



THE EFFECT OF JIGSAW I INSTRUCTION TECHNIQUE ON VERBAL AND WRITING SKILLS OF STUDENTS

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Abstract:

The objective of the present study is to investigate the effect of Jigsaw I instruction technique on verbal and writing skills of students. In the study, pretest posttest quasi-experimental design was used. Study groups of the study included 50 students attending the 7th grade in a state middle school in Van province İpekyolu Township in Turkey during 2015 – 2016 academic year. The test group was assigned with random selection and included 24 students, while 26 students were assigned to the control group. Empirical applications demonstrated that Jigsaw I technique was statistically more successful in improving Turkish verbal skills of the students when compared to the activities conducted based on Turkish Curriculum ($p: .001 < 0.05$; $t: 3.427$). Similarly, Jigsaw I technique was statistically more successful in improving Turkish writing skills of the students when compared to the activities conducted based on Turkish Curriculum ($p: .000 < 0.05$; $t: 4.790$).

Keywords: Jigsaw I, verbal skills, writing skills

1. Introduction

One of the instructional methods commonly used in every stage from primary school to college today is collaborative learning. There are several factors behind the widespread use of collaborative learning method. The most important reason is the fact that it improves the communication skills of the individual in a real learning environment and prepares the individual for social life. Thus, since the students are responsible for the learning of their peers in collaborative learning process, use effective communication

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skills, which in turn contribute to the development of their communication skills (Bershon, 1992). Several techniques available in collaborative learning in each learning level is no doubt another reason for the widespread use of collaborative learning. Furthermore, the facts that collaborative learning techniques contain different learner-oriented applications, application stages were not predetermined with strict rules and its adaptability to each course and subject, are other factors that enable the use of this method intensively in education – instruction activities.

Şahin (2011: 8) defined collaborative learning as *“an instruction method that reflects the modern educational understanding in the classes, further beyond the traditional instructional processes, demonstrating the efficiency of achievement via teamwork.”* Field researchers that studied collaborative learning in Turkey and abroad defined collaborative learning method as *“a learning approach where students assist the learning of one another in an academic subject in order to reach a common goal by forming small heterogeneous groups in classrooms or other environments and where their self-confidence, communication, problem solving and critical thinking skills are improved, and they participate in the education – instruction process actively”* (Bolling, 1994; Bowen, 2000; Eilks, 2005; Gardener and Korth, 1996; Prince, 2004; Gillies, 2006; Levine, 2001; Lin, 2006; Prichard, Bizo and Stratford, 2006; Hennessy and Evans, 2006; Ballantine and Larres, 2007; Hanze and Berger, 2007; Ding *et al.*, 2007; Şahin, 2010a cited by Şahin, 2011: 8).

Collaborative learning is an instructional method that utilizes the basic active learning methods of verbal, listening, writing and reflection, proven to have positive effects on cognitive and affective learning products, highlights collaborative skills, was based on social interaction, could fulfil students’ needs, enables them to utilize their intellectual skills and make decisions about self-learning (Şahin, 2011: 9). Students could discuss on a subject matter, interpret and interact socially and debate on that subject matter in collaborative learning (Maden, 2011: 902). Collaborative learning includes communicative and interactive student-centered activities and enables the students to participate actively in the class (Sevim and Varışoğlu, 2014: 231). There are two important and determinant elements specific to the interaction of individual members of the society. There are the source and the recipient. Source is the individual who speaks/writes and sends the message. Recipient is the one who reads or listens. Reader/listener receives the message sent by the source, gives a meaning to the message and provides a feedback to the source.

Accurate comprehension of the message that the source delivered by the recipient depends on the successful use of written and verbal means of language by the source. Thus, active verbal and writing skills of individuals that communicate with each other in the society are basic requirement for a healthy communication. Because,

humankind could only express itself only through two basic means of expression; verbal and written expression. Use of body language or other symbols is only an auxiliary to these two main ways of expression (Maden, 2011: 901).

An effective language education, especially in the learning fields of speech and writing, is a must for every individual who seeks acceptance in society. In fact, language is the main tool that ensures the adaptation of the individual in society and determines the success or failure of the individual. Language contributes extensively to personal development of individuals by mediating the inquisitive understanding of the events that unravel around the individuals, assessment of these events from different perspectives, their socialization, production and use of knowledge. Thus, individuals that form the societies should acquire a sufficient level of basic language skills (listening, verbal, reading and writing) during school years (Kardaş, 2013: 1782).

The most effective communication methods in fulfilling self-realization of the individual in society are speaking and writing. These two abilities are the unique methods of expression that humankind utilized all through history and could never give up despite the developments in technology. High level of verbal and writing skills of the individuals of a society are significant tools to high levels of success in the society.

Active methods and techniques should be used to develop communication skills, especially written and verbal expression skills in every level where education and instruction occurs starting from primary education. Collaborative learning method Jigsaw I is one of the most effective techniques that should be used in education. Jigsaw technique where group members need each other and positive dependence occurs at a high level makes it possible to utilize collaborative learning in the classroom environment frequently (Sevim, 2015: 386). This technique was developed by Eliot Aronson et al. (1978) It was based on “*group dynamics*” and “*social interaction.*” It is one of the “*pure*” collaborative learning techniques. Jigsaw technique assigned the responsibility of instructing a part of the subject to the whole group, promoting collaborative learning. In this techniques students are the members of two different groups, namely the “*main group*” and the “*Jigsaw group*” (Aronson et al., 1987 cited by Ün Açıkgöz, 2011).

The objective of the present study is the effect of the collaborative learning technique of Jigsaw I method on student’s written and verbal skills. Research problems were determined as follows:

1. *Does Jigsaw I technique have an effect on students’ verbal skill achievements?*
2. *Does Jigsaw I technique have an effect on students’ written skill achievements?*

2. Method

In the present study that scrutinized the effect of Jigsaw I technique on students' verbal and written skills, the experimental design of pretest-posttest quasi-experimental design with control group was utilized. In pretest-posttest quasi-experimental design with control group, there are two demographically matching groups. One is utilized as the test, and the other is utilized as the control group. Pretest and posttest measurements are conducted in both groups (Karasar, 2011: 97).

To maintain balance between the groups, students were assigned to the groups with impartial selection. Pretest application scores were used in impartial assignment. Pretest application was conducted to determine the initial scores of the students before the application. When determining test and control group members pretest written and verbal expression achievement scores were considered. One of the two groups that had so significant difference between them based on pretest mean scores was assigned as the test, and the other was assigned as the control group.

In the present study conducted on the verbal and written skills of students, Jigsaw I was used in the courses of the test group, while the courses were instructed based on 2006 Turkish language curriculum activities in the control group.

Table 1: Research Design

Group	Pretest	Process	Posttest
Control	<ol style="list-style-type: none"> 1. In the pretest, students wrote an essay on a predetermined subject. Written essays were assessed by different fields specialists using Essay Assessment Scale (EAS). 2. In the pretest, students were allowed to speak on any subject for 3 – 5 minutes, and these speeches were evaluated by the author and 2 specialist raters using Turkish Verbal Scale (TVS). 	curriculum language Turkish activities	<ol style="list-style-type: none"> 1. In the posttest, students wrote an essay on a predetermined subject. Written essays were assessed by different fields specialists using Essay Assessment Scale (EAS). 2. In the posttest, students were allowed to speak on any subject for 3 – 5 minutes, and these speeches were evaluated by the author and 2 specialist raters using Turkish Verbal Scale (TVS).
Test	<ol style="list-style-type: none"> 1. In the pretest, students wrote an essay on a predetermined subject. Written essays were assessed by different fields specialists using Essay Assessment Scale (EAS). 2. In the pretest, students were allowed to speak on any subject for 3 – 5 minutes, and these speeches were evaluated by the author and 2 specialist raters using Turkish Verbal Scale (TVS). 	Instruction with Jigsaw I	<ol style="list-style-type: none"> 1. In the posttest, students wrote an essay on a predetermined subject. Written essays were assessed by different fields specialists using Essay Assessment Scale (EAS). 2. In the posttest, students were allowed to speak on any subject for 3 – 5 minutes, and these speeches were evaluated by the author and 2 specialist raters using Turkish Verbal Scale (TVS).

2.1 Study Groups

The participants of the current study included 50 7th grade students that attended a state middle school in Van province İpekyolu Township in Turkey during 2015 – 2016 academic year. Test group included 24 students selected with impartial appointment and 26 students were selected for the control group with the same method. Demographic characteristics of the students appointed to test and control groups are presented in Table 2.

Table 2: Demographic characteristics of the participants

Demographic characteristics	f	%
Gender		
Female	22	44
Male	28	56
Total	50	100
Native language		
Turkish	14	28
Kurdish	31	62
Arabic	5	10
Total	50	100

Note:

- Students whose native language was Kurdish speak Turkish as a second language.
- Students whose native language was Turkish speak only Turkish.
- Students whose native language was Arabic speak Turkish as a second language.
- Test group included 14 male, 10 female students
- Control group included 14 male, 12 female students

2.2 Applications Conducted With the Test Group

Pretest and posttest were applied before and after the application, respectively. Part of the application phases of Jigsaw I technique and work conducted within the context of the present study are detailed below.

1st Stage: Forming the Groups: Students included in the test group after the pretest application were separated by the application teacher into 6 mixed groups of 4 students each based on their demographic characteristics. These groups were coded as A, B, C, D, E, F and the main groups were formed and individuals were also coded based on their group codes.

Table 3: Main Group Codes and Codes of the Individuals in These Groups

1 st Main Group: (Group A)	2 nd Main Group: (Group B)	3 rd Main Group: (Group C)	4 th Main Group: (Group D)	5 th Main Group: (Group E)	6 th Main Group: (Group F)
A1,A2,A3,A4	B1,B2,B3,B4	C1,C2,C3,C4	D1,D2,D3,D4	E1,E2,E3,E4	F1,F2,F3,F4

2nd Stage (4 hours): Distribution of Material and Initiation of the Study: The subjects determined concerning written and verbal skills were divided into subtitles and distributed to the individuals in the main groups. Group individuals were asked to learn their subjects as much as they can and teach them to their peers and they were guided in the process.

Table 4: Main Groups and Subjects

Subjects	Grp A	Grp B	Grp C	Grp D	Grp E	Grp F
Types of Written expression / Types of verbal expression	A1	B1	C1	D1	E1	F1
Planning in Written expression / Planning in verbal expression	A2	B2	C2	D2	E2	F2
Subject and narrative in written expression / Subject and narrative in verbal expression	A3	B3	C3	D3	E3	F3
Textuality criteria in written expression (consistency, coherence, acceptability, intertextuality, etc.) / Criteria of successful verbal expression (voice, presentation, style, body language, considering the audience, etc.)	A4	B4	C4	D4	E4	F4

In the main groups, individuals that formed the groups learned their subjects well enough to research and explain them. Following out-of-classroom research and studies, 1-hour long preparation work was carried out in the classroom. When the preparations were over, each individual narrated the subject assigned to her or him to her or his own group. These processes were maintained for 4 hours in the main groups. This procedure was continued in different subjects on written and verbal skills in the following weeks.

3rd Stage (3 hours): Expert Groups: Students left their original groups to form new groups with students who were assigned the same subject. These new groups called the expert groups tried to crystalize the subject they were responsible with and discussed how they should teach their subject to their original group-mates and prepared reports. While preparing the reports, they applied written expression principles. This procedure continued for 3 class hours under the supervision of the teacher. Four expert groups including 6 students each are given in Table 5.

Table 5: Expert Groups and Subjects

Expert Groups	Subjects	Individuals in Expert Groups					
1. Expert Group	Types of Written expression / Types of verbal expression	A1	B1	C1	D1	E1	F1
2. Expert Group	Planning in Written expression / Planning in verbal expression	A2	B2	C2	D2	E2	F2
3. Expert Group	Subject and narrative in written expression / Subject and narrative in verbal expression	A3	B3	C3	D3	E3	F3
4. Expert Group	Textuality criteria in written expression (consistency, coherence, acceptability, intertextuality, etc.) / Criteria of successful verbal expression (voice, presentation, style, body language, considering the audience, etc.)	A4	B4	C4	D4	E4	F4

4th Stage (3 hours): Return of Expert Group Members to Their Original Groups: Individuals who addressed the subjects in depth in expert groups returned to their original groups to narrate their subjects. Instructions were conducted in the main groups in depth and more comprehensively accompanied with the reports, and then the last stage was initiated.

5th Stage: Assessment and Reward: Individuals in the groups were given exams personally. These individual exams included both written and oral exams and followed by written and oral exams conducted in groups. The study was terminated after rewarding the individual and the group who obtained the highest achievement points. Test group applications lasted for 12 weeks and conducted with different subjects and utilizing Jigsaw I technique in written and verbal skill areas.

2.3 Procedures implemented in the control group

Pretest was applied before, and posttest was applied after the application. Control group applications were conducted based on 2006 Turkish language curriculum activities. Syllabi were designed with an emphasis on verbal and written expression achievements.

2.4 Data Collection Tools

2.4.1 Turkish Verbal Scale (TVS)

To measure students' verbal skills, Turkish Verbal Scale (TVS) was used. The scale contains the dimensions that measure voice, presentation, style and wording, focusing on the speech and considering the audience skills. Sub-dimensions and scale items were discussed with faculty members that work in the field of Turkish language education and after obtaining positive opinion of the faculty members, the scale was used without revisions.

The scale contains 24 items, 20 of which include positive, and 4 of which include negative judgments. The 5-point Likert-type scale was developed by Çintaş, Yıldız and Yavuz (2012) and graded using the points "5 – I completely agree, 4 – I somehow agree, 3 – I am not sure, 2 – I disagree, 1 – I completely disagree."

2.4.2 Essay Assessment Scale (EAS)

Students' written expression skills were evaluated using "*Essay Assessment Scale*" designed by Sever (1993). This scale, developed by Sever, was used as "*Essay Assessment Scale (EAS)*" in the present study.

The scale includes 3 sub-dimensions and 25 items that aim to determine written expression skills. The dimensions of the scale are as follows: Discovery (Items 1 – 5);

Planning (Items 6 – 12); Narration (Items 13 – 25). The scale is a 5-point Likert-type scale. The scale is graded as “1 – Very Unsatisfactory, 2 – Unsatisfactory, 3 – Partially Satisfactory, 4 – Satisfactory, 5 – Very Satisfactory.” The highest possible score in EAS is 125 and the lowest possible score is 25.

Score range coded based on the choices related to the level of adherence of the students in the test group to each item in the scale was calculated using the following formula: $SKPA = (5-1 = 4), (4/5 = 0.80)$.

Thus, the following point ranges for each assessment level were accepted: Very Satisfactory: 4.21 – 5.00; Satisfactory: 3.41 – 4.20; Partially Satisfactory: 2.61 – 3.40; Unsatisfactory: 1.81 – 2.60; Very Unsatisfactory: 1.00 – 1.80.

Table 6: Written Expression Skill Assessment Intervals

Coefficient Interval	Score Range	Interpretation
1.00–1.80	25	Very Unsatisfactory
1.81–2.60	26-50	Unsatisfactory
2.61–3.40	51-75	Partially Satisfactory
3.41–4.20	76-100	Satisfactory
4.21–5.00	101-125	Very Satisfactory

Students were asked to write an essay on a predetermined subject for determination of their written expression skills. Five subjects were determined and the students voted on these subjects to determine the subject that would be used for the essay and the subject of “*Successful Teacher, Successful Society*” was elected as the essay subject. Field experts that would conduct the evaluation were informed about the study and they were asked to assess the essays based on the items in EAS. Arithmetic mean of the points given to each item by three expert raters was taken and interpreted based on the assessment intervals.

2.5 Data Analysis

Quantitative analysis techniques were utilized in data analysis. Analyses were conducted with SPSS 20.0 software. Shapiro Wilks test was applied to determine normal distribution of achievement scores obtained in pre and posttests by test and control groups and a normal distribution was identified. Thus, the analyses were continued with parametric t-test. Test and control group measurements were analysed using independent samples t-test statistics.

3. Findings and Interpretation

In this section, findings on Turkish written and verbal skills of the students are presented and interpreted. Findings are presented in tables under sub-headings based on research questions. The findings were as follows:

3.1 Findings on the first research question:

Comparative findings on “*Turkish verbal skills*” pretest scores of test – control group students are presented in Table 7.

Table 7: Turkish Verbal Skills Independent Samples t-test Results

	Groups	N	Mean	Standard Deviation	t(48)	p
Pretest	Test	24	67,6538	1,35186	-,676	,502
	Control	26	69,0000	1,46579		

Comparison of test and control group pretest scores is given in Table 7. Findings demonstrated that the difference between test and control group mean pretest scores was not significant. Test group mean pretest score was 67.65 and control group mean pretest score was 69. Statistical analysis also showed that the difference between test and control group mean pretest scores was not significant ($p: .502 > 0.05$; $t: -.676$). These findings showed that the test and control groups commenced the applications with equal verbal skill levels.

Findings on whether there was a significant difference between test and control group posttest “*Turkish verbal skill*” scores are given in Table 8.

Table 8: Turkish Verbal Skills Independent Samples t-test Results

	Groups	N	Mean	Standard Deviation	t(48)	p
Posttest	Test	24	88,2692	2,05954	1,888	,045
	Control	26	82,7083	2,10200		

Findings presented in Table 8 demonstrated that there was a difference between test and control group posttest achievement scores favouring the test group. Test group mean score was 88.26, while control group post-test mean score was 82.70. This numerical difference favouring the test group was found to be statistically significant as well ($p: .001 < 0.05$; $t: 3.427$). Findings showed that Jigsaw I technique implemented in the test group resulted in more successful results on Turkish verbal skills of the

students when compared to Turkish language curriculum activities applied to the control group. Findings on verbal skills are presented in Graph 1.

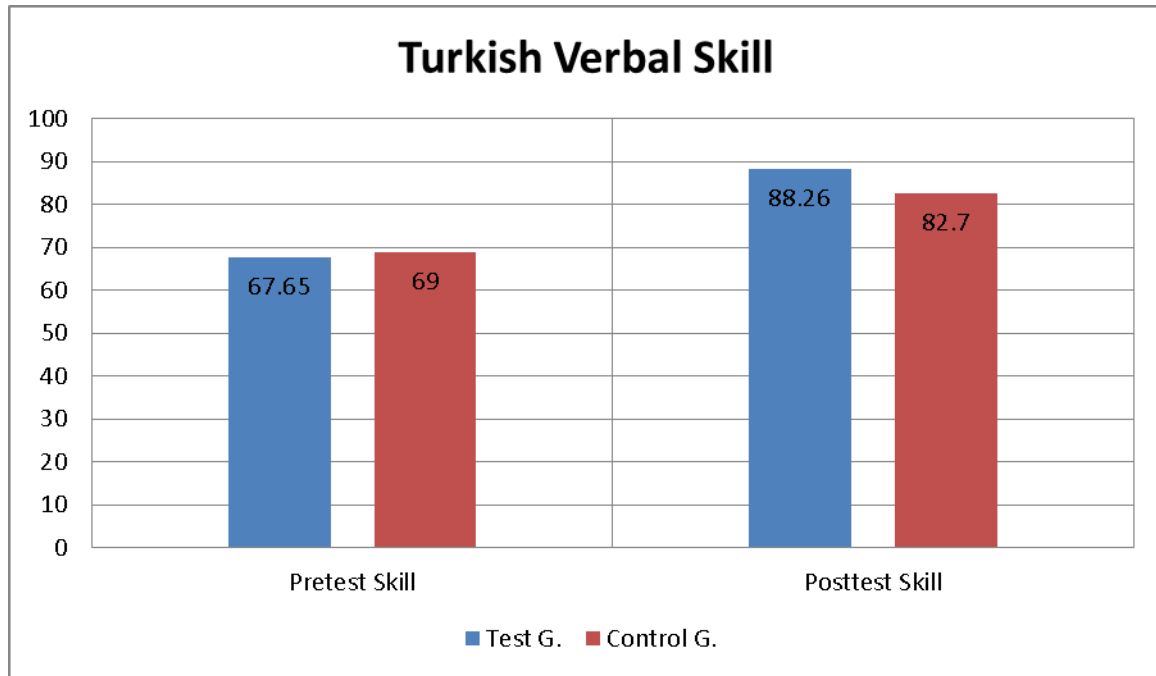


Figure 1: Test – control group pretest – posttest Turkish verbal skill findings

Figure 1 shows that, while there was a 1.5 points difference between the pretest mean scores favouring the control group, the same difference favoured the test group with 6 points in posttest. The graph clearly reflects that applications implemented in both test and control groups improved students’ Turkish verbal skills. However, it is also clear that the improvement in the test group significantly surpassed the improvement in the control group. This finding showed that Jigsaw I technique was more effective on students’ Turkish verbal skills than Turkish language curriculum activities.

3.2 Findings on the second research question: Effect of Jigsaw I technique on written expression skills of the students Comparison of test and control group “*Turkish written expression skills*” pretest scores are given in Table 9.

Table 9: Turkish Written Skills Independent Samples t-test Results

	Groups	N	Mean	Standard Deviation	t(48)	p
Pretest	Test	24	67,0769	1,71861	1,434	,060
	Control	26	63,9583	1,28604		

Findings presented in Table 9 demonstrated that there was a 3-point difference between test and control group pretest mean scores. Test group mean pretest score was 67.07

and control group mean pretest score was 63.95. Statistical analysis of this numerical difference showed that the difference between test and control group mean pretest scores was not significant ($p: .060 > 0.05$; $t: 1.434$). When written expression skill assessment intervals are examined, it was observed that test and control groups commenced the applications with equal written expression skill levels (51 – 75 Partially Satisfactory).

Findings on whether there was a significant difference between test and control group posttest “*Turkish written skill*” scores are given in Table 10.

Table 10: Turkish Written Skills Independent Samples t-test Results

	Groups	N	Mean	Standard Deviation	t(48)	p
Posttest	Test	24	83,5385	2,19175	4,790	,000
	Control	26	70,7917	1,42440		

Findings presented in Table 10 demonstrated that there was a difference between test and control group posttest achievement scores of about 13 points favouring the test group. Test group mean score was 83.53, while control group posttest mean score was 70.79. This numerical difference favouring the test group was found to be statistically significant as well ($p: .000 < 0.05$; $t: 4.790$).

Findings showed that Jigsaw I technique implemented in the test group resulted in more successful results on Turkish written expression skills of the students when compared to Turkish language curriculum activities applied to the control group. Findings on written expression skills are presented in Graph 2.

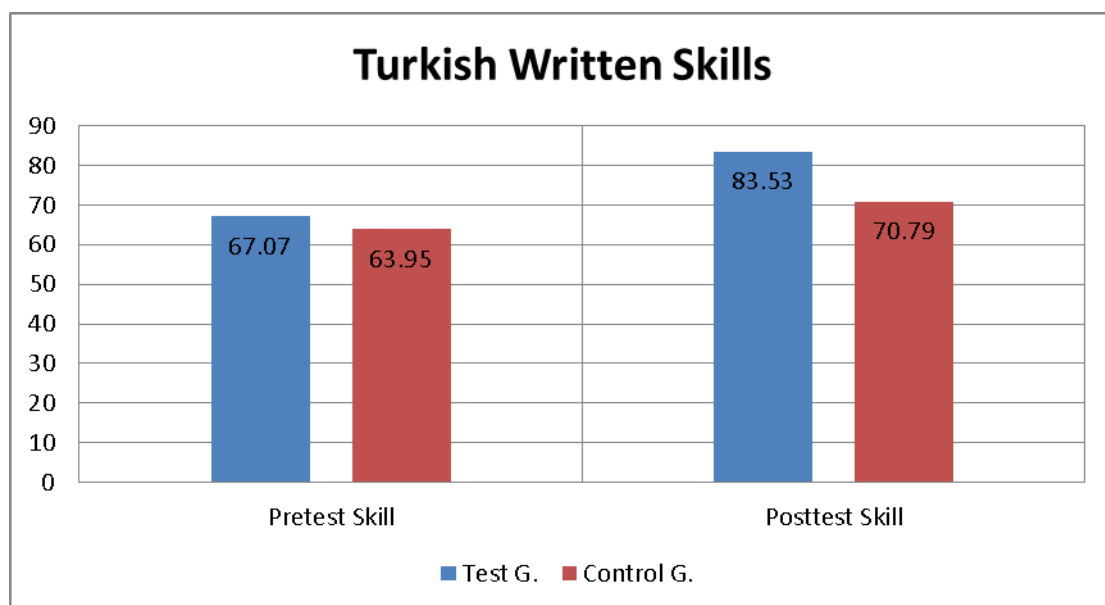


Figure 2: Test – control group pretest – posttest Turkish written expression skill findings

Figure 2 demonstrates that, while there was a 4 points difference between the pretest mean scores favouring the test group, the same difference favoured the test group with 13 points in the posttest. Although the graph reflects that applications implemented in both test and control groups improved students' Turkish verbal skills significantly, it was observed that the improvement in the test group significantly surpassed the activities conducted in the context of Turkish language curriculum. This finding showed that Jigsaw I technique was quite effective on students' Turkish written expression skills.

4. Conclusion and Suggestion

In the present study that aims to investigate the effect of Jigsaw I technique on students' verbal and written expression skills, results obtained with reference to the research questions are as follows:

- Jigsaw I technique was more successful in development of students' Turkish verbal skills when compared to activities that were conducted within the framework of Turkish language curriculum. Test group mean posttest score was 88.26, while control group mean posttest score was 82.70. This numerical difference favoring the test group was also found to be statistically significant ($p: .001 < 0.05$; $t: 3.427$) (Table 8).
- Jigsaw I technique was more successful in development of students' Turkish written expression skills when compared to activities that were conducted within the framework of Turkish language curriculum. Test group mean posttest score was 83.53, while control group mean posttest score was 70.79. This numerical difference favouring the test group was also found to be statistically significant ($p: .000 < 0.05$; $t: 4.790$) (Table 10).

It was observed that studies in the literature conducted to investigate the effect of collaborative learning techniques on the development of students' Turkish communication skills demonstrated positive results. In a study by Maden (2011), it was reported that Jigsaw I technique produced more successful results on students' written expression skills compared to conventional methods. In similar studies, Maden (2010; 2014) reported that Jigsaw techniques produced positive results in Turkish communication skills as well. In studies by Bölükbaşı (2014), Arslan (2012), Şahin (2010; 2011b), it was determined that Jigsaw techniques demonstrated positive results on students' Turkish communication skills compared to other applications. The findings of these studies in the literature support the findings of the present study.

In studies by Kardaş (2015, 2014, 2013a, 2013b, 2013c, 2013d) that researched the effect of collaborative learning techniques on Turkish communication skills, it was determined that collaborative learning applications produced more successful results compared to conventional learning applications. In a meta-analysis, Kardaş and Cemal (2015) investigated the correlation between collaborative learning techniques and student views on achievement, attitude and applications in Turkish instruction. Study findings demonstrated that 95% of the reviewed research showed that collaborative learning was more effective than other methods and techniques.

Stevens and Slavin (1995) reported that collaborative learning techniques had a positive effect on the academic achievements of language students. Collaborative learning techniques are very beneficial in multiple-level courses since it allows both homogeneous and heterogeneous grouping in language proficiency (Rodgers and Richards, 2001: 198).

Collaborative learning techniques should be used in development of Turkish communication skills such as verbal, written expression, listening and reading skills of primary, middle and higher education students. The findings of the present study determined that Jigsaw I technique was effective in development of students' Turkish verbal and written expression skills. Similar studies that would investigate the effects of Jigsaw I technique on other communication skills of students could be conducted.

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