

The Effect of Jigsaw Technique on Iranian Intermediate Learners' Reading Anxiety

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Abstract

Student anxiety is considered as an impediment in learning development and in particular language acquisition. Anxious students generally refuse to take part in group and pair-work activities. Accordingly, their passive behavior is a shortcoming to pedagogical cooperation and development. The present study investigated the effect of Jigsaw Technique on reading anxiety of English as a Foreign Language (EFL) intermediate Iranian learners. To this end, among 157 participants 60 intermediate learners were chosen randomly based on the Oxford Quick Placement Test (OQPT) and were instructed by the employment of Jigsaw Technique. The results of the EFL Reading Anxiety Inventory (EFLRAI) questionnaire indicated that the learners' reading anxiety considerably decreased after the treatment. Moreover, the results revealed that the employment of Jigsaw Technique were more effective than before the treatment. The findings of the study proved the usefulness of Jigsaw Technique in promoting learners' cooperative learning, their self-confidence, as well as reducing their anxiety and creating a stress-free environment. The findings of the study have great contribution in creating pedagogical materials for learners as they can facilitate instruction and maximize comprehension accordingly.

1. Introduction

Reading activity is occasionally anxiety provoking for many of the foreign or second language students (Brantmeier, 2005; Çetinkaya, 2011; Huang, 2001; Wu, 2011; Zhao, 2009). Factors such as situation, teaching methods, students' tasks and views about language learning, and their interaction with other students, influence the second language students' performance in reading as affected by anxiety as a psychological trait (Brown, 2000; Ellis, 1994; Larsen-Freeman & Long, 1991; Oxford, 1989; Wharton, 2000). According to Mohammadpur and Ghafournia (2015), potential anxiety of foreign language can influence reading comprehension development, as well as reading processing in a number of ways, interfering with the reader's cognitive structure and strategy use. Thus, reading anxiety may hinder comprehension and the related features associated with this skill. Anxiety is harmful when it leads to stress and it may even lead to physiologic problems while reading a text. Moreover, a considerable number of EFL learners have difficulty in participating and sharing their ideas and knowledge with other students (Sabbah, 2016). Anxious students generally refuse to participate in group and pair-work activities. Accordingly, their passive behavior is a drawback to pedagogical cooperation and advancement. They might be unable to confront with English texts and feel anxious and uneasy while going through reading sections. An EFL teacher has to recognize what sorts of reading texts special group of students like most, meanwhile he should identify their learning styles, as well as efficient teaching techniques for getting them interested in reading (Dwiniasih & Nugraha, 2019). In the same vein, this study investigates the effects of a particular activity, i.e. Jigsaw Technique on EFL learners' reading anxiety. In other words, Jigsaw Technique, commonly recognized as the puzzle technique, is the pedagogical technique enquired by this study, at which written texts are divided into several pieces and are distributed among the participants in a single reading task or activity. The primary assumption is that such a coordinative technique, because of its game format, can help reduce or control reading anxiety. Lai (2010) elaborates that some individuals

continually consider doing jigsaw reading as playing around with a puzzle. Moreover, Gallardo, Guerrero, Collazos, Pino, Ochoa (2003) maintain that jigsaw can seriously contribute to creative learning, as it is planned on a face-to-face basis leading to group interaction. Accordingly, taking part in cooperative activities such as Jigsaw Technique, provides the chance for students to increase self-confidence and get acquainted with different personality types among the other students. Occasionally, students are reluctant to have group or pair-work activities with other individuals. Studies have shown that numerous factors contribute to students' reluctance for cooperative activities which are out of the scope of this study, nevertheless, whatever the cause might be, there is no doubt that for developing students' reading comprehension, reducing reading anxiety is a point of very high significance. Consequently, the importance of the present study includes: To investigate the effectiveness of Jigsaw Reading Technique (JRT) on intermediate Iranian students' reading anxiety and to help students raise comprehension and reduce reading anxiety.

2. Background Of The Study

Anxiety

One of the affective factors which play an essential role in learning a second or foreign language is anxiety (Al-Shboul, Ahmad, Nordin & Rahman, 2013a). The American Psychological Association (APA) defines anxiety as a sensation considered by concerned thoughts, feelings of pressure and physical changes like increased blood pressure.

Foreign Language Anxiety (FLA)

Based on Horwitz, Horwitz, and Cope (1986), foreign language anxiety makes use of a separate self-perception, beliefs, feelings, and behaviors related to classroom language learning to arise from the distinctiveness of language-learning process. The majority of the learners has expressed being nervous in learning the English language (Al-Shboul, Ahmad, Nordin & Rahman, 2013b). This language anxiety disturbs their learning process and their performance in general (Al-Shboul, et al., 2013a). It is a problem that obstructs the learners from learning or acquiring foreign language (Horwitz, et al., 1986). Therefore, foreign language anxiety is an intricate concept that can significantly influence achievement in foreign language learning (Onwuegbuzie, Bailey, & Daley, 1999, as cited in Zoghi, 2012).

Foreign Language Reading Anxiety (FLRA)

Reading anxiety is anxiety that learners experience while they are reading in their new target language (Zhou, 2017). Saito, Horwitz, and Garza (1999) elaborate that it can be affected by unacquainted writings and script structures, or social material. Second language reading anxiety is a concept which cannot be separated from common foreign language anxiety. Nevertheless, language reading anxiety is similarly regarded as a different concept because of its particular characters (Saito, Horwitz, & Garza, 1999; Sellers, 2000; Zhao, 2009; Javanbakht, & Hadian, 2014).

Relative Concepts and Investigations of Reading Anxiety

Saito et al. (1999) declare that “foreign language reading anxiety is a distinct type of anxiety that is experienced by L2 learners as a result of actual problems in text processing rather than the reading problems stemming from anxiety reactions” (p. 215). Additionally, (as cited in Gença, 2016) prior studies exposed that reading anxiety was correlated to but distinguished from foreign language anxiety. Furthermore, according to Gença (2016), they propose that listening, speaking, reading and writing anxiety, also is related to, but can be distinguished from language anxiety. Commonly, reading anxiety might inhibit ordinary second language improvement as it restricts with the process of obtaining, remembering and using the recently well-educated reading tactics. Based on Saito et al. (1999), two central features that provoke foreign language reading anxiety are: unaccustomed writing system and unacquainted culture (Miyanaga, 2007, as cited in Al-Shboul et al., 2013b). In these circumstances, while learners read texts in a foreign language, they also try to make sense of unfamiliar scripts, writing system, and cultural things. Hence, it is unavoidable that they struggle with processing them, and they may get unsatisfied with reading which causes nervousness. Therefore, the anxiety produced by reading in a foreign language might sometimes lead to poor language achievement (Saito et al., 1999). Regarding this variable, Zhao (2009) examined the FL reading anxiety level of English-speaking students learning Chinese as a foreign language. She also explored the relationship between FL reading anxiety and FL reading performance, and the possible sources of FL reading anxiety. The results of this study can be summarized as first, students experienced a level of FL reading anxiety that was similar to the level of their FL anxiety. Second, the FL reading anxiety level was found to be related to only course level and experiences with China. Third, FL reading anxiety was negatively associated with FL reading performance among Elementary Level I and Intermediate Level students but not among Elementary Level II students. Fourth, the major sources of FL reading anxiety among these students of Chinese were unfamiliar scripts, unacquainted topics, and concern about comprehension. In the similar research, Jafarigohar and Behrooznia (2012) investigated the correlation between the concept of Foreign Language Reading Anxiety (FLRA) and reading comprehension skill among Iranian distance EFL students with age and gender serving as moderator variables. The results indicated that there was a significant negative relationship between FLRA and reading comprehension; moreover, no such relationship was found between foreign language reading anxiety and age; and finally, females suffered more from anxiety compared to males. Zoghi (2012) accounted for the development of a new measure entitled English as a Foreign Language Reading Anxiety Inventory (EFLRAI) that indicates levels of EFL reading anxiety among non-English major students. Likewise, Al-Shboul et al. (2013a) explored problems and aspects that contribute to reading anxiety faced by EFL students. The findings of the study revealed that there were two features of foreign language reading anxiety: personal factor and text feature. Under the concept of a personal aspect, there were two key sources of foreign language reading anxiety, 1) afraid of making errors and 2) concern about reading effects. In contrast, there were three key sources of foreign language reading anxiety under the concept of the text factor, 1) unknown vocabulary, 2) unacquainted topic, and 3) unfamiliar culture. Besides, Lu and Liu (2015) suggested the relationships between reading anxiety and reading performance, and the factors improving reading anxiety, covering both first language (L1)

and second language (L2). The results indicated that reading anxiety is negatively related to reading performance for both L1 and L2. Besides, the findings indicated that the frequency of reading in Chinese Academics and Chinese Newspaper significantly contributed to the decrease in English reading anxiety. Besides, Mohammadpur and Ghafournia (2015) elaborated on the effect of foreign language anxiety on reading comprehension achievement of Iranian EFL students. The outcomes presented significant differences among the participants in different reading ability levels. The students at the high and intermediate reading levels differed considerably from the students at a lower reading level in reading anxiety. Mainly, there is a negative correlation among the students' reading level and reading anxiety. Similarly, Ahmed Ismail (2015) scrutinized second language reading anxiety of secondary school students. Overall outcomes reveal significant dissimilarities among the levels of reading anxiety reported by students relative to their general area of study (viz., science or arts). All the recorded differences were in favor of students in the science track. Most of the sources of reading anxiety that were identified by the students were related to language proficiency, specific knowledge of vocabulary and grammatical rules. Furthermore, Lu and Liu (2015) discovered the interrelations between foreign language (FL) reading anxiety, FL reading strategy use and their cooperative effect on FL reading comprehension performance at the tertiary level in China. Results specified both Foreign Language Reading Anxiety Scale (FLRAS) and Foreign Language Reading Strategy Use Scale (FLRSUS) had important subcomponents also, more than half of the students commonly did not feel anxious when reading English, and were confident in and pleased with their English reading proficiency. Also, Kilinc and Yenen (2016) regulate students' outlooks on reading anxiety with regards to variables of gender and grade levels of the students and socioeconomic level of the schools. The results of the study point out that students sometimes had anxiety in reading comprehension and analysis sub-dimensions, whereas they hardly ever had anxiety in the sub-dimensions of planning reading process and factors supporting reading. With regards to the gender variable in the sub-dimension of factors supporting reading, there was no major difference, whereas there was a major difference in favor of males in the sub-dimensions of planning of reading process and reading comprehension and analysis.

Jigsaw Technique

As told by Wikipedia, the jigsaw technique is a process of establishing classroom activity that creates learners in need of each other to be successful. It arranges classes into groups and breaks tasks into parts that the group gathers to complete the (jigsaw) puzzle. Likewise, the jigsaw approach is applied to improve the skills and capability required to take part efficiently in group deeds. It focuses on listening, speaking, collaboration, reproduction, and problem-solving skills. According to Richards and Schmidt (2010)

In language teaching, jigsaw technique is a type of information gap activity, in which groups of learners have different information that is needed to put together the solution to a task. In jigsaw listening or reading activities, different groups in the class may process separate but related parts of a text, and then later combine their information to reconstruct the whole, through class discussion or group interaction (p.305).

History and Different types of the Jigsaw Technique

There are four types of jigsaw techniques includes Jigsaw I, Jigsaw II, Jigsaw III, and Jigsaw IV in the literature. The original Jigsaw which was the first jigsaw was established by Aronson and his associates in 1971. The original jigsaw classroom was proposed to encourage cooperation and interrelation among learners with different backgrounds (Aronson, 1971). Along with this technique student works in two different groups: main groups and jigsaw groups. Each student in the cooperative group has one chunk of the learning material and he or she is in charge of learning and understanding in addition to teaching this part of the rest of the group membership. On the other hand, before going back to their original collaborative group to teach, learners take the same part of the material from the complement group to study together with the given assignment (Fu, 2013). Then and there, Slavin proposed jigsaw II in 1978. Jigsaw II contained within the acquaintance of the whole learners with the complete task, accomplishment of the expert sheets for the home group and group assessment of each student. Besides, in jigsaw II, the struggle is considered to be rewarded with an upper average score of the group and students' pleasure and eagerness increased. Subsequently, jigsaw III established by Kagan in 1990. Most steps of jigsaw III are similar to jigsaw II. Afterward, Jigsaw IV was presented by Holliday (2002). It is the combination of the jigsaw II & jigsaw III to confirm learner learning. Teacher's introduction of the material, the expert group tests, before individual evaluation review practice and re-teaching of any material that was not sufficiently discovered in cooperative group work are contained in this form (Mengduo & Xiaoling, 2010).

Jigsaw Reading Technique (JRT)

Jigsaw reading is one of the modifications of the jigsaw technique. Jigsaw reading is similar to playing a jigsaw puzzle. Individually students in a group are given part of the story or text to read. Students have to read and understand everything by him/herself to report to other participants of the group. After each member has reported the dissimilar portions of the story or text the group together reorganizes the portions to improve the original story. Esnawy (2016) stated that jigsaw is used for reading and introducing research thesis writing, but it can be used with any reading passage in any teaching circumstance.

The Objective of Jigsaw Reading

The objective of jigsaw reading is to encourage the student's mind to consider innovatively and spontaneously. It also inspires collaboration among participants of the group to answer the solution. Students cannot have completed the task effectively if they did not cooperate (as cited in Marleni, 2016). To sum up, the objective of the jigsaw technique is to increase self-confidence, responsibility and cooperation such as teamwork or sharing ideas and information among the students.

Benefits of the JRT

Reese (2009) describes students in the jigsaw cooperative classroom as diverse individuals who display significant capacities to advantage from this cooperative structure. By the same token, based on the results of Perkins and Saris (2001), students have reported that the jigsaw CL technique extends their understanding of content, uses class time effectively, and provides diverse learning experiences. According to Aronson (2004), the jigsaw CL technique improves individual and group responsibility, as well as, encourages collaboration across groups. Similarly, in addition to developing teamwork skills and increasing the depth of knowledge, Mengduo and Xiaoling (2010) have determined that the jigsaw classroom also reduces learners' anxious feelings and encourages self-esteem and self-confidence. As specified by Parmadyani (2013), the jigsaw technique provides a natural system in which students can presenting individual accountability, leading communication, and using discussion skills across groups. In the same way, Astane and Berimani (2014) have added that one of the primary advantages of the jigsaw method is that it creates a kind of team atmosphere among the groups, which is more acceptable to peers. Respectively, Zahra (2014) has concluded four benefits of the jigsaw technique. First, it allows students to form various groups containing unlike races and cultures to accomplish specific academic goals. Second, it offers particularly cooperating learning involvements and activities. Third, it develops students' higher thinking skills of analysis, synthesis, and evaluation. Fourth, it provides students with chances to design their presentations and form certain questions that enhance motivation and help to complete the required tasks. Moreover, the key advantage of jigsaw reading is that it can master more reading in a shorter amount of time and allows students to consider particularly about a main chunk of the script. In the classroom, the jigsaw reading is very straightforward and a stress-free technique to be used. By way of cooperative learning, the jigsaw reading motion can be useful at any ability level through reading comprehension instruction.

Drawbacks of the JRT

Along with the advantages, the jigsaw approach has its restrictions. Through competition-based learning, peer teaching as cooperative learning is learner-driven, so it may be disadvantageous for both shy students and dominant students. Since many students are not accustomed to responsibility for their learning and constructing their associates, they may respond undesirably or become unsatisfied for the first time (as cited in Hamzah Alamri, 2013). Even though the jigsaw CL technique seems to be helpful, it has been found not be adequately effective for some students. According to Reese (2009), possible difficulties of the jigsaw method involving different levels of students in one group which may make it difficult for slower students and boring for high achievers. Similarly, Astane and Berimani (2014) have argued that some students suspected the rationality and adequacy of the facts received from their peers to response investigation questions. Moreover, some students felt unconfident with the teacher being just a facilitator or merely spending class time in observing and controlling group discussion (as cited in Hamzah Alamri, 2018).

Relative Concepts and investigations of the Cooperative Jigsaw Reading Learning (CJRL)

Clarke (1994) declared that jigsaw is one technique which makes the independence of group members possible, stimulates interaction and perceptive elaboration. Kagan (1994) said that a jigsaw is an effective approach to use when you want to increase student's mastery of a topic at a hand, improve their concept progress, develop targeted discussion between students, and raise the contribution of the group project and learning. By the same token, Suyanto (2012) states that students can be more accountable for the application of Jigsaw Technique in the teaching-learning process. Therefore, they take part in understanding a problem and answer it together in a group. It means that Jigsaw Technique may improve the students' reading comprehension significantly. Moreover, Göçer (2010) noted that students in a cooperative class never felt bored, maintained in-class communication and learned the lessons well. According to Mengduo and Xiaoling (2010)

The jigsaw classroom reduces learners' reluctance and anxiety to participate in the classroom activities while increasing self-esteem and self-confidence. It is an effective way to promote learner participation and enthusiasm as well as a useful technique for language learners to accomplish learning tasks in the classroom. Jigsaw learning makes it possible for learners to be introduced to material and yet bear a high level of personal responsibility. It helps develop teamwork and cooperative learning skills within all learners and depth of knowledge not possible if the learners learn all of the material on their own. Finally, since learners are supposed to report their findings to the home group in jigsaw learning, it quite often discloses a learner's understanding of a concept as well as revealing any misunderstandings (p.122).

Marhamah and Mulyadi (2013) established that the Jigsaw method provides a way to help learners become active in classroom activities and/or lessons. When learners are anxious or sometimes even afraid to contribute, they are going to miss information that is needed to fully understand the material. The jigsaw allows learners to work with one another and develop a sense of being needed. By involving in the activities, the learners focus on listening, speaking, cooperation, reflection, and problem-solving skills. As well, Saker (2015) states that "when learners are needed by their peers, they are more likely to do the work and contribute to the group, and when they do the work, they are less anxious to become involved in future activities" (p.40). Based on outlook above, we can conclude jigsaw is a model learning technique of cooperative learning, with learners, learn in small group involve four or six people, various inter-gender backgrounds, race, and skill, cooperative in positive interdependence and responsible to present the task for each member.

In this vein, sami Ali (2001) identified the effect of using the jigsaw reading technique on the EFL pre-service teachers' English language reading anxiety and comprehension. The participants were randomly allocated to either the experimental or control group. The experimental group was trained to read sixteen texts through the jigsaw reading technique. The control group read similar texts individually. The findings of the study revealed there was a significant difference between the experimental and control group. This indicates that the use of the jigsaw reading technique leads to lowering the foreign language reading anxiety of the treatment group subjects. Moreover, the results displayed that the participants of the treatment group outperformed those of the control group in reading comprehension; something which can be considered as a consequence of reading anxiety reduction. Likewise, Ghorbani Nejad and

Keshavarzi (2015) investigated the effect of cooperative learning on reading comprehension and reading anxiety of pre-university students. The results revealed that there is a significant difference between the mean scores of the experimental and control groups and it indicated that control group was more anxious in reading than experimental group.

The Current Study

In order to investigate if Jigsaw Technique influence degree of learners reading anxiety, the following research question was posed:

- Does Jigsaw Technique contribute to the reduction of reading anxiety?

3. Method

Participants

Nearly 157 EFL students constituted the population which contained both age groups (adults N = 29 and adolescents N = 31), as well as both genders (male and female). The adults' age range was 19–40, whereas the adolescents' was 13–18. They were studying English at Acer- English-café (Jahad-e-Daneshgahi) in Zanjan Province. Their proficiency level was ascertained through Oxford Quick Placement Test (OQPT, 2001). In order to select Intermediate English language learners and ensure their homogeneity, 157 students in both age groups and genders answered the Oxford Quick Placement Test (2001). For ease of administration and grouping, a reduced sample, comprising 60 intermediate students, was selected through convenience sampling to constitute the subjects of the study. In order to provide statistically accurate answer to the previously posed research question, participants were randomly divided into one group of intermediate learners.

Design

The present study followed one-group pretest posttest study in which a pre- and post-test was given before and after the instruction. The investigation involved an independent variable with one dependent variable. The independent variable is Jigsaw Technique and dependent variable is reading anxiety. The current study, accordingly, aimed to investigate the influence of applying Jigsaw Technique on reading anxiety of the foreign language learners of English.

Instruments

Two instruments were utilized to collect pertinent data with respect to the determined research variables: Oxford Quick Placement Test (OQPT, 2001), and EFL Reading Anxiety Inventory (EFLRAI) which administered by M. Zoghi (2012). According to the Oxford website, OQPT acts as a quick and reliable tool for enabling test takers to homogenize the participants of research projects on the basis of their L2 knowledge. Reliability and validity features of the questionnaire was also technically considered. Zoghi (2012) investigated the internal consistency, test-retest reliability, and construct validity indices of EFLRAI

and argued for its acceptable reliability and validity. Cronbach-alpha internal consistency estimate for EFLRAI, including 27 items was found to be 0.89.

Treatments and procedures

Overview: students took a reading anxiety questionnaire which was related to Jigsaw Technique before treatment. After the treatment, the reading anxiety questionnaire was administered once again to consider the probable effect of Jigsaw Technique.

- The Processes of Instruction by Jigsaw Technique

At the first step, the researcher focused on 60 intermediate students and divided them into small cooperative jigsaw groups (i.e., 3–6 persons in each group). The instructor asked the students to make circles with their chairs. Then, a reading text was assigned for the group. Afterwards, the pieces of reading texts were cut out into separate paragraphs and were distributed among the students so that each person had a different part of reading paragraph. The instructor asked each member of the cooperative jigsaw group to silently read the assigned text. The time allocated for this stage was 5–10 minutes. In the second step, the instructor created new small (2–3) persons “Expert” groups with the individuals who had read the same material. The students were given time to discuss what they had read and how they might treat this when they return to their cooperative groups. This time, the allocated time was 5–10 minutes. In the third step, the instructor recreated the original cooperative jigsaw groups. Then, she had each person explain the content of the reading text to the rest of the group. In other words, the students shared knowledge, ideas, and information in terms of pieces of the text which they had in their hands. In this part, each member of the “expert group” took responsibility and shared their information with the members of the other group, so that they could have access to the whole text, sentence by sentence, and were able to reorganize it. Each member of the group then cooperated with the rest of the group regarding the content and the subject matter. Each person in the group was also responsible to learn from the others inside the group. Five minutes was allocated to this activity. In the fourth and the last step, the instructor concluded with several key questions for students to discuss implications of the points with people either within the groups or with the entire class. A number of oral questions based on the reading text were asked to ensure that individuals had grasped the overall content. During this step, each person had all of the pieces of the whole text in his/her hand.

4. Results

The posed research question addressed the possible contribution of Jigsaw Technique to the reduction of students’ reading anxiety. The assumption of normality is met for the obtained data. Table 1 shows the statistics for the paired-samples in the t-test. Time 1 refers to the group of scores obtained before the implementation of the treatment in the class. However, time 2 includes the scores collected when the test was administered after the treatment has been introduced to the class. As a result, since the scores of the students in the G2 on their reading anxiety were compared on two different occasions (i.e., before and after the

implementation of Jigsaw Technique as the treatment), paired-samples t-test was adopted as an appropriate analytical technique to compare the mean scores. A paired-samples t-test was conducted to evaluate the impact of the intervention (i.e., Jigsaw Technique) on the students' scores of EFL reading anxiety.

Table 1

Descriptive Statistics of Students Reading Anxiety Before and After Treatment

	Mean	N	Std. Deviation	Std. Error Mean
Reading Anxiety Time 1	67.25	60	14.63	1.43403
Reading Anxiety Time 2	49.82	60	12.17	1.24

Table 1 shows the descriptive statistics for the paired-samples in the t-test. Time 1 refers to the group of scores obtained before the implementation of the treatment in the class. However, time 2 includes the scores collected when the test was administered after the treatment has been introduced to the class. Table 2 (see below) reveals the results of paired-samples t-test for the test of reading anxiety prior to and after the treatment.

Table 2

Results for Paired-sample T-test for the Reading Anxiety Before and After Treatment

		Paired Differences				t	df	Sig. (2-tailed)	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower				Upper
Pair 1	RATIME1 RATIME2	18.26	11.31	1.37	14.04	20.42	10.46	59	.000

As indicated in the table, there is a statistically significant decrease in reading anxiety scores from Time 1 (M= 67.25, SD=14.63) to Time 2 [(M= 49.82, SD= 12.17), t (59)

=10.46, $p < .05$]. The eta squared statistic (0.65) indicated a large effect size according to Cohen's Table of Effect Size

5. Discussion

The current study aimed to examine if Jigsaw Technique would decrease learners' reading anxiety or not. The results indicated that in general this technique examined in this study were effective for reducing learners' reading anxiety. The research question posed in the current study deals with whether the Jigsaw Technique contribute to the reduction of reading anxiety or not. Statistical analysis indicated that students' reading anxiety scores were high in time one (before treatment) as compared to time two (after treatment). In other words, students' reading anxiety level was considerably different before and after the implementation of Jigsaw Technique. It can be concluded that Jigsaw Technique was an advantage to the students' feeling and emotion. This can be supported by Mohammadpur and Ghafournia (2015). They elaborated the effect of foreign language anxiety on reading comprehension achievement of Iranian EFL learners. They found significant difference among the participants. Also, the findings of this study is in line with Ghorbani Nejad and Keshavarzi (2015) who investigated the effect of cooperative learning on reading comprehension and reading anxiety of pre-university students. The results of their study revealed that there is a significant difference between the mean scores of the experimental and control groups and it indicated that control group was more anxious in reading than experimental group.

The present research indicates that in teaching reading comprehension team work learning is more beneficial method than traditional teaching in fostering the reading comprehension attainment of students. Consequently, teachers are capable to improve reading comprehension understanding, cooperative abilities, and facilities of students consistent with the academic necessities. Hence, it is vital to instructors to recognize in what way to contribute students in learning procedure, in what way and when to allocate learning purposes to students and how to observe each student inside of each group (Ghorbani Nejad & Keshavarzi, 2015). Thus, collaborative leaning in teaching curriculums and programs can reduce students' concern. The outcomes of the study likewise are in line with the findings of Johnson and Johnson (1990) who consider that a reassuring atmosphere can progress group companions learning if they feel definitely mutually dependent with each other. The results of this study revealed that the procedure of jigsaw technique in reading comprehension curricula can result in reduction of students' reading anxiety and advanced achievement in reading comprehension. It can be claimed that group work method which was used in this study, provide a stress-free environment and it can be a chance to the introvert and anxious students to inspire, know one another in conversation, creating and working in a group rather than in an entire class environment. Most of the students enthusiastically participate in cooperative learning activities. Besides, their view was that whenever work with one another they attain more. Since students acquired high score after treatment (time 2), their outlook can become optimistic through jigsaw learning. As well, data inquiry exhibited that students' self-confidence increased more through jigsaw learning. Also, analysis of date demonstrated that students can increase high interactions between students. Similarly, jigsaw learning increase class involvement. The result of the study also indicated that group work make the learning stress-free. Likewise, students have a chance to work with

unfamiliar students and have different character types. Moreover, through jigsaw technique students can enjoy the material more when they work and share their achievement with one another. Similarly, students' task and duty prearranged in a group. It can be observed that a number of students intensely come to an agreement with via more group accomplishments and tasks.

The results of the study presented that there is a significant variance among the mean scores before the treatment (time 1) and after the treatment (time 2), and it was detected that jigsaw learning technique used in time 2 had a greater outcome on reading comprehension abilities and decreasing reading anxiety in comparison to time 1. It appears that jigsaw learning not only improves reading comprehension abilities of EFL learners but also reduce students' anxious feeling. The result of the current study is in line with the outcomes of several other studies accomplished through reading comprehension and cooperative jigsaw learning (Brantmeier, 2005; Çetinkaya, 2011; Dwiniasih & Nugraha, 2019; Fu, 2013; Ghorbani Nejad & Keshavarzi, 2015; Göçer, 2010; Jafarigohar & Behrooznia, 2012; Lai, 2010; Lu & Liu, 2015; Marleni, 2016; Mohammadpur & Ghafournia, 2015; Mengduo & Xiaoling, 2010; Parmadyani, 2013; Sabbah, 2016; Sami Ali, 2001; Sellers, 2000; Wu, 2011; Zhao, 2009; Zhou, 2017; Zoghi, 2012). Along with this study, cooperative jigsaw learning had an influence on students' reading anxiety. The mean scores achieved from the reading anxiety scale surveys were equated by using a paired samples t-test. The consequences disclosed dissimilarity between groups and it indicated that the first group (before treatment, time 1) was more anxious in reading than group 2 (after treatment, time 2). Thus far, no similar study finding (Jigsaw Technique and Reading Anxiety) was spotted in the related literature, thus these outcomes seem to be a pioneering research consequence which needs further studies to be firmly proven. In this study, the mean of score for students in the cooperative learning group revealed a greatly agreement with this learning method. As stated by Mohammadpur and Ghafournia (2015) and as literature revealed, thus far, the relationship between reading anxiety, students' outlooks and students' success in reading comprehension after using jigsaw cooperative technique had not been examined. However, as cited in Mohammadpur and Ghafournia (2015), there are some studies which found significant correlation among supportive learning and students' success in reading comprehension (Agustini, Marhaeni & Suarnajaya, 2013; Alodwan, 2012; Bölükbaş, Keskin, & Polat, 2011; Ghaith, 2003; Kazemi, 2012; Khan, 2008; Pan & Wu, 2013; Stevens, 2003), and some others found significant correlation among students' outlooks and cooperative learning and students' attainment in reading comprehension (Agustini, Marhaeni & Suarnajaya, 2013). Based on Suwantarathip and Wichadee (2010), there is also a study which revealed the significant correlation between anxiety and cooperative learning.

6. Conclusions, Implications, And Suggestions For Further Research

Previous studies of cooperative learning provided evidence that activities that require learners to collaborate with one another in reading a text would enhance self-confidence and reduce reading anxiety (e.g., Hulstijn & Laufer, 2001; Keating, 2008; Webb, 2005). The results of the current study indicate that instructing learners to use group work activities following a reading task – namely, summarizing, predicting, and guided questioning/answering – would reduce the degree of students' reading anxiety. The posed research question dealt with the possible influence of Jigsaw Technique on reducing learners'

reading anxiety. To this end, EFL Reading Anxiety Inventory (EFLRAI) was administered before and after the treatment for the experimental group. This Inventory was utilized to determine whether there is any reduction of students' reading anxiety before and after the treatment. The results were indicative of a statistically significant reduction in reading anxiety scores ($M_1 = 67.25$), ($M_2 = 49.82$). Hence, reading anxiety was diminished after implementation of Jigsaw Technique.

Commonly, teachers and students consider reading comprehension and reading anxiety as the most challenging issues in the classrooms and students are less self-confident and more anxious in such skills. Therefore, a number of implications for EFL teachers and students are presented below.

Based on the outcomes of this study, some suggestions are mentioned here to help teachers recognize the problematic issues among their students in the classroom. Teachers can consider these recommendations in order to overcome barriers and try to create dynamic and attentive classes. Firstly, since learners' interaction and participation is a crucial aspect in cooperative learning, teacher's duty is to motivate and encourage students to do group work. In this vein, students become capable of sharing information with other partners and get a chance to work with other personalities and identities inside the group. Secondly, teachers should raise students' self-confidence through making them responsible for the given tasks and accomplishments. Thirdly, as the instructor, teachers should be capable of increasing the students' understanding of the whole theme, and reducing their anxiety and creating a stress-free environment while working on a task. This helps the students feel confident and relaxed and to achieve success in their tasks. Fourth and last, since teachers' main responsibility is to execute specific and purposeful tasks and materials for their students, the instructors can benefit from cooperative models and perceive the practicality of this technique for reaching pedagogical objectives. Similarly, some implications for learners are mentioned here based on the results of this study. Firstly, students can benefit from various kinds of cooperative techniques and develop their social capabilities, and recognize the importance and advantages of group work. Secondly, through this technique student may share ideas and work with different individuals in their respective groups. Thirdly, such team works make students responsible for the tasks both in the group and outside. Fourthly and finally, students become capable of controlling their anxiety and act more confidently during the tasks.

Some recommendations are mentioned for further research based on the findings of this research in the following:

- The present study's purpose was not genders and it was a mixture of both genders. Next studies can focus and conduct distinct genders either females or males with intermediate proficiency.
- This study only holds on intermediate proficiency. Future studies can be conducted with other language proficiency, such as advance, upper-intermediate or elementary accompanied with other types of cooperative learning techniques such as Inside-Outside Circle, Learning Together, Complex Instruction, Group Investigation, Constructive Controversy, Teams-Games-Tournaments, etc.

- Future studies would administer Jigsaw Technique with other language skills, such as, jigsaw listening, jigsaw writing in terms of different or same age and proficiency.
- Future researchers would analyze and conduct jigsaw reading with other language components such as grammar, vocabulary, pronunciation, etc.

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Declarations

Competing interests: The authors declare no competing interests.

Ethics: We (Houman Bijani and Bahareh Hashempour) the authors of the article entitled "The Effect of Jigsaw Technique on Iranian Intermediate Learners' Reading Anxiety" confirm that the study was reviewed and approved by an ethics board at the department of English Language Teaching at Zanjan Azad University. This approval was granted by the ethics committee department of English Language Teaching at Zanjan Azad University on March 19, 2021 with the approval number of 34185BIJ.