compared these two techniques with each other, Durukan concluded that the students' reading and writing skills were enhanced by means of the CIRC technique.

Nassar (2012) investigated the use of Student Team Achievement Division method as one type of cooperative method as opposed to the traditional method with regard to the reading comprehension performance and the motivation of students. The experimental group was exposed to STAD where they were divided into heterogeneous groups of four or five of different levels, averages, and of diverse background. Each week, new material was presented. Team members then worked together on worksheets designed to help students to scan, skim and expand the material presented in the reading text. Afterwards, answers of the worksheets were given to students, making clear that their task was to learn the concepts not simply fill out the worksheets. Students were instructed that until all team members understand the reading text their task was not complete. Following this, students took individual quizzes on the assigned material; however, they were not allowed to help one another on these quizzes. The teacher corrected the quizzes and calculated the individual scores. The amount each student contributed to the team score was related to a comparison between the student's prior average and the present score. Individuals were rewarded for their improvement and groups were rewarded for their total scores. In contrast to the STAD method employed by Nassar, the traditional method was based on a teacher-fronted grammar translation method where there were minimal or no interaction or group work chances. The results of the study showed clear advantages for the use of STAD method compared with the traditional method.



### **Jigsaw and the Reading Skill**

Sami Ali (2001) looked at the effect of using the jigsaw reading technique on the EFL pre-service teachers' reading anxiety and comprehension. The experimental group was instructed to read reading passages using the Jigsaw Reading technique while the control group read the same passages individually. Participants' comprehension was checked via a TOEFL test and their anxiety was evaluated using a questionnaire designed by the author. Results showed that the lower anxiety among the experimental group participants led to their better performance in the comprehension of the reading passages.

Badawi (2008) attempted to investigate the improvements in learners' reading achievement and motivation as a result of the employment of jigsaw technique in contrast to the holistic approach. To this end, 44 participants took part in the study and the treatment lasted for 8 weeks. The results of treatment showed that although there were no differences between the experimental and control groups with regard to the vocabulary acquisition and reading achievement, there were significant effects for the students' affective aspects such as self-concept, their value, and motivation.

The present study was an attempt to investigate the effect of the jigsaw instruction type on Iranian EFL learners' reading achievement. The details of the methodology are reported below.

### **Research Question**

The following research question was addressed in the present study:

1. Does Jigsaw technique have any effect on students' reading achievement ability?

### **Method**

#### **Participants**



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One intact group participated in this study which consisted of 38 Guilan university students. The experimental group participants included 38 freshman and sophomore intermediate level male (N=17) and female students (N=21). The mean age of these students, too, was 18.5 and their majors in the university were engineering, management and biology. All the students whose scores were taken into account were at the intermediate level of proficiency according to the results of the TOEFL test administered prior to the study. Other students whose level of proficiency was lower were not considered in the study. All participants were native Persian-speaking learners of English as a foreign language who have never lived or travelled to an English-speaking country. However, almost all of the students took English classes in language centers before the study. The students received pre-test and post-test. Jigsaw technique was used with experimental group participants where there was an emphasis on the cooperative learning of the language and specially the reading comprehension.

### **Instrumentations**

For both the proficiency and reading achievement purposes the TOEFL test was administered to the participants. This test was taken from the TOEFL Preparation Kit (2003). The reading comprehension questions required the learners to provide answers to the questions related to the text. There were a variety of questions including main idea questions, directly answered detailed questions, and implied detailed questions. It should be mentioned that only the reading section of the TOEFL test was used and the listening and grammar sections were excluded. Also, the textbook that was used in the classroom was the "Reading through Interaction" book (Mirhassani & Farhady, 1941). This book was considered to be an appropriate book for learners of intermediate level of proficiency. It consists of general-content reading passages that are of high interest for students of different majors and includes useful reading strategies and techniques, vocabularies, grammar, and writing exercises. In sum, the book encompasses all the four language skill which is quite in line with the assumption of the cooperative language learning, specially the jigsaw method used in the study.





### **Procedure**

The experimental group participants attended the general English classes 2 days a week each session lasting about one hour and thirty minutes. Participants were pre-tested (TOEFL test) prior to the treatment to ascertain that the students were homogeneous. After the homogenization process, cooperative learning activities were practiced with the participants during 10 sessions of the semester. Each class time was organized in the following way. First ten minutes were spent on greeting and checking the presence of students in the class. Later, the teacher introduced the students to the topic of the reading passage and asked some pre-reading questions as a way of activating their background knowledge or providing them with the sufficient knowledge. The implementation of the jigsaw technique to the experimental group went through the following steps based on the guidelines identified by Coelho (as cited in Richards & Rodgers, 2001):

1. Each unit was divided into four independent subunits and each group member received a different subunit. Each member of the home group read the title of the subunit assigned to her to other members so that all the group members became familiar with the sequence of the material.
2. Students regrouped in topic groups (expert groups) composed of people with the same piece to master the material and prepare to teach it. In the present study, eight jigsaw groups of five were formed from the ten home groups.
3. Students returned to home groups (jigsaw groups) to share their information with each other. In the present study, ten home groups of four students were formed.
4. Students synthesized the information through discussion.
5. Each student produced an assignment of part of a group project, or took a test, to demonstrate synthesis of all the information presented by all group members. Thus, the instructor could evaluate the understanding of the entire unit through the students' presentation.

The above steps were carefully followed in the experimental group which took 40 minutes of class time.





As the results of paired-samples T-test showed, the difference between the pre-test and post-test conditions was statistically significant ( $p < 0.05$ ), with the experimental group participants' scoring higher on the post-test condition ( $M = 30.34$ ) compared to the pre-test ( $M = 26.78$ ) condition.

### **Discussion**

The present study was an attempt to investigate the efficiency of jigsaw method of teaching with Iranian intermediate learners of English. Considering the fact that English is a foreign language in Iran which serves no official role in the community, learners should be provided with more appropriate methods of teaching so that they can compensate for the lack of exposure to language outside of the class. It is clear that Iranian EFL learners have been thoroughly taught about the structures and the grammatical rules of the language with little or no focus on the use of the language in communicatively appropriate contexts. It is obvious that grammatical competence is a part of the larger communicative competence which itself has other significant components such as the sociocultural and pragmatic competence. Therefore, in order to have communicatively fluent learners of the target language, teachers should provide them with more recent methods of instruction that can reflect the outside chances of interaction. One such method is the jigsaw method of teaching. In the jigsaw approach related to the reading comprehension, learners are firstly given the material and are required to master them first in the expert groups, and then go to the home groups to explain and teach the materials to the peers. All of these activities foster their development of communicative competence.

The results of the quantitative analyses showed that the jigsaw as an instructional method has resulted in better results in the posttest than in pretest with regard to the students' reading achievement. This finding is in line with the findings of other scholars in the field (e.g., Khorshidi, 1999; Sami Ali, 2001; Caposey, 2003; Badawi, 2008; Jalilifar, 2010; Rahavard, 2010;



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Durukan, 2011; Harjono&Wachyunni, 2011; Nassar, 2012; Van Dat and Ramon, 2012). All of the above scholars have found that the cooperative teaching methods in relation to the reading achievement of the learners resulted in better results after the treatment.

The findings, therefore, pinpoint implications that are significant for teachers and materials developers. The jigsaw strategy encourages students to become engaged in their learning. It motivates students to learn a lot of material quickly and inspires them to share information with peers. The technique minimizes listening time, and makes students responsible for their own learning. Given that each group needs its members to perform well in order for the whole group to succeed, this technique maximizes interaction and establishes an atmosphere of cooperation and respect for other students. Taking these into consideration, teachers need to let the students think through and discover the effective ways of teaching the portion of the task content to the peers. Then, an important task of the teacher in a jigsaw classroom is to well prepare the students for the peer teaching component. For instance, teachers can formalize the preparation so that they avoid assigning a vague task. Teachers should encourage a warm classroom environment in which students feel more comfortable speaking up in the small groups found in the jigsaw classrooms. Requiring students to prepare something in writing, even if the team preparation happens in class, can be very helpful both for the students and for the teacher. A second matter is that teachers should ascertain that the students are actually prepared. When the teacher encourages the writing of something during the preparation time, she can move around and read what they have written while working. Or the teacher can ask each group to summarize their thoughts so as to make sure that they will not deviate from the main issue. A last responsibility for the teacher with regard to the students' teaching part is that she can guide the students in how to prepare for peer teaching. Teachers can have students fill out the teaching preparation sheets in teams at the start of class to allow teams to talk about how to teach the topic well, give team members a chance to clear up difficulties, and give themselves some time to circulate and check on individual preparation before dividing the class into mixed groups. Teachers need to be aware of the fact that the jigsaw technique is especially useful in any class size at any student level. The



groups large or small should consist of heterogeneous students so that they learn from each other's experiences.

The findings also have implications for syllabus designers and materials developers. English is the language of international communication and it is the foreign language that most students in the schools and universities study. It is believed that students should be well equipped with an appropriate education foundation and training including the ability to communicate in English. This issue becomes more significant considering that the role of contextual factors in the future development of English language as an international language will become more pronounced. Different contexts represent different realizations of the role of English in the society and the materials should be developed in such a way as to better serve the needs of students. With regard to the fact that materials especially textbooks are the only language sources that Iranian foreign language learners can have access to, textbooks gain much more significance. Textbook as one type of vital resources in many contexts play an important role in the process of evaluation. After all, textbooks are de facto syllabuses and, apart from the teacher, the most important aid in the process of acquiring language. They may also be the only source of information about the curriculum for the teacher; the only resource available for learners learning a language in foreign language contexts. Textbooks can incorporate a variety of puzzles that encourage the cooperative learning of the language. Puzzles can be completed cooperatively and so are great for enhancing social skills. Learners have to share pieces, ask for items and discuss the puzzle, consequently sharing, learning and communicating.

Materials developers can also include a number of problem solving and reasoning activities in the classroom which require critical thinking and cognitive skills on the part of learners. Problem solving tasks encourage learners to plan for the activity, share the information, solve the problems encountered by the group members, and achieve intersubjectivity.

## **Conclusion**



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The present study aimed to compare the effectiveness of using a traditional method of instruction and the jigsaw method of teaching as a kind of cooperative teaching. To this end, an experimental group was exposed to the effects of the jigsaw instruction type and the quantitative analyses of the data gathered after the treatment showed positive effects associated with the use of cooperative teaching method, namely the jigsaw method. Results of the present study are illuminating in the field because they encourage the teachers to adopt more interactive, group-oriented activities with their students. As it was mentioned above, teachers can use the cooperatively oriented methods with learners of all ages and at all levels of proficiency.

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