Educational Research and Reviews

Full Length Research Paper

Influence of cooperative integrated reading and composition technique on foreign students' reading and writing skills in Turkish[i]

Behice Varışoğlu

Faculty of Education, Gaziantep University, Turkey.

The purpose of this study was to reveal whether the technique of Cooperative Integrated Reading and Composition (CIRC) in Turkish Language teaching had influence on students' skills in reading and writing. In the study, the mixed method, which included quantitative and qualitative dimensions together, was used. The study group was made up of 16 students learning Turkish language in Estonia. In the study, the participants were determined based on their accessibility at the time of the study. Depending on the mixed method applied in the study, both quantitative and qualitative data collection tools were used. In the study, for the analysis of the quantitative data, Wilcoxon's test of order of sings was applied. As for the analysis of the qualitative data, descriptive analysis technique was used. The findings obtained in the study revealed that the CIRC technique was influential on the students' academic achievement in such skills as writing, comprehension and reading aloud.

Key words: Teaching Turkish language to foreigners, cooperative learning, CIRC, reading, writing.

INTRODUCTION

Cooperative learning is a way of studying lessons in which students study in groups, interact with each other on face-to-face basis and demonstrate high levels of positive attachment (Johnson and Johnson, 1979). According to Kagan (1989), cooperative learning is, first of all, a structure, which can be used in a number of educational institutions ranging from preschool period to university level independently of the curriculum. Almost all teachers have their own cooperative learning technique appropriate to their own teaching style and philosophy.

Cooper et al. (2002) stated that cooperative learning is based on a structure designed to achieve student-student solidarity; that cooperative learning emphasizes individual responsibility; and that, as one of the most prominent feature of cooperative learning, students' success as a group is as important as their individual success. Although language teaching depends on individual efforts, it is a field in which cooperative learning can be quite productively applied since it includes a process based on face-to-face interaction and communication. The cooperative learning method could provide several

E-mail:bvarisoglu@gmail.com.

suggestions as an appropriate solution to the issue of how to teach a language, which is among the problems language educators have focused on so far in relation to language teaching. Students internalize the new information more easily by sharing and discussing this new information with other students and instructors (Oxford, 1996; Oxford et al., 2004).

The technique of Cooperative Integrated Reading and Composition (CIRC), one of cooperative learning methods basically applied to develop reading and writing skills, is one of the techniques used in language teaching. The purpose of this technique is not only to find solutions to the problems experienced in traditional teaching of reading and writing skills but also to develop these skills (Slavin, 1995). During reading and writing activities carried out in traditional teaching, when the teacher is engaged with one student, other students might lose their interest in the lesson, which then demolishes the productivity of the lesson; or in case of reading aloud activity, all students except for one student who reads aloud become passive learners. While studying on texts, the emphasis is on the dictionary meanings of concepts without any focus on their contextual meanings. The time allocated to writing skills is spent on teaching mechanical skills individually. CIRC makes use of cooperative groups to solve such problems (Açıkgöz, 2006).

The CIRC technique was put forward to develop especially the reading and writing skills as well as the speaking and listening skills in upper classes in elementary schools (Açıkgöz, 1992). This technique was developed to support the traditional approach (teacher-centered approach) to skill-based reading groups. First, reading groups are formed in class. Following this, from each reading group, teams with two members in each are formed. The teacher, while working with one reading group, the two-member teams try to develop each other's reading and writing skills with the help of the mutual teaching technique. During such activities carried out in relation to learning skills such as reading aloud, making predictions about the text, asking questions, summarizing and writing compositions regarding the story, students help one another, and most of the time, the booklets prepared by the groups are published. The teams are awarded based on their performance in the reading and writing assignments. In this way, equal opportunities for success as one of the basic features of cooperative learning can be obtained; group support for learning can be provided; and individual responsibility in the last performance can be accomplished (Senemoğlu, 2005; Slavin, 1980; Yaman, 1999).

In literature related to the CIRC technique, the first study was carried out by Madden et al. (1986). In this experimental study, a significant difference was found in favor of the experimental group in terms of the skills in vocabulary learning, writing and reading comprehension. In addition, Stevens et al. (1987) in their study, reported that the CIRC technique was influential on such skills as speaking, reading comprehension and explaining the meanings of words. Other similar studies, giving theoretical information about the CIRC technique, demonstrated that the technique had positive influence on students' reading and writing skills as well as on their success in vocabulary learning (Slavin et al., 1991; Skeans, 1991; Stevens and Slavin, 1995; Calderon et al., 1997; Calderón et al., 1998; Slavin, 1999; Yaman, 1999; Yeh, 2007; Güreş, 2008; Yurdabakan and Cihanoğlu, 2011; Durukan, 2011; Bozpolat, 2012).

In his ethnographic study, Golmic (1992) held interviews with students regarding the applicability of CIRC. In the study lasting six months, activities involving games were prepared based on CIRC, and the instructors were asked to evaluate these activities. The results obtained in the study revealed positive findings in relation to the technique, and demonstrated that CIRC was a useful technique.

In another study, Rapp (1991) investigated the influence of CIRC on reading comprehension, speaking, vocabulary knowledge and academic achievement. In the study carried out with 88 students who had learning disorder and whose reading pace was slow, no significant difference was found between the experimental and control groups in terms of the development of such skills as reading comprehension, vocabulary knowledge and speaking. Besides all these studies, there are still other studies conducted to examine the influence of cooperative leaning on reading and writing skills in the field of language teaching (Bromley and Modlo, 1997; Veenman et al., 2000; Liang, 2002; Ghaith and Bouzeineddine, 2003; Ghaith, 2003; Bölükbaş et al., 2011).

Learning a foreign language in the best way requires achievement in a number of skills in the language being learned. The reason is that foreign language teaching is, at the same time, a process of skill development. Any education given with appropriate methods and techniques could contribute to language developments of individuals. Language teachers' use of the most effective and contemporary methods and techniques to reach the intended success helps save the time spent and the efforts made in the education process. There is a need for theoretical studies on teaching basic language skills to foreign students as well as for other studies investigating whether student-centered methods and techniques requiring in-class applications are influential in the application process.

In this respect, determining whether the CIRC technique is influential on teaching Turkish as a foreign language could be an alternative to the methods to be used in future studies or could help develop new techniques. In addition, this could also lead other studies focusing on reading and writing skills as well as on other language skills.

Purpose of the study and research questions

The purpose of this study was to investigate whether the Cooperative Integrated Reading and Composition technique was influential on the reading and writing skills of foreign students learning Turkish Language. In line with this purpose, the following research questions were directed:

1. Is there a significant difference between the achievement scores of the students participating in Turkish Language teaching practices in relation to the development of their skills in reading comprehension and reading aloud before and after the application?
2. Is there a significant difference between the academic achievement scores of the students participating in Turkish Language teaching practices in relation to their skills in reading comprehension and writing after the application?
3. Is there a significant difference between the academic achievement scores of the students participating in Turkish Language teaching practices in relation to the development of their writing skills before and after the application?
4. What are the results of the observations of the researcher teaching Turkish language, and what are the results obtained via the open-ended questions related to the activities applied?

METHODOLOGY

In the study, the mixed method involving qualitative and quantitative dimensions was used. Mixed method involves the use of both quantitative and qualitative research methods in a study in a way to support each other (Johnson and Onwuegbuzie, 2004). It was researched the effects of experimental method (quantitative research method) and these effects were enriched with student activities, and the researcher's observation report (qualitative research method) and the mixed method was used in this study.

Study group

The study group was made up of students learning Turkish Language in Tallinn University in Estonia, and the volunteers involved in the experimental process. All the participants were female at the proficiency level of B2 in Turkish Langue, aged between 21 and 35. The participants were selected on the basis of their accessibility at the time of the study. The convenience sampling technique was used in this study. In other words, the participants constituting the research sample were those whom the researcher reached easily. This method of determining the research sample is applied for several reasons such as low cost, ease of taking the necessary consents, saving time and lack of human force (Büyüköztürk et al., 2011).

Data collection tools and validity-reliability analyses

In the study, the quantitative and qualitative data collection tools were used together.

Reading comprehension achievement test (RCAT)

This test was developed by the researcher in line with the related literature. The test was made up of questions according to the cognitive levels of the students (B2 Level) considering the goals and outcomes of the Common European Framework of References for Languages. The test included a total of 28 questions: 4 true-false questions, 4 fill-in-the-blank questions, 12 multiple-choice questions, and 8 open-ended questions. This test was used as pretest and posttest in the study. The content validity of the test and the scientific appropriateness of the questions included in the study were determined in line with expert views (In the fields of reading skills development and language education). In order to determine the experts' views, a three-choice answer sheet (valid, not much valid and not valid) was used (Büyüköztürk, 2009). In relation to the answer sheet coded by three experts, the coder consistency was calculated as 0.84.

Reading aloud evaluation form (RAEF)

The RAEF developed by the researcher in line with the related literature is one that can be applied based on the evaluation of the records kept via observation or with technical devices. The coder consistency was examined for the answer sheet coded by four experts (In the fields of reading skills development and language education), and the consistency was calculated as 0.96. Following this, for the analysis of the items in the form, a pilot application of the study was conducted. The item-total correlations for the form were examined. The results of the item analysis revealed that there was not item with a negative or quite low correlation and that the values ranged between 0,561 and 0,874. In other words, it was seen that all the items demonstrated a high level of correlation with the total scale score and that the correlation was found significant at the level of $p<.01$. In order to determine the internal consistency of the form, the Cronbach Alpha value was examined. The Cronbach Alpha reliability coefficient was calculated as 0.89. This value shows that the form was quite reliable. The RAEF is a 5-point Likert-type form made up of 14 items that aimed at determining such a number of reading aloud behaviors of students as body language, pronunciation and eyesight.

Writing evaluation form (WEF)

The writing evaluation form was developed by Gregg and Mather (2002) to evaluate students' writing skills. This form was translated and adopted into Turkish by Akyol (2010) and made up of 10 sub-parts and 38 items in total. The highest score to be produced by this 4-point Likert-type form was 152, and the lowest was 38. There was no reversely-scored item in the form. In the study, the necessary changes were done in WEF in line with the purpose of the present study. In Akyol's study (2010), no information was provided about the validity and reliability analyses regarding the form. In the present study, the internal consistency coefficient was calculated, and the Cronbach Alpha value was found to be 0.76.

Application process observation form (APOF)

In order to evaluate the influence of the CIRC technique in more detail, a semi-structured observation form was used throughout the application process. Before the application, a semi-structured

observation form was prepared. In this semi-structured observation form, the situations to be observed in the education process were determined in advance, and a related blank section was left in the form for the observer to make explanations or comments regarding these situations.

Data analysis

For the analysis of the qualitative data in the study, descriptive analysis and mistake analysis (for wrong answers and incomplete activities) methods were used. In the study, for the analysis of the quantitative data, Wilcoxon test (non-parametric statistical technique) was used.

Application phases of CIRC technique

At the beginning of the application process, the students were informed about the purpose of the study, about CIRC technique and about the procedure to be followed. After the necessary communication was established between the eight students participating in the study and eight students attending classes regularly, the groups were formed and the duties were shared. While forming the cooperative groups, the students' individual characteristics (age, ethnicity, mother tongue etc.) were taken into account. As a result, four groups were formed with four members in each. In the six-week teaching process, special attention was paid not only to the dialogue within groups for the sake of an effective study environment but also to the fact that the group members would not change their groups. The CIRC technique activities prepared by the researcher were introduced to the students, and they were informed about the outcomes regarding reading and writing skills. It was pointed out that the application was carried out not to investigate the students' knowledge but to develop their language skills. The students were asked to participate in all the activities and to avoid demonstrating any behavior that would have negative influence on their friends in their group. The application was carried out in 10 class hours a week in a period of six weeks, making 60 class hours in total. The whole application was conducted by the researcher. The application phases of the CIRC technique were as follows:

1. *Determining the instructional goals and measurement tools:* In this phase, the knowledge and skills to be acquired by the students with the help of the CIRC technique were determined.
2. *Forming the groups:* The duties were shared by the students in a way to increase their attachment to one another.
3. *Organization of the classroom for group work:* The classroom was organized in a way to facilitate intergroup and intragroup interaction and communication.
4. *Informing the students about the goals, the measurement tools and the achievement criteria*: At the beginning of the process, the students were informed about the goals and outcomes in relation to comprehension of a text with the CIRC technique. Parallel to the activities carried out regarding the text, quizzes were given. According to the results of these quizzes, the most successful group was declared.
5. *Determining the subject-related materials to be used by the students and informing them about their use*: The material to be used by each student was provided by the researcher. When considered necessary, a presentation related to the subject was made to provide background information.
6. *Starting and maintaining the in-group study process*: The steps taken in the application process of the CIRC technique to be used for reading comprehension and writing activities in teaching

Turkish as a foreign language:

1. Teacher's preliminary presentation regarding the subject and preparations for the subject
2. Teacher's reading aloud
3. Group members' reading aloud in pairs
4. Group members' reading silently and determining the unknown vocabulary
5. Guessing the meanings of vocabulary, looking up a dictionary for the meaning of the vocabulary, and making sentences using the vocabulary
6. Group members' reading silently
7. Giving worksheets and studying on them
8. Answering the questions in the worksheets individually, and group members' checking and evaluating the answers given.
9. Carrying out individual writing activities related to the upper-level comprehension questions in the worksheet, and group members' checking the written compositions
10. Making whole-class discussion regarding the group works and completing the teacher's inefficacies.
11. Groups' preparing a specific and common writing activity according to the writing method determined**.**
12. Students' taking the exam related to the subject individually**.**
13. Determining the successful group according to the results of the exam regarding the subject
7. *Evaluation:* The group ranking first was determined and awarded.

FINDINGS

Quantitative findings regarding the influence of CIRC technique on reading

Table 1 presents the results of Wilcoxon test conducted to see whether there was a significant difference between the reading comprehension academic achievement scores of the students before and after the application carried out in relation to Turkish language teaching. The Wilcoxon test results presented in Table 1 demonstrated that there was a significant difference between the students' scores in the reading comprehension achievement test before and after the application (Z=-3.526; Sig.=0.000; p< 0.05). When the rank mean and totals for the difference scores were taken into account, it was seen that the difference was in favor of the positive rank, that is the posttest score (pos. rank=8.50; 136.00>neg. rank=0.00; 0.00).

Table 2 presents the results regarding whether there was a significant difference between the participants' post-application reading comprehension achievement scores and their post-application writing scores. When Table 2 is examined, it is seen that there was a significant difference between the participants' reading comprehension achievement posttest scores and their writing achievement posttest scores (Z=-2.705 and Sig.=0.007, p< 0.05). When the rank mean and totals for the difference scores were taken into account, the difference was found to be in favor of the negative rank, that is the reading comprehension achievement posttest

Table 1. Wilcoxon test results regarding the reading comprehension academic achievement scores before and after the application.

Variable		N	Rank mean	Rank total	Tests	N	Mean	Standard deviation
	Negative ranks	0[a]	0.00	0.00	First reading	16	64.38	5.10
Last reading	Positive ranks	16[b]	8.50	136.00	Last reading	16	69.94	4.58
First reading	Ties	0[c]	-	-	-	-	-	-
	Total	16	-	-	-	-	-	-
Z	-3.526	-	-	-	-	-	-	-
Asymp. Sig. *	0.000	-	-	-	-	-	-	-

*$p < 0.05$, a. Last reading< First reading, b. Last reading > First reading, c. Last reading = First reading.

Table 2. Wilcoxon test results regarding the post-application reading comprehension and writing achievement scores.

Variable		N	Rank mean	Rank total	Tests	N	Mean	Standard deviation
Last writing Last reading	Negative ranks	11a	8.68	95.50	Last reading	16	69.94	4.58
	Positive ranks	3b	3.17	9,50	Last writing	16	64.44	4.69
	Ties	2c	-	-	-	-	-	-
	Total	16	-	-	-	-	-	-
Z	-2.705	-	-	-	-	-	-	-
Asymp. Sig. *	0.007	-	-	-	-	-	-	-

*$p < 0.05$, a. Last writing < Last reading; b. Last writing > Last reading; c. Last writing = Last reading.

Table 3. Wilcoxon test results regarding reading aloud performance scores before and after the application.

Variable		N	Rank mean	Rank total	Tests	N	Mean	Standard deviation
	Negative ranks	0a	0.00	0.00	First reading aloud	16	2.63	0.81
Last reading aloud	Positive ranks	10b	5.50	55.00	Last reading aloud	16	3.38	0.81
First reading aloud	Ties	6c	-	-	-	-	-	-
	Total	16	-	-	-	-	-	-
Z	-2.972	-	-	-	-	-	-	-
Asymp. Sig. *	0.003	-	-	-	-	-	-	-

*$p < 0.05$; a. First reading aloud < Last reading aloud; b. First reading aloud > Last reading aloud; c. First reading aloud = Last reading aloud.

score (pos. rank=3.17; 9.50< neg. rank=8.68; 95.50). Based on these results, it could be stated that the activities involving the use of CIRC technique applied in a setting of Turkish Language teaching had more significant influence on the participants' reading comprehension achievement posttest score than on their writing achievement score. Table 3 presents the results regarding whether there was a significant difference between the participants' reading aloud performance scores before and after the application.

The Wilcoxon test results presented in Table 3 revealed a significant difference between the participants' pre-application and post-application scores in terms of their reading aloud performance (Z = -2,972; Sig. = ,003; p<

0.05). When the rank mean and totals for the difference scores were taken into account, it was seen that the difference was in favor of positive rank, that is the post-application score (pos. rank=5.50; 55.00>neg. rank=0.00; 0.00). Based on these results, it could be stated that the activities carried out with the CIRC technique had significant influence on the development of the participants' reading aloud performance.

Quantitative findings regarding the influence of CIRC technique on writing

Table 4 presents the results regarding whether there

Table 4. Wilcoxon test results regarding writing achievement scores before and after the application.

Variable		N	Rank mean	Rank Total	Tests	N	Mean	Standard deviation
	Negative ranks	0a	0.00	0.00	First writing	16	54.31	6.25
Last writing	Positive ranks	16b	8.50	136.00	Last writing	16	64.44	4.69
First writing	Ties	0c	-	-	-	-	-	-
	Total	16	-	-	-	-	-	-
Z	-3.519	-	-	-	-	-	-	-
Asymp. Sig. *	0.000	-	-	-	-	-	-	-

*. $p < 0.05$, a. First writing < Last writing; b. First writing > Last writing; c. First writing = Last writing.

was a significant difference between the participants' writing achievement scores before and after the application. According to the Wilcoxon test results presented in Table 4, there was a significant difference between the participants' pre-application and post-application writing achievement scores ($Z = -3.519$; Sig.$= 0.000$; $p < 0.05$). When the rank mean and totals for the difference scores were taken into account, it was seen that the difference was in favor of the positive rank, that is the posttest score (pos. rank=8.50; 136.00>neg. rank=0.00; 0.00). Based on these results, it could be stated that the activities carried out with the CIRC technique had significant influence on the development of the participants' writing skills.

Qualitative findings regarding the application process of the CIRC technique

The results of the researcher's observations regarding the application process were obtained with the descriptive analysis method (frequency and percentage values), and those related to the open-ended questions regarding the process of the activities were obtained with the method of mistake analysis. The data collected are presented in Tables 5 to 8 using percentages (%) and frequencies (f). The headings under the category of reading compre-hension were formed in line with meaning structuring skills adapted by Akyol (2010) from Cramer (2004), and the questions in the activities were organized depending on these skills. Akyol (2010) gathered meaning structuring skills under four sub-headings as follows:

1. Simple skills: Main idea, putting the information in order, following directions, restatement, providing evidence, finding out the real details, determining the place of information.
2. Skills based on implication and comparison: Inferencing, prediction, practice, reason-result, explanation, finding differences, making comparisons, interpretation, drawing conclusion, making generalizations and finding the implied main idea.

3. Vocabulary knowledge: Knowing the dictionary meanings of vocabulary, associated meanings of vocabulary, different meanings, contextual meanings of vocabulary, synonyms and antonyms, homophones, roots of words, figurative meanings, etymology of words, idioms and metaphors as well as understanding the combined words.
4. Judging, appreciation and evaluation skills: Understanding the spiritual state, demonstrating appropriate the attitudes and styles, understanding the descriptions and definitions, making evaluations, making judgements, demonstrating one's own feelings, stating one's own ideas, demonstrating a humorous and indulgent attitude, and appreciating the beauty.

Table 5 presents the data regarding the findings of the reading comprehension activities developed in line with the sub-headings in this categorization. The results presented in Table 5 represented the total of the correct responses of the students to the reading comprehension activities in the same category in a period of six weeks. In other words, the number of correct responses for an activity in a category could be equal to 16 at most, which was the total number of students. For instance, since the activity of *summarizing the text* received 12 correct responses in six weeks, the related frequency value in Table 5 was 12. This result might have been obtained either via the correct responses of 12 of all the 16 students during the activities in just one week or via different numbers of correct responses to the activities in six weeks. Therefore, according to Table 5, it is seen that all the sub-headings under the category of reading comprehension received different numbers of correct responses and that there was no unresponded activity.
When Table 5 is examined in terms of the number of correct responses, it is seen that the number of activity categories including the "vocabulary knowledge" and "simple skills" was higher than that of the activity categories including the "comparison skills" and "evaluation skills". Considering the fact that the students' reading skill level in foreign language was B2, these results could be said to be quite good. The reason is that

Table 5. Descriptive results based on the activities related to reading comprehension skills.

Reading comprehension category	Number of activities carried out correctly	
	Frequency	Percentage (%)
Finding the places of certain information in the text	64	12.57
Determining the unknown words/finding their meanings	63	12.38
Scanning/skimming the text	60	11.79
Using one's background knowledge about the text	54	10.61
Making predictions	47	9.23
Making sentences using the words	42	8.25
Expressing thoughts about the characters	30	5.89
Making interpretations	29	5.70
Making connections between real life and the fictional text	21	4.13
Finding the main idea	18	3.54
Putting the information/events/ideas in the text in the correct order	17	3.34
Reading the whole text fluently	16	3.14
Making generalizations regarding the conclusion	16	3.14
Findings the differences in the text	13	2.55
Summarizing the text	12	2.36
Recognizing/stating the emotions in the text	7	1.38
Total	509	100

Table 6. Results of mistake analysis regarding reading aloud skill.

Mistake category in reading aloud	First recording		Last recording	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Skipping	28	10.11	21	9.05
Addition	49	17.69	43	18.53
Repetition	53	19.13	48	20.69
Failure to read	19	6.86	20	8.62
Self-correction	33	11.91	25	10.78
Wrong emphasis	61	22.02	54	23.28
Changing the places of phonemes/syllables	34	12.27	21	9.05
Total	277	100	232	100

comparison and evaluation activities, which could be regarded as an upper-level comprehension skill, are in categories that can be achieved only by upper-level students. With this application, it was revealed that B2 students managed to carry out upper-level activities with the help of the CIRC technique based on group work and solidarity. The reading comprehension activities carried out with the CIRC technique could be said not only to contribute to the students' reading comprehension skills but also to support the quantitative findings.

Another step of CIRC technique applications includes activities related to reading aloud performance. The activities carried out as group work were related to the students' peer support and pair reading performances. As there were four students in each group, the reading activities were carried out by pairs of students. The performances involving both peer-supported individual reading and pair reading were audio recorded by the researcher; also, reading aloud evaluation forms filled out in class were used to evaluate these performances. The performances scored according to the items in the reading aloud evaluation form were evaluated under the sub-hearing of quantitative findings in the study. The results of mistake analysis conducted on the audio records constituted the qualitative findings obtained to support the quantitative findings.

In this study, after the reading aloud performances of 16 students were recorded, the first and last reading aloud recordings were examined. In this process, the students' mistakes in reading were noted down in the

Table 7. Results of mistake analysis based on the activities related to writing skill.

Mistake category in writing	First writing		Last writing	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Mistakes at the level of phonemes and syllables	192	27.35	189	28.72
Mistakes at the level of vocabulary and concepts	187	26.64	182	27.66
Mistakes at sentence level	203	28.92	188	28.57
Spelling and punctuation mistakes	58	8.26	40	6.08
Mistakes related to transfer from the mother tongue	62	8.83	59	8.97
Total	702	100	658	100

Table 8. Descriptive results regarding the CIRC technique based on observation.

Behavior category for CIRC technique	Number of repetition of the behavior	
	Frequency	Percentage (%)
Sharing materials	36	15.86
Confidence in group members	34	14.98
Self-confidence	32	14.10
Organizing the group	27	11.89
Effective use of time	27	11.89
Taking individual responsibility for the group	23	10.13
Willingness to work together	18	7.93
Organizing the communication within the group	18	7.93
Spending time together out of class	12	5.29
Total	227	100

form, and the frequency of each type of mistake was determined, which revealed the total mistakes. This would help determine the change in the number of mistakes made at the end of 6-week application when compared to the number of mistakes made at the beginning of the application. In the study, several mistakes were identified in the categories of "skipping, addition, repetition, failure to read, self-correction, wrong stress, changing the places of phonemes-syllables" (Akyol, 2010, p.103). The data gathered can be seen in Table 6.

When the data presented in Table 6 were examined, it was seen that the students made reading aloud mistakes mostly because of the process of learning vocabulary in the target language. It was seen that during the CIRC technique applications, there was quite a striking change in the percentage values of the mistake difference between the first and last reading recordings of the students who read in pairs within the group and who received instant feedback from the teacher and from peers when necessary. Depending on this finding, it could be stated that the CRC technique applications changed the students' reading aloud performances positively and supported the quantitative data related to

reading aloud.

The last step of the qualitative dimension of CRC technique applications includes activities related to writing skill. Just as in the qualitative analysis process for reading aloud, mistake analyses were involved in the qualitative analysis process for writing skill as well.

The writing mistakes made by the students were grouped and presented under the headings earlier mentioned. When the data in Table 7 were examined, it was seen that there was a little but positive change between the frequency values for the students' writing mistakes at the beginning of the application and those at the end of the application. Another point regarding the qualitative analysis dimension of CIRC applications is to describe the research process in line with the observation reports. Table 8 presents the findings obtained via the observation forms filled out in the process by the researcher who observed the influence of CIRC technique on the participants' attitudes and behavior.

When Table 8 is examined, it is seen that material sharing, one of cooperative behaviors according to the observation form, was common mostly between the students, which was followed by confidence in group members, self-confidence, organizing the group and

effective use of time, respectively.

DISCUSSION AND CONCLUSION

The present study tried to reveal whether CIRC was influential on the reading and writing skills of students learning Turkish as a foreign language. The research data collected in the experimental process demonstrated that the change between the participants' academic achievements before and after the application was in favor of the CIRC technique. A number of studies carried out with the CIRC technique (Steven and Slavin, 1995; Slavin, 1999; Slavin et al., 1991; Yaman, 1999) revealed that the technique had positive influence on the students' academic achievements. Therefore, the results reported in these studies support those obtained in the present study.

The findings obtained via the applications carried out regarding the reading skills of the students learning Turkish language as a foreign language revealed that the pretest and posttest achievement mean scores of the experimental group which the CIRC technique was applied to were 64.38 and 69.94, respectively. The change in these mean scores was considered to cause a significant difference at the significance level of 0.05, and demonstrated that the CIRC technique increased reading comprehension achievement of the students in the application. Regarding the development of reading skills, it is reported that in a cooperative class environment, in which teacher-student and student-student interactions are quite common, students can not only understand and interrogate what they read but also think critically, put forward creative ideas and become active learners (Güngör and Açıkgöz, 2006).

Many studies revealed that as in other fields of education, the cooperative learning method develops reading skills in foreign language teaching. In one study carried out by Ghaith (2003), it was found that the experimental group students' reading comprehension skills were developed significantly when compared to the same skills of the control group students. According to Klinger and Vaughn (1996), cooperative group works make important contributions to the development of students' reading comprehension strategies. In another study conducted by Kılıç (2004), it is reported that cooperative learning is quite influential both on the development of students' reading skills and on the increase in their interest in lessons. Parallel to these results, it could be stated that the cooperative learning method has positive influence on reading comprehension.

The present study also investigated whether there was a relationship between the students' reading comprehension achievement scores and their writing achievement scores in relation to the CIRC technique.

The results revealed that the students' writing achievement posttest mean score (64.44) was lower than their reading comprehension achievement posttest mean score (69.94). The difference between the mean scores was found significant in favor of reading comprehension achievement. Among the causes of this difference might be the fact that writing is a process-based skill which is quite difficult to develop, and that the CIRC technique allocated more time to reading activities and to writing activities.

In addition, the difference could also be attributed to the fact that writing skill in a foreign language is based more on individual characteristics than on other language skills. Writing in a foreign language has a close relationship with the student's knowledge of grammar and vocabulary and with his or her ability to transfer his or her thoughts. In one study, Deneme (2008) focused on similar problems and pointed out that writing in a foreign language requires an upper-level organizational skills and the capability of structuring one's knowledge of that language.

While examining the influence of the CIRC technique on reading skills, the present study also focused on the results of the change in the students' reading aloud performances. The findings revealed that the students' reading aloud pretest performance mean score (2.63) was lower than their reading aloud posttest performance mean score (3.38), and that the difference was significant in favor of the posttest. Depending on this result, it could be stated that the CIRC application increased the students' reading aloud performances and helped develop this skill. In one study carried out by Alhaidari (2006), it was found that cooperative learning developed students' reading performances in English, and contributed especially to their reading fluently and to their vocabulary acquisition. This result is consistent with the finding obtained in the present study that reading fluently has a relationship with reading aloud performance.

The findings obtained via the applications regarding the writing skills of the students learning Turkish language as a foreign language revealed that the pretest and posttest achievement mean scores of the experimental group, which the CIRC technique was applied to, were 54.31 and 64.44, respectively. It was seen that the students' writing achievement posttest mean score was higher than their writing achievement pretest mean score. Although the posttest achievement mean score was 64.44, which could be regarded as quite a moderate score, there was still a considerable increase in the posttest scores when compared to the pretest scores. These posttest scores could be said to be fairly good for foreign langue learners. As mentioned in a study conducted by Çakır (2010), since foreign language is one that is learned, not acquired, later in life by individuals, writing in a foreign language is a skill which is quite difficult to develop. In this respect, it was confirmed that the change in the mean scores caused a significant difference at the

significance level of 0.05, and that the CIRC technique increased achievement in practice.

The qualitative findings regarding the reading comprehension skill were obtained via the activities related to meaning structuring skills. Accordingly, the activities with the highest frequency value belonged to the *vocabulary skills* and *simple skills*, which covered the categories of *scanning/skimming the text* (f=60), *using one's background knowledge about the text* (f=54), *determining the unknown words/finding their meanings* (f=63) and *finding the places of certain information in the text* (f=64).

The frequency values regarding the upper-level comprehension and interpretation skills for the reading activities were low. However, the fact that the total number of activities correctly carried out throughout the process reached such a high number as 509 supported the quantitative findings. Therefore, the results related to reading comprehension achievement revealed by the qualitative analyses demonstrated that the students' comprehension skills developed based on the CIRC technique. In related literature, there are several research findings consistent with this result. In one study conducted by O'Donnell (1999), it was found that students in foreign language classes in which the cooperative learning method was used demonstrated such positive behaviors as guessing the meaning of words and recognizing the newly-learned words more easily and rapidly.

In relation to the qualitative research findings regarding the change in the reading aloud performances of the students, the mistakes made by the students during the reading activities were analyzed. According to the frequency values obtained via the first recordings of the reading aloud mistakes, the most frequent mistakes were related to *wrong emphasis* and *repetition* among all the types of mistakes: *skipping* (f=28), *addition* (f=49), *repetition* (f=53), *failure to read* (f=19), *self-correction* (f=33), *wrong emphasis* (f=61) and *changing the places of phonemes/syllables* (f=34). According to the frequency values obtained via the last recordings, it was seen that there was an improvement in almost all the types of mistakes, and that there was a one-point increase only in the mistake type of *failure to read*. When the total mistakes in the first recording (f=277) and the last recording (f=232) of the audio reading mistakes were examined, it was seen that there was a 45-point improvement. This result could be said to support the quantitative findings as well. Accordingly, it was concluded that the CIRC technique changed the students' reading aloud performances positively. Similarly, in literature, related studies pointed that reading aloud performance develops depending on the CIRC technique (Slavin, 1986).

The qualitative findings related to the change in the students' writing skills were obtained via the mistakes made by the students in their writings. The frequency values for the mistakes in the first writings were evaluated according to the categories of *mistakes at the level of phonemes and syllables* (f=192), *mistakes at the level of vocabulary and concepts* (f=187), *mistakes at sentence level* (f=203), *spelling and punctuation mistakes* (f=58) and *mistakes related to transfer from the mother tongue* (f=62). There was a 44-point improvement in the total mistake frequency in the last writings (f=658) when compared to the total mistake frequency in the first writings (f=702). Depending on this finding, it could be stated that CIRC applications had positive influence on writing skill, and this result was found to support the quantitative findings.

It is thought that the mistake categories revealed by the mistake analyses had a relationship with the students' learning strategies and with the language use processes they acquired in their mother tongue. Carson et al. (1990), in their study examining the relationship between reading and writing skills, stated that transfers from one language to another could occur in reading and writing activities, and that the success of this transfer could change in line with the level of proficiency in the use of mother tongue. The researchers also pointed out that this transition between languages creates a relationship, and that the relationship between reading and writing skills in the two languages is not always necessarily perfect. Slavin et al.(2009) claimed that the language strategies developed by students in their mother tongue will also be used while learning other languages in future, and that this situation is related to the reinforced language skill system. All these research results clarify the issue of transfer from the mother tongue, which is among the types of mistakes made by the students learning Turkish as a foreign language in Estonia.

According to the findings obtained via the researcher's observation of the reflection of the students' responses to the CIRC applications upon their attitudes and behaviors, the students behaved in accordance with the cooperative learning process and with the intended behaviors to be developed by the technique. Therefore, the impact expected from the CIRC applications was reinforced by the students' behaviors.

SUGGESTIONS

Depending on the results obtained in the present study, the following suggestions were put forward by the researcher:

1. Since the study was carried out with a limited research sample, similar studies could be conducted with more comprehensive research sample groups.
2. The present study focused on reading and writing skills. Future studies could focus on all the language skills.

3. In this study, only the CIRC technique was applied. Multiple experimental studies could be designed involving the integrated use of different techniques of cooperative learning.

Conflict of interests

The author has not declared any conflict of interests.

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[i] This study included the use of some of the data gathered in the researcher's doctorate thesis with references updated.