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The Effect of a Reciprocal-Based Instructional Program on Ninth-Grade Students' Reading Comprehension in Public Schools in Jordan أثر استخدام برنامج تدريسي قائم على التدريس التبادلي على مهارات الاستيعاب القرائي لدى طلبة الصف التاسع في المدارس الحكومية في الاردن

Mohammad Ahmad Al Jboor
Aljboor.m@yahoo.com

Prof. Abdallah Ahmad Bani Abdelrahman
Faculty of Education\ Yarmouk University\Jordan, baniabdelrahman@gmail.com

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The Effect of a Reciprocal-Based Instructional Program on Ninth-Grade Students' Reading Comprehension in Public Schools in Jordan

Mohammad Ahmad Al Jboor
Prof. Abdallah Ahmad Bani Abdelrahman*

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Abstract:

This study aimed at investigating the effect of using a reciprocal-based instructional program on improving reading comprehension among ninth grade students in Jordan. The sample of the study consisted of 107 ninth grade male and female students in the academic year 2017/2018 in four schools in North West Badia Directorate of Education. Two classroom sections were chosen to represent the experimental groups and the other two were chosen to represent the control groups. The study followed a quasi-experimental design, where the experimental groups were taught reading comprehension using a reciprocal based instructional program and the control groups were taught reading comprehension using regular teaching method. The study used a reading comprehension test to measure students' performance.

The results of the study showed significant differences at ($\alpha=0.05$) in the mean scores of the experimental groups in the reading comprehension post-test in comparison with the control groups, which can be attributed to the reciprocal-based instructional program. The results also revealed that there were significant differences in the mean scores of the experimental and control groups in the three levels of reading comprehension in the post-test, literal, inferential, and especially critical in favor of the experimental groups.

Key Words: reciprocal teaching, reading comprehension, literal, inferential and critical comprehension.

أثر استخدام برنامج تدريسي قائم على التدريس التبادلي على مهارات الاستيعاب القرائي لدى طلبة الصف التاسع في المدارس الحكومية في الاردن

محمد أحمد الجبور

أ.د. عبدالله أحمد بني عبدالرحمن*

ملخص:

هدفت هذه الدراسة إلى تقصي أثر استخدام برنامج تدريسي قائم على التدريس التبادلي في مهارة الاستيعاب القرائي لدى طلبة الصف التاسع في المدارس في الاردن. تكونت عينة الدراسة من 107 من الطلبة من الصف التاسع في العام الدراسي 2017/2018، في أربع مدارس في مديرية تربية البادية الشمالية الغربية. وقد استخدم المنهج شبه تجريبي، إذ تم تدريس المجموعتين التجريبيتين الاستيعاب القرائي باستخدام البرنامج التدريسي القائم على التدريس التبادلي في حين تم تدريس الشعبتين الضابطين باستخدام الطريقة الاعتيادية. وقد تم بناء اختبار لقياس مهارة الاستيعاب القرائي ومستوى ادائهم.

أظهرت نتائج الدراسة وجود فروق ذات دلالة إحصائية عند ($\alpha = 0.05$) في متوسط درجات المجموعتان التجريبيتان مقارنة بالمجموعتين الضابطين في الاختبار البعدي في مهارة الاستيعاب القرائي ككل لصالح المجموعتين التجريبيتين. وظهرت النتائج ايضا وجود فروق دالة احصائيا في متوسط درجات المجموعات التجريبية والضابطة في المستويات الثلاثة لمهارة الاستيعاب القرائي في الاختبار البعدي (الحرفي، الاستدلالي، والناقد) ولصالح المجموعتين التجريبيتين.

الكلمات المفتاحية: التدريس التبادلي، الاستيعاب القرائي، الاستيعاب الحرفي، الاستيعاب الاستدلالي، الاستيعاب الناقد.

* كلية التربية/ جامعة اليرموك/ الأردن.

Introduction

English language is taught in Jordan as a foreign language in schools and universities and because of the increasing pace of changes in international economic and technological developments, new theories and methodologies of teaching English as a foreign language (EFL) were adapted. Many improvements in different English as foreign language contexts have been designed and developed without considering the main objectives of the communicative purpose of language teaching, and thus have created more challenges (Cheng, 2002; Li, 1998; and Nunan, 1993). Reading is one of the essential skills needed for students to achieve their academic goals because of its role as a key skill for future success, both in the academic arena and at work. In this respect, both Huang and Yang (2015) indicated that reading is an essential language skill as it is the heart and soul of being an excellent learner in the various school subjects. Pang, Muaka, Bernhardt, and Kamil, (2003) argued that there are two connected processes in reading activity; they are word recognition and comprehension, where the former refers to the process of correspondence between the written symbols and to the student's spoken language, and the later means to create meaning out of the text.

Reading comprehension entails the ability to understand the main ideas presented in the text, infer the meaning of each paragraph, and then, being able to comprehend the text as a one entity (Qarqez, and Abu Rashid, 2017). As indicated by Salehi and Vafakhah (2013), comprehension is the heart and ultimate goal of reading activity since the objective of reading is to gather meaning from the written text. This signifies the essential role of reading comprehension in reading skill, and this is evident when both Hart and Speece (1998:670) stated that "one of the greatest demand on students attending post-secondary institutions is the comprehension of many different and difficult texts". Reading comprehension is a reading skill required for higher order thinking skills by readers (Zablocki, Horn and Cuenca-Carlino, 2017). Smith (1997) defined reading comprehension as a multidimensional mental process entailing connecting the information revealed by the reading text with the reader's previous knowledge. In order to reach comprehension, the process requires a "very rapid and automatic processing of words, strong skills in forming a general meaning representation of main ideas, and efficient coordination of many processes under very limited time constraints" (Grabe and Stoller, 2013, p.8).

From a teaching point of view, comprehension is defined as a hierarchy or taxonomy of skills (Spache, 1963 and Cleland and Vilscek, 1966). This taxonomy of skills depends on theories talking about levels of reading comprehension that are brought from discussion made by Bloom et al, (1956) and Barrett (in Pang et al., 2003). However, Barrett's taxonomy of skills presents a general overview of levels that teaching strategies and programs should address despite the lack of a single taxonomy of reading skills (Pang et al., 2003).

On the other hand, reading comprehension, as Catts and Kamhi (1999) indicated, entails three main levels. The first skill is the literal comprehension level, which focuses on ideas and information that are expressed explicitly in the text. The main purposes for reading and the teacher's questions are directed toward responding to elicit information, which could be simple or complex. Inferential comprehension requires students to use the ideas and information explicitly stated in the text combined with their previous personal experience to construct meaning and create hypotheses about the text (Hedgcock and Ferris, 2009). Critical comprehension level requires evaluating and judging the reading text and answering to the teacher's questions in this regard (Cain and Oakhill, 2006).

One of the strategies to teach reading comprehension is the development of Reciprocal Teaching Strategy (RTS) by Palincsar and Brown in (1984), which is a metacognitive instructional strategy developed based on four cognitive strategies aiming to improve students' reading comprehension skills. Reciprocal teaching is an instructional practice used to improve reading comprehension by providing teaching of a group of skills needed for metacognition of students and is recognized as a method of inclusive practice (Palincsar and Brown, 1984; Rosenshine and Meister, 1994; Westera, 2002; Huang and Yang, 2015). Palincsar and Klenk developed the concept of reciprocal teaching in the years between 1984 and 1991 to present a teaching strategy that allows students, who were able to decode texts, but had poor comprehension skills, to improve their reading skills in general (Palincsar and Klenk, 1992; Palincsar and Brown, 1984).

Reciprocal teaching is close to the developmental theories of learning developed by Vygotsky (1978), who connected between dialogue and metacognition to show how learners develop understanding of different concepts (Kozulin, 1986). Moreover, reciprocal teaching is a cooperative learning strategy that needs collaboration and thinking in-group forms while focusing on the ability of students to provide instructional support for each

other (Oczkus, 2010). The cognitive strategies that reciprocal teaching use are found in cognitive psychology and, in particular, information processing models of learning (Palincsar and Brown, 1984; Sternberg and Sternberg, 2012).

The major focus of reciprocal teaching is on four thinking strategies: predicting, clarifying, questioning, and summarizing (Palincsar and Brown, 1984; Palincsar and Brown, 1986; Brown and Campione, 1992; Palincsar and Klenk, 1992; Westera, 2002, McAllum, 2014). The first phase of RTS is prediction, which is the students' ability to anticipate, based on their previous knowledge, what can happen next in the reading text. By reading more and more in the reading text in hand, students can evaluate their predictions, then, make decisions about those deemed to be right and maintain them, and about those to be wrong and correct them (Pressley, 2002).

Clarifying refers to students' ability to make critical evaluations on what they have read. It is also the use of metacognitive skills to monitor what they have read (King and Parent Johnson, 1998). Clarifying is simply working on explaining new words, unfamiliar structures, unclear referent words, difficult concept and any other words that have been skipped by the students and were not understood by them (Palincsar and Brown, 1984).

Questioning means that students pose their own questions about the reading content they have finished. By posing questions, students are actually recalling the most important ideas in the text, recall the key information, which makes them focus on the focal points of view presented (King and Parent Johnson, 1998). As students generate their own questions, they first work on identifying the pieces of information needing more work in the reading text, and then pose questions relating to them.

In summarizing, students are expected to provide their mastery level of what they have comprehended about the reading text (Pressley, 2002). Summarizing is an excellent way to learn the main ideas presented in the reading text. When the reader summarizes what he/ she have read, they are in a better position to manage the ideas provided, use them in a novel way different from what the author has given (Axelrod and Cooper 1993).

Previous Studied

Palincsar and Brown (1984) conducted a study to examine the effect of using a reciprocal teaching program on L1 students' reading comprehension. The sample of the study consisted of 24 students, who were divided into four groups, two experimental groups and two control groups. The first

experimental group was taught using RTP, while the second experimental group was taught using locating information strategy. The first control group was test only group, where it received all of the daily assessment tests but no intervention. The second control group was the 'control', who received only the pre and post-test. The study used pre-test and post-test to evaluate students' reading comprehension improvement. The results of the study revealed that the experimental group who was taught using RTP has improved in reading comprehension.

Alfassi (1998) conducted a study to investigate the effect of using reciprocal teaching program on teaching reading comprehension to L1 students, who have reading difficulties. The study used a methodology similar to the methodology of Paliscar and Brown (1984). The sample of the study consisted of 53 students in five experimental groups and 22 students in three control groups. The study used experimenter-designed reading tests to reach results. The results of the study revealed that the reciprocal teaching setting was superior to traditional reading methods in improving reading comprehension.

Al-Qatawneh (2007) examined the effect of using reciprocal teaching strategy on improving critical reading skills among Jordanian secondary school students. A sample of 88 students was randomly assigned to two study groups; experimental containing 42 students taught using reciprocal teaching and control, containing 46 students taught using the traditional teaching method. The results of the study revealed that there was a statistically significant difference between the mean scores of the two groups on the entire reading comprehension test. The results also indicated statistically significant difference between the means scores of students on the critical reading pre/post-test, in favor of the post-test; indicating the effectiveness of the reciprocal teaching strategy in developing critical reading skills among Jordanian secondary school students.

Freihat and Al-Makhzoomi (2012) studied the effect of using RTS on Jordanian EFL students' reading comprehension behavior. The sample of the study totalled 50 Jordanian EFL students selected from one university. For data collection, Nelson Denny Reading Test (NDRT), forms G and H, and a reading attitude questionnaire were employed to assess students reading comprehension behavior and reading attitudes before and after the administration of the reciprocal teaching strategy. It was found in the study that reciprocal teaching significantly improved students reading comprehension behavior and reading behavior.

Salehi and Vafakhah (2013) compared the effect of using reciprocal teaching strategy only and using explicit teaching strategies before RT on improving middle and high school EFL reading comprehension. A sample of 95 female EFL students were chosen randomly from a private language institute in Iran and were assigned to two experimental groups; the first was taught reading comprehension using reciprocal teaching only, which included 32 students, while the second group was taught the same reading comprehension skills using explicit teaching before reciprocal teaching, and contained 31 students. The results of the study indicated that using explicit teaching strategy before reciprocal teaching was more effective in improving students' reading comprehension skills compared to using reciprocal teaching only; although both were highly effective in improving students' reading comprehension level on the literal and critical levels.

Brown (2015) investigated the effect of reciprocal teaching on third and fourth grade students' reading comprehension and vocabulary attainment. The sample of the study consisted of 50 third and fourth grade students, who were selected from elementary school in Kansas City, USA. To identify the effect of using reciprocal teaching, a reading comprehension and vocabulary attainment achievement tests were administrated to students before and after participating in the study. The results of the study revealed that there was no difference in reading comprehension. The results also revealed that there was a significant difference in vocabulary attainment between students, who used RT and those, who did not.

AlSaraireh and Hamid (2016) examined the effect of the reciprocal teaching model on developing Jordanian students' reading comprehension at Mutah University in the academic year 2015/2016. The sample of the study consisted of 176 participants, who were divided into two groups. The study used the experimental methodology, where a pre-test and post-test were used to collect the data of the study. The results of the study showed that using reciprocal teaching model has a positive effect on the first year students' reading comprehension achievement in the experimental group. The results also found statistically significant differences in the effect of reciprocal teaching in developing reading comprehension due to sex, in favor of male students.

Ahmadi (2016) conducted a study to examine the effect of reciprocal teaching strategy on reading comprehension, motivation and metacognition among Iranian EFL university students. The study used a mixed method in order to examine the impact of using reciprocal teaching strategy

instruction. Data were collected via a reading comprehension test, reading motivation questionnaire, reading meta-cognition questionnaire and interviews. The sample of the study was 60 participants from two universities in Iran. The results of this study revealed that reciprocal teaching strategies had significant positive effects on reading comprehension, reading motivation and reading meta-cognition of Iranian EFL university learners.

Ramadan (2017) conducted a study to investigate the effect of using reciprocal teaching strategies on students' achievements in reading comprehension skills. The sample of the study consisted of 11th grade female students, who were divided into two groups; reciprocal experimental group and non-reciprocal control group. A pre-post-test in reading comprehension skills was conducted for both groups in order to investigate students' reading achievement before and after implementing the reciprocal teaching strategy. The results of the study showed that higher effects of using the reciprocal teaching strategy on developing the students' high-order thinking skills than the on the low-order thinking skills in favor of the experimental group.

Statement of the Problem

From his field experience as an English language teacher, the researcher noticed that students lack the necessary reading comprehension skills, which are important in language learning and necessary for other language skills such as speaking and writing. Previous research of (Freihat and Al-Makhzoomi, 2012), have documented the positive effects of RTS on students' educational achievement levels language skills, including reading comprehension. They concluded that RTS was an effective teaching strategy in improving reading comprehension and reading behaviour among Jordanian students.

Therefore, the researcher believes that the use of RTS in teaching reading comprehension needs further study, which lays the foundation for this study. The researcher also believes that using RTS may improve reading comprehension skills among students. These skills are literal reading comprehension, inferential reading comprehension and critical reading comprehension, which the current reciprocal based instructional program aims at improving, especially the critical level.

Purpose and Questions of the Study

The purpose of this study is to investigate the effect of a reciprocal-based instructional program on improving reading comprehension among ninth grade students in Jordan. The study addresses the following questions:

1. Are there any statistically significant differences at ($\alpha=0.05$) in the students' mean scores in reading comprehension post-test due to the use of a reciprocal-based instructional program vs. regular teaching method and sex (male or female)?
2. Are there any statistically significant differences at ($\alpha = 0.05$) in the students' mean scores in the three levels of reading comprehension post-test (literal, inferential and critical level due to the use of a reciprocal-based instructional program vs. regular teaching method and sex (male or female)?

Participants of the Study:

The participants of the study consisted of 107 male and female students distributed into four classroom sections from the ninth grade in the academic year 2017/2018 in four schools in North West Badia Directorate of Education. Two ninth grade sections were chosen to represent the experimental groups; one section from Faa' secondary school for boys and one section from Faa' secondary school for girls. The other two ninth grade sections were chosen to represent the control groups; one section from Hosha secondary school for boys and another section from Hosha secondary school for girls.

Design and Variables of the Study:

The study followed a quasi-experimental design, where the experimental group students were taught reading comprehension using a Reciprocal-based instructional program and the control group students were taught reading comprehension using regular teaching method as described in the teacher's book. The variables of the study were the following; the independent variables were the use of a reciprocal-based instructional program and the regular teaching method, and the dependent variables were students' means scores on the reading comprehension test.

The Instructional Program

The researcher designed an instructional program based on RTS to achieve the purpose of the study. The instructional program followed specific instructional strategies, starting with prediction, questioning, clarifying and summarizing, respectively, and through defining the roles of both the teacher and students within a pre-determined time framework. The

researcher implemented each strategy by following specific steps in performing activities to teach reading comprehension sub-skills, as well as to develop students' interaction and participation with the reading materials.

The main objective of this program is to improve students' reading comprehension. There were three levels of the targeted reading comprehension skills which were addressed in this study; literal, inferential and critical. Each of these levels included sub skills. As for the literal level, the main skills were recognizing the reading text details, eliciting facts from the text, recognizing the meaning of the key words expressions, recognizing characters and places. As for the inferential level, the skills included were eliciting the main idea, guessing the writer's motives and intentions, inferring cause-effect relationships, and explaining the main expressions presented in the reading text. For the critical level, these skills included distinguishing between facts and fiction, deducting the implicit meanings in the text, making judgments, and predicting results.

The Instruments of the Study

Reading Comprehension Test

The researcher designed a pre-post reading comprehension test based on a review of the related previous literature. The pre-posttest included the three basic reading comprehension levels (literal, inferential and critical). Each of these levels was measured using a well-structured multiple-choice questions developed by the researcher in accordance to the reading text in the ninth grade modules employed in the Jordanian public schools. The learning and teaching objectives included in the teacher's book guided the development of the reading comprehension test. The pre-test was intended to reflect the students' reading comprehension levels on the individual and group levels before the administration of the reciprocal based instructional program to the experimental and control groups to verify the effect of this teaching strategy.

The pre/post-test included four reading passages with multiple-choice questions to measure the students' reading comprehension in three levels; literal, inferential and critical. The total number of questions was 40, divided into three levels. The first level measured the literal level and included 20 questions, representing 50% of the total number of questions. The second level measured the inferential level and included 12 questions, representing 30% of the total number of questions. The third level measured the critical level and included 8 questions, representing 20% of the total number of questions.

Validity of the Instructional Program and the Reading Comprehension Test:

In order to validate the instructional program and the reading comprehension test, the researcher presented the program and the test to a jury consisting of twenty-one EFL university professors, English supervisors, English language teachers, and EFL curriculum experts from the Ministry of Education to look into their content and provide their feedback. Based on their suggestions, such as adding outcomes for each lesson, unifying the format of the introduction of each lesson, and adding objectives, as mentioned in the Action Back Teachers' book, at the end of each lesson, the researcher revised the instructional program and reproduced it in light of their feedback.

Reliability of the Reading Comprehension Test:

To establish the test of reliability, the researcher carried out a pilot study of 20 ninth grade students from Al-Khanasry secondary school for boys whom were excluded from the participants of the study. Pearson-correlation coefficients of the test-retest reliability were 0.72 for the literal level, 0.72 for the inferential level, 0.77 for the critical level, and 0.85 for the whole scale. The computed results of the reliability through internal consistency method, by using Cronbach Alpha were 0.78 for the literal level, 0.71 for the inferential level, 0.73 for the critical level, and 0.82 for the whole scale, which are appropriate values and indicate the reliability of the scale.

Results and Discussion:

Results related to the first question

In order to answer the first question of the study, means and standard deviations were calculated on the pre and post. Table 1 presents the students' mean scores and standard deviations in reading comprehension pre-posttest.

Table 1: The means and standard deviations of the students' mean scores in the reading comprehension pre-posttests

Group	Sex	N	Pre test		Post test	
			Mean	Std. Deviation	Mean	Std. Deviation
Experimental	Male	32	17.28	4.21	28.03	5.11
	Female	24	18.42	3.36	30.29	5.40
	Total	56	17.77	3.88	29.00	5.30
Control	Male	25	18.28	4.99	23.76	5.96
	Female	26	18.62	4.58	25.04	5.45
	Total	51	18.45	4.74	24.41	5.70

Table 1 shows that there were observed differences in the students' mean scores in reading comprehension post-test due to the use of a reciprocal-based instructional program vs. regular teaching method, and the student sex (male or female). To check whether these differences were statistically significant or not at ($\alpha = 0.05$), Two Way Analysis of Covariance (2 Way ANCOVA) test was applied. Table 2 presents the results.

Table 2: Two Way ANCOVA results of the mean scores in the reading comprehension post-test.

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Pre comprehension (Covariance)	2719.918	1	2719.918	758.983	.000	.882
Group	787.655	1	787.655	219.792	.000*	.683
Sex	21.072	1	21.072	5.880	.017*	.055
Group*sex	.007	1	.007	.002	.965	.000
Error	365.531	102	3.584			
Total	3738.262	106				

*Statistically significance at ($\alpha = 0.05$).

Table 2 shows that there were statistically significant differences in the mean scores of students' scores in reading comprehension post-test due to the use of a reciprocal-based instructional program vs. regular teaching method. F value was219.792, which is statistically significant at ($\alpha = 0.05$). To find out which group was more affected by the program, the adjusted mean and standard errors were obtained. Table 3presents these results.

Table 3: Adjusted mean scores and standard errors of students' scores in reading comprehension post-test due to the teaching methods

test	Group	Mean	Std. Error
reading comprehension	Experimental	29.46	.256
	Control	23.98	.266

Table 3 shows that the adjusted mean scores of reading comprehension of the experimental and control groups were 29.46 and 23.90 respectively. In order to know the effect size, Eta square was obtained. It was 0.683, which means that 68.3% of the variance in the total degree scores of the reading comprehension test was attributed to the reciprocal-based instructional program. It is indicated from the results that the students who were taught reading comprehension using the designed reciprocal-based instructional program have improved their reading comprehension levels. The researcher assumes that the nature of the designed program played a

major factor in improving students' levels in reading comprehension. The reciprocal-based instructional program was designed carefully and was validated for implementations to achieve its purposes. The program depended on using strategies of reciprocal teaching, such as prediction, questioning, clarifying and summarizing, to facilitate the interaction between texts and students, students and teacher, and students themselves. Moreover, the program included different activities, exercises, worksheets, and assessment tools to achieve its proper implementation.

These findings are consistent with previous studies (e.g. Palinscar and Brown, 1984; Alfassi, 1998; Freihaat and Al-Makhzoomi, 2012; Brown, 2015; AlSaraireh and Hamid, 2016; Ramadan, 2017). These studies were conducted to investigate the effect of reciprocal teaching in improving reading comprehension among students. These studies agreed upon the beneficial aspect of using RTS to teach reading skills because of its interactive nature that allows the students to be independent readers. Moreover, these studies stressed the importance of reading comprehension as a major reading skill that helps and supports students in improving their language competency in general. The results of the first question are in line with the findings of these studies, and therefore, support the purpose of the study to use reciprocal teaching to teach reading comprehension to EFL students in Jordan. To find out which sex was more affected by the program, the adjusted mean and standard errors were obtained. The results are presented in Table 4 bellow.

Table 4: Adjusted mean scores and standard errors of students' scores in reading comprehension post-test due to the sex

Test	Sex	Mean	Std. Error
reading comprehension	Male	26.27	.253
	Female	27.16	.269

Table 4 shows that the adjusted mean of the female students is greater than that of the male students which means that the difference was in favor of female students. The effect size was 0.055, which means that 5.5% of the variance in the total degree scores of the reading comprehension post-test was attributed to sex.

The high scores of female students could be attributed to the general trend that female students are serious and motivated more than male students in doing tasks and exams. This finding disagrees with AlSaraireh and Hamid (2016), who concluded that male students scored better than female students did in their study. However, these findings are in line with the results of (Salehi and Vafakhah, 2013; Ramadan, 2017) which claimed

that female students improved after receiving RTS and scored high in the post-test.

Moreover, Table 2 reveals that there were no statistically significant differences in the mean scores of the students' scores in reading comprehension post-test due to the interaction between teaching methods and sex. Table 2 shows that F value was 0.002, which was not statistically significant at ($\alpha = 0.05$). The results also revealed that there were no statistically significant differences in the mean scores of the students' scores in reading comprehension post-test due to the interaction between teaching methods and sex.

The researcher assumes that the reciprocal-based instructional program was aimed to be suitable for both sexes, and both sexes performed in the same enthusiasm and interest in the instructional program. Moreover, the instructional program contained detailed guidelines for teachers from both sexes to assist them in conducting the instructional program. These findings are in line with the findings of (Freihat and Al-Makhzoomi, 2012; Ramadan, 2017) which showed no significant differences due to sex. The findings disagree with AlSaraireh and Hamid (2016) who found statistically significant differences that were attributed to sex or the interaction between teaching methods and sex.

Results Related to the Second Question

To answer the second question of the study: Are there any statistically significant differences at ($\alpha = 0.05$) in the students' mean scores in the three levels of reading comprehension post-test (Literal, Inferential, and Critical) due to the use of a reciprocal-based instructional program vs. regular teaching method and sex (male and female)? Table 5 shows the results.

Table 5: Means and standard deviations of the pre and post students' mean scores in the three levels of reading comprehension post-test (Literal, Inferential, and Critical).

Levels	Group	Sex	N	Pre test		Post test	
				Mean	Std. Deviation	Mean	Std. Deviation
Literal	experimental	Male	32	9.63	2.28	14.22	2.95
		Female	24	9.79	2.28	14.92	2.70
	Control	Male	25	10.16	3.74	12.52	3.84
		Female	26	10.35	2.34	13.54	2.83
Inferential	experimental	Male	32	4.91	2.07	7.59	1.98
		Female	24	5.38	1.66	8.63	1.100
	Control	Male	25	5.16	1.70	6.80	2.04
		Female	26	5.23	1.70	6.88	1.99

Levels	Group	Sex	N	Pre test		Post test	
				Mean	Std. Deviation	Mean	Std. Deviation
Critical	experimental	Male	32	2.56	1.22	6.22	1.21
		Female	24	3.25	1.29	6.75	1.11
	Control	Male	25	2.96	.934	4.44	1.26
		Female	26	3.04	1.25	4.62	1.42

Table 5 reveals that there were observed differences in the students' mean scores in the three levels of reading comprehension in the post-test (Literal, Inferential, and Critical) due to the use of a reciprocal-based instructional program vs. regular teaching method and sex (male and female). To test whether these differences were statistically significant or not, MANCOVA test was applied. Table 6 shows these results.

Table 6: Two Way MANCOVA results of the mean scores in the three levels of reading comprehension post-test (Literal, Inferential, and Critical).

Source	Levels	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Pre Literal (Covariance)	Literal	463.925	1	463.925	293.660	.000	.746
	Inferential	30.908	1	30.908	42.735	.000	.299
	Critical	3.479	1	3.479	4.155	.044	.040
Pre Inferential (Covariance)	Literal	55.287	1	55.287	34.996	.000	.259
	Inferential	184.367	1	184.367	254.912	.000	.718
	Critical	1.568	1	1.568	1.873	.174	.018
Pre Critical (Covariance)	Literal	12.162	1	12.162	7.698	.007	.071
	Inferential	5.383	1	5.383	7.443	.008	.069
	Critical	53.055	1	53.055	63.367	.000	.388
Group	Literal	111.033	1	111.033	70.283	.000*	.413
	Inferential	55.004	1	55.004	76.050	.000*	.432
	Critical	110.954	1	110.954	132.520	.000*	.570
Sex	Literal	5.724	1	5.724	3.623	.060	.035
	Inferential	1.328	1	1.328	1.836	.178	.018
	Critical	.154	1	.154	.183	.669	.002
Group * sex	Literal	2.830	1	2.830	1.791	.184	.018
	Inferential	1.700	1	1.700	2.351	.128	.023
	Critical	.022	1	.022	.026	.872	.000
Error	Literal	157.980	100	1.580			
	Inferential	72.326	100	.723			
	Critical	83.726	100	.837			
Total	Literal	1070.262	106				
	Inferential	464.636	106				
	Critical	264.636	106				

* Statistically significance at ($\alpha = 0.05$).

Table 6 shows that there were statistically significant differences in the students' mean scores in the three levels of reading comprehension post-test (Literal, Inferential, and Critical) due to the teaching methods. F values were 70.283, 76.050, and 132.520 for the literal, inferential and critical levels respectively, which were statistically significant at ($\alpha = 0.05$). In order to find out which group was affected more by the program, the adjusted mean and standard errors were obtained, Table 7 presents the results.

Table 7: Adjusted mean scores and standard errors of students' scores in the three levels of reading comprehension post-test due to the teaching methods (Literal, Inferential, and Critical).

Levels	Group	Adjusted Mean	Std. Error
Literal	Experimental	14.797	.170
	Control	12.736	.177
Inferential	Experimental	8.177	.115
	Control	6.726	.119
Critical	Experimental	6.516	.124
	Control	4.456	.129

Table 7 shows that the adjusted mean scores of the three levels of reading comprehension (Literal, Inferential, and Critical) were in favor of the experimental group, indicating a better performance of the experimental group compared to the control group in the three levels of reading comprehension.

In order to determine the effect size, Eta square was obtained, and it was for the literal level 0.413, which means that 41.3% of the variance in the literal level scores of the reading comprehension was attributed to the reciprocal-based instructional program. The effect size of the inferential level was 0.432, which means that 43.2% of the variance in the inferential level scores of the reading comprehension was attributed to the reciprocal-based instructional program. The effect size of the critical level was 0.570, which means that 57% of the variance in the critical level scores of the reading comprehension was attributed to the reciprocal-based instructional program. The researcher assumes that these differences are due to the nature of the reciprocal-based instructional program, which focuses on improving the metacognitive skills in students. It is assumed that the literal level could be achieved by using different teaching methods, whether conventional, reciprocal or any other methods (Catts and Kamhi, 1999).

The literal level is the basic level of reading comprehension and students were supposed to be successful in recognizing ideas and text elements. However, the inferential and critical levels of reading

comprehension need more effort from students and more attention from teachers. Critical and inferential comprehension levels require evaluating and judging the reading text and answering questions by comparing ideas presented in the text with external sources (Hedgcock and Ferris, 2009). Reciprocal teaching strategies provide techniques to help students achieve this purpose. The questioning phase of reciprocal teaching, for example, helped students to generate questions about ideas included in the text and connecting these ideas with previous knowledge and experiences to form meaning. In addition, summarizing provided students with tools to rephrase ideas in their language to distinguish between important ideas and other supporting ideas in the text to help them better understand the text. The experimental group's achievement in the critical comprehension level is attributed to the teaching method they received, in which there was an interaction between students and the text in a comprehensive way. For example, the prediction phase of reciprocal teaching helped students to activate their previous knowledge and experiences to bring upon the text in order to understand its content.

These findings are in line with the findings of previous studies (Palinscar and Brown (1984); Alfassi (1998); Al-Qatawneh (2007); Freihat and Al-Makhzoomi (2012); Salehi and Vafakhah (2013); Brown (2015); AlSaraireh and Hamid (2016); Ahmadi (2016); Ramadan (2017). All these studies concluded with the importance of using reciprocal teaching in improving reading comprehension of students.

Moreover, Table 6 shows that there were no statistically significant differences in the mean scores of students' scores in all of the three levels in reading comprehension post-test due to sex. The table also shows that there are no statistically significant differences in the mean scores of students' scores in all three levels of reading comprehension post-test due to the interaction between groups and sex. F values were 1.791, 2.351, 0.026 for the literal, inferential and critical levels respectively, which were not statistically significant at ($\alpha = 0.05$).

The researcher believes that the program gave students (males and females) the opportunity to improve their reading comprehension levels (literal, inferential, and critical) because of its flexibility and interactive nature that could be applied to different educational environments. These findings are in line with the findings of (Al-Qatawneh 2007; Freihat and Al-Makhzoomi, 2012; Ramadan, 2017) which showed no significant differences due to sex. The findings disagree with AlSaraireh and Hamid

(2016) who found statistically significant differences that were attributed to sex or the interaction between teaching methods and sexes.

Conclusion

This study tried to find out the effect of a reciprocal-based instructional program on improving reading comprehension among ninth grade students in Jordan. To achieve this purpose, a reciprocal-based instructional program was designed and implemented during the academic year 2017-2018. The study concluded that the instructional program improved the participants' reading comprehension significantly. The study showed that using strategies of reciprocal teaching, such as prediction, questioning, clarifying and summarizing improved the students' levels of reading comprehension, and eventually, their reading levels in general. In addition, using different activities and metacognitive strategies increases students' levels in the critical subskill of reading comprehension. It is important to mention that interactive learning through group work or individual work help students to participate and become active in classrooms.

Recommendations

Based on the findings of the study, the researcher recommends that the Ministry of Education is recommended to adopt the present instructional program in designing English language curriculum to include a variety of instructional strategies to teach reading. It is recommended to conduct workshops and training sessions to train teachers to use reciprocal teaching in their classes to achieve learning outcomes. EFL teachers are advised to use the present instructional program in teaching reading comprehension to their students. It is recommended that similar studies should investigate the effect of reciprocal teaching on reading fluency (including all its subskills) among Jordanian students.

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