

Improving Iranian EFL students reading comprehension skills: examining the effects of self-regulated strategy and modified reciprocal teaching

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Abstract

The purpose of this study was to investigate how reciprocal teaching and self-regulation affected reading comprehension of EFL learners at the high school level.

60 participants were selected and randomly assigned into two groups: an experimental group and a control group. The experimental group was taught through reciprocal teaching while the control group was taught through skill-based teaching. The researcher used reading section of the National University Entrance Exam in the Field of English 1391 as pre-test, and post-test to collect the data. Data were analyzed by the covariance analysis and the results indicated that reciprocal teaching had a significantly positive effect on the English reading comprehension and usage of self-regulation strategy of high school students. Students who were taught by reciprocal teaching had better scores at post-test rather than the other students in skill-based group.

Key word: modified reciprocal teaching, reading comprehension, self-regulation, metacognitive strategy

Introduction

Reading comprehension is a skill that most EFL learners struggle with. I chose reading comprehension as the topic for this project in hopes that I could use a strategy that would allow learners to become fluent and accurate EFL readers.

The method of teaching English reading comprehension in the most classrooms is based on traditional instruction such as translation from English to Persian than based on a reading process then most of the teachers use skill-based instruction that focuses on reading comprehension skills, vocabulary skills, sentence structure, finding the main idea of a paragraph, finding the details and facts of a text, and explaining the grammar and structure of a passage with the teacher's help which will not lead to fully comprehension of text.

As Carrell (1989) mentioned in reading process, different kinds of background knowledge will be used such as linguistic knowledge of words, sentences and paragraphs, and cognitive abilities the reader interacts with the text to construct meaning from it. Cohen (1998) referred that reading comprehension involves a complex combination of the reader's cognitive process, language proficiency, and metacognitive processes.

The purpose of this study was to investigate the effects of reciprocal teaching modified from Palincsar and Brown's (1984), and self-regulation strategies which are related to metacognitive strategies on the English reading comprehension of 60 Iranian high school students.

One of the most evident features that students bring to class is a low level of in-class participation and one of the most interesting challenges in teaching L2 is finding ways to help students improve their fluency. This is especially true in countries where learners share a common mother tongue and have little or no exposure to the L2 outside the classroom (Lina Marcela Cardona Agudelo, 2010).

This research considers one of the most significant areas of EFL learner's population, reading comprehension. This study was conducted to investigate how modified reciprocal teaching and self-regulation affects EFL learners reading comprehension.

Reading should be taught in a more interactive manner to be effective, the researcher was interested in using modified reciprocal teaching strategy of Palincsar and Brown's to teach EFL learners to improve their reading proficiency in result by using metacognitive self-regulated reading.

Research questions and hypotheses

The main aim of the present study is to investigate the following questions:

- 1- Is there any significant relationship between learners' self-regulation strategy use and English reading performance after reciprocal teaching?
- 2- Is there any increase in English reading ability of the learners in the experimental group significantly higher than in English reading ability of the students in the control group?
- 3- Do EFL learners improve their reading comprehension after reciprocal teaching?

To answer the above research questions, the following null hypothesis will be tested respectively:

H0: Explicit reading comprehension strategies instruction, followed by practice in modified reciprocal teaching; do not enhance students reading comprehension achievement more than skill-based reading comprehension instruction.

H0: Reciprocal teaching does not improve students reading comprehension in the reciprocal teaching group.

H0: there is not any significant relationship between learners' self-regulation strategy use and English reading performance after reciprocal teaching.

Reciprocal teaching and Comprehension

There is numerous ways reciprocal teaching and comprehension relate to one another. Summarizing, clarifying, predicting and questioning are all strategies that fostered comprehension. In this method, not only students monitor their own comprehension, but also they become active participants in their learning and learn from other students in the process. When students become the teacher and interact with their peers, this also enhances their comprehension. Students observe teachers different tasks and modeling them. Students use the tasks with little support from the teachers. Finally the students assume the role of the teacher using one of the strategies (Lysynchuck, Pressley & Vye, 1990).

The following case studies support the notion that reciprocal teaching increases reading comprehension. The reciprocal teaching method requires students to monitor their reading comprehension (Taylor & Frye, 1992). According to Greenway (2002) the goal of reciprocal teaching is to make weak comprehenders aware of how these strategies work, which ones to use and how to use them. Summarizing the main idea of a paragraph of text helps students both to connect what they already know to the piece of text, and to predict what might happen in the next paragraph to check their prediction (Greenway, 2002, p. 114).

One strategy used in reciprocal teaching is questioning. Rosenshine et al. (1996) stated that when students create questions, they pay attention to the content. It was essential for understanding and comprehension. They described how students need to use their text to search for information and formulate questions in order to help them understand what they read. This also enables students to become more involved when they were reading.

When students generate questions, they first identify the necessary information to provide the substance for a question. Then put this information into a question format to make sure they can answer their own question. Questioning allows students to focus on detailed information, gather information, and offer possible solutions. Students become more involved in the reading activities when they are asking and answering questions themselves, rather than just responding to the teacher's questions (Christie Blaze, 2007).

Palincsar, Brown and Martin (1987) found that peer interaction in which students modeled reciprocal teaching promoted learning from the text and enhanced comprehension. The goal of this study was to help the learners understand what they read. Student engagement increased throughout reciprocal teaching. They discovered reciprocal teaching not only improved reading comprehension but also it assisted in students' abilities to recall information. This study shows that this procedure was effective as an instructional procedure for students who experienced problems with reading comprehension. The more practice students had, the more they remembered what they were reading and understood the material.

Kelly et al. (1994) stated reciprocal teaching process appears to be effective in making novice readers more experts in the cognitive encoding, organization and integration of material and in executive functions of self-monitoring and control of comprehension, thereby helping them to find that memory.

Westera and Moore (1995) assessed high school students in New Zealand before and after the implementation of reciprocal teaching. After five weeks of reciprocal teaching, the students who received 12-16 sessions made the most improvement in reading comprehension when compared to those students who received 6-8 sessions. In addition, the students' fluency and their ability to use the strategies independently during this time improved.

Participants

The participants of this study consisted of 60 students 16 to 18 years old and female from three classes in a language institute who were randomly assigned into two groups: an experimental group and a control group. The experimental group consisted of 30 students and 30 students formed the control group.

The students were informed that they were selected to participate in a research, and they agreed to do so. The participants in the experimental group were taught to read through the Reciprocal Teaching Method for Reading Comprehension, whereas the control group was instructed through skill-Based Teaching they just take part in pre-test and post-test.

The experimental group according to their pre-tests was divided into subgroups of five participants. A model of reciprocal teaching for reading instruction was constructed to investigate its effects on the participants' reading comprehension. Before the actual implementation of the reciprocal teaching, the reading section of the National University Entrance Exam in the field of English 1391 was used as a reading pre-test and administered to the participants of both groups to examine their English reading proficiency.

After reciprocal teaching, a post-test again the reading section of National University Entrance Exam in the field of English 1391 was administered to both groups again to investigate whether the participants had improved their reading comprehension and to investigate whether reciprocal instruction improved students' reading ability.

To investigate the metacognitive and self-regulation strategies the participants used in the experimental group before and after reciprocal teaching, a Reading Strategy Questionnaire (RSQ) was administered to them before and after receiving instruction on reciprocal teaching. The data obtained from the participants' self-report in the RSQ were used along with the data

found in the pre and post-test. All the data were analyzed quantitatively in relation to the research questions.

Research Instrumentation

The research instruments used to collect the data consisted of the reading section of National University Entrance Exam in the field of English 1391, the Reading Strategy Questionnaire (RSQ).

Reading Strategy Questionnaire (RSQ)

The purpose of the RSQ was to investigate the metacognitive reading strategies the participants employed in reading and assess self-regulation.

The questionnaire on reading strategies used in this thesis is extracted from Phakiti's (2003) and some adjustments are made by the researcher. Some statements are added in the present study with reference to O'Malley and Chamot's classification (1990) of learning strategies.

Reciprocal Teaching Procedures

The reciprocal teaching instruction procedure in this study was modified and adapted to be applicable for the present classroom setting. The teacher provided explicit strategy training to modeling for students how reciprocal teaching was conducted. The instruction has two phases, introduction and strategy training for the first three lessons and then, group participation for the fourth to sixth lessons.

At first stage, all the four reading strategies consist of predicting, questioning, clarifying and summarizing, was introduced to the students. These strategies were taught explicitly by the teacher and first presented as a whole class activity and then practiced as a group activity. Prediction strategy was introduced as a means of anticipating to help the students to think about what they have already known about the topic in preparation for what might be coming next. When introducing questions, the types of questions were instructed to students such as: Wh-word questions (who, what, when, where, how and why) and questions elicited in response to different text genres. Then, the students were taught clarifying strategy by identifying either words or ideas that may be ambiguous or hard to understand. They marked them in the text while reading so that they could come back to them to determine meaning. Finally, the students were taught to summarize.

In the second phase, the students were divided into groups with 5 members. The teacher monitored their work and to provide scaffolding and support if necessary. The role of the group leader could be modeled. In these latter three lessons, the strategies were reviewed at the beginning. Then the group leaders led their members to practice using the strategies by predicting what the author was going to talk about, generating questions about the text they were reading, clarifying difficult words or ideas and summarizing the text.

The instructional procedure of each reciprocal teaching reading lesson was composed of five parts: the first part was prediction, before reading, the teacher asked the students to make prediction of the text so as to activate their prior experience. The second part was explicit strategy training. The teacher taught one reading strategy at a time. The third part was silent reading. The students were asked to read the text silently. While reading, they were reminded to mark the words or phrases they found difficult. The fourth part was reciprocal teaching discussions. The students were divided into groups and a leader was assigned in each group to lead the discussion. The group members raised questions among themselves. They needed to try working out the meanings with reference to the context. Lastly, they would try to summarize the main ideas of the text. The last part was feedback and reflection. Referring to each group's work, the teacher would give feedback and invited other groups to give comment, and thus, the

group members could reflect upon their own work and make improvement accordingly. The teacher then asked the students to complete the follow-up comprehension practices individually. The teacher would mark and give feedback to students work.

Reciprocal teaching was carried out with a small group of students and a teacher, all of whom work together to read a passage. A small part of the passage was read silently. After the passage has been read, the leader is responsible for helping the small group comprehend what was read by verbally engaging in four reading strategies: Questioning, clarifying, summarizing, and predicting (Palincsar, 1991; Palincsar & Klenk, 1992).

In each reciprocal teaching session, the teacher was the first learning leader. After the teacher modeled strategy use, each student in turn was given the responsibility of being the learning leader. The teacher and other students were constantly helping the learning leader to perform the four strategies, but the learning leader actually did the questioning, clarifying, summarizing, and predicting.

Engaging in these four strategies encourages students to monitor their own comprehension. For example, if a student is unable to summarize the main point of a paragraph, it is likely that he or she did not comprehend the main point. Here, the strategy fosters comprehension because it signals to the student that he or she needs to reread to comprehend the main point, rather than continue reading without understanding (Brown, Palincsar, & Armbruster, 1984).

Skill-based Teaching for Reading Comprehension

The control group was instructed through the skill-based approach. According to Soler (2002) the skill-based approach finds the complex phenomenon of reading as component parts. Tasks are analyzed and broken down and learning is seen as facilitated by directly teaching segments of a whole which can only be understood from the dynamics of the parts. Within the skill-based approach to reading, knowledge of words is built from the part to whole, which emphasizes on phonics, phonological awareness, common letter-strings and initial sound blending in order to decode and write text.

Also there are many studies strongly advocate skill-based approach with a focus on phonics instruction, there is recognition that the reading process involves more than word knowledge. Three stages in skill-based teaching are the pre-reading stage, the while-reading stage, and the post-reading stage. In each of them, the participants practiced using the following skills useful in increasing their reading abilities: finding the topic, finding the main idea, finding and inferring details and facts, drawing inferences, explaining vocabulary, and explaining sentence structures and grammar points.

In both reciprocal and skill-based teaching in this study, the students were asked to find the main idea and the important content of a passage, to clarify the difficult words, phrases, and references, and to complete the exercises after reading. But the role of the teacher and the stages of reading in both groups were different.

Some differences between two methods can be observed: In skill-based teaching, the teacher had the whole reading class for the entire semester and acted as a lecturer, but in Reciprocal teaching, the teacher gave the students guided practice, direct modeling, and explicit instruction, and then transferred the leading role to the students, acting as a guide and assistant giving the students a chance to participate in the reading process. The students read a passage by themselves through the three steps of reading. The teacher acted as a facilitator giving the students feedback and helping them as required.

Results of the study

This research focused on the effectiveness of reciprocal teaching and the use of metacognitive strategies including predicting, and so on.

This chapter is the main part of the study which is consisted of tables and data analyses. In this chapter the researcher used different ways of data analysis to answer the research questions. The first part of this chapter is descriptive data analysis. Data are described by the use of descriptive analysis such as mean, median, standard deviation, and so on. At the second part deductive data analysis were used.

Descriptive findings

Data such as mean, median, standard deviation, maximum and minimum values are presented in Table1.

Table1-Descriptive data of pre-test and post-test of control and experimental groups

	Experimental group		control group	
	Pre-test	post-test	pre-test	Post-test
N Valid	30	30	30	30
Missing	0	0	0	0
Mean	28.7667	37.4667	27.5667	30.1000
Std. Deviation	3.23433	2.28539	3.23433	3.95099
Minimum	20.00	31.00	20.00	20.00
Maximum	35.00	40.00	34.00	40.00

According to this table pre-test mean scores of experimental group is 28.76, their post-test mean scores is 37.46. Pre-test mean scores of control group is 27.56, their post-test mean scores is 30.10.

Findings based on research questions

In this section the data from the pre-test and post-test were analyzed to answer research questions 1, 2, and 3. The findings were based on the mean scores of these tests for both the control and the experimental groups. Data were analyzed using the covariance analysis by the SPSS 16 for the windows.

Analysis of covariance is a kind of statistical control which is combination of variance and regression analyses and it can be used when there is a quality variable and some independent variables

Analysis of research questions

In this table the metacognitive reading strategies and self-regulation strategy used before and after Reciprocal Teaching will be compared.

Table2-The Comparison of the Metacognitive and Self-regulation Reading Strategies Students Employed before and after Reciprocal Teaching

Item	Description	Experimental group				t	P
		Before teaching		After teaching			
		Mean	SD	Mean	SD		
1	Prediction	2.633	0.49	4.50	0.572	-13.174	0.000*
2	Prediction	2.466	0.507	4.333	0.660	-11.883	0.000*
3	Goal setting	2.500	0.572	4.533	0.507	-14.560	0.000*
4	Prediction	2.300	0.651	4.700	0.595	-13.573	0.000*
5	Verification Prediction	2.100	0.547	4.666	0.479	-18.166	0.000*
6	Background Activation	2.700	0.876	5.000	0.000	-14.366	0.000*
7	Background Activation	2.433	0.504	4.600	0.498	-20.043	0.000*
8	Self-management	2.700	0.534	4.766	0.430	-15.303	0.000*
9	Selective Attention	2.533	0.57	4.566	0.504	-15.503	0.000*
10	Inferences	2.400	0.498	4.833	0.379	-26.444	0.000*
11	Selective Attention	2.500	0.629	5.000	0.000	-21.745	0.000*
12	Selective Attention	2.333	0.606	4.300	0.466	-14.994	0.000*

13	Summarization	2.100	0.402	4.833	0.379	- 25.667	0.000*
14	Self-evaluation	2.600	0.621	4.600	0.498	- 17.029	0.000*
15	Note Taking	2.300	0.466	4.467	0.507	- 16.979	0.000*
16	Summarization	2.300	0.466	4.166	0.530	- 15.004	0.000*
17	Selective attention	2.733	0.449	4.033	0.413	- 10.933	0.000*
18	Goal Setting	1.666	0.479	4.033	0.413	- 21.079	0.000*
19	Self-evaluation	2.233	0.430	4.066	0.583	- 12.687	0.000*
20	Selective Attention	2.233	0.430	4.033	0.556	- 12.953	0.000*

** P<0.01

Students' use of the metacognitive strategies and self-regulation strategies before reciprocal teaching

Table2 shows the metacognitive reading strategies the students of the experimental group used before and after reciprocal teaching collected from the questionnaire and according to ten metacognitive reading strategies. All the data from the pre-questionnaires and post questionnaires were analyzed using the paired t-test to determine the presence of a significant difference in the frequency of use of the metacognitive strategies.

It can be seen that before the participants were instructed through reciprocal teaching, an average of ten sub-metacognitive reading strategies almost stands above 2.5. The last popular metacognitive strategies was item 18. We can see that after reciprocal teaching the average of most reading strategies stood above 4.5, except the ones for item 17, 18 and item 20 which are in selective attention and summarizing metacognitive reading strategy. However, it shows a significant difference at 0.05.

As the table shows significant difference for all questions is 0.000 and it is less than 0.01 then with 99% confidence we can result there is significant different between the answers before and after reciprocal teaching and mean of all questions after reciprocal teaching is more than before use it.

Table3 shows the metacognitive strategy processes (planning, monitoring, and evaluating) the students employed before and after reciprocal teaching.

Table3-Comparison of the Metacognitive Processes the Students Employed Before and After Reciprocal Teaching

Metacognitive strategy Process	Experimental group				T	P
	Before teaching		After teaching			
	Mean	SD	Mean	SD		
Planning	19.400	2.513	36.466	1.502	-38.624	0.000**
Monitoring	21.433	1.524	41.366	7.685	-13.475	0.000**
Evaluating	6.933	1.01	13.333	1.061	-24.960	0.000**

** P<0.01

From Table3, it can be seen that before receiving instructions on reciprocal reading strategy, the students mean score for planning and monitoring specially for evaluating was lower than after instruction.

The students' metacognitive awareness and self-regulation strategy after reciprocal teaching was significantly higher than before it, at 0.01 level.

Table4-Normality distribution of reciprocal teaching reading comprehension

		pre-test	post-test
N		60	60
Normal Parameters	Mean	28.1667	33.7833
	Std. Deviation	3.26339	4.90275
Most Extreme Differences	Absolute	.134	.158
	Positive	.101	.113
	Negative	-.134	-.158
Kolmogorov-Smirnov Z		1.039	1.222
Asymp. Sig. (2-tailed)		.231	.101

As Table4 reveals significant difference of normality test is more than 0.05, then null hypothesis is not rejected with 95% confidence distribution of reading variable is normal.

Homogeneity of variances

Table5-Leven's test

F	df1	df2	Sig.
2.858	1	58	.096

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

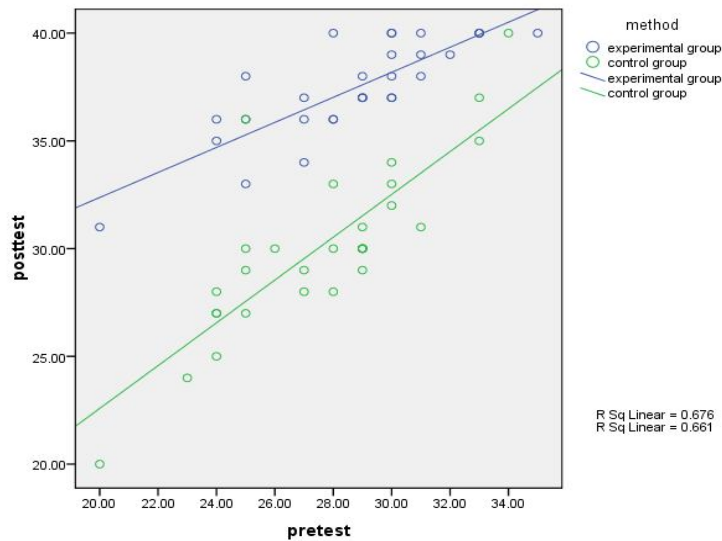
a. Design: Intercept + pre-test + method

As the Table5 shows significant difference is 0.096% and it is more than 0.01 (sig> 0.01) then we can conclude that variances are homogenies.

Linear relationship

According to the diagram and regression lines, there is a linear relationship between two groups also slope of lines is almost parallel.

Diagram 4.1-Reading comprehension distribution for both experimental and control group



Analysis of covariance

After confirming the equality of variances and regression slopes, independence of variables must be considered. As participants in experimental and control group are placed randomly then this hypothesis will be confirmed. The results are reported in Table6.

Table 6.4-Covariance analysis

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	1189.915a	2	594.957	148.564	.000	.839
Intercept	101.840	1	101.840	25.430	.000	.309
Pre-test	375.898	1	375.898	93.864	.000	.622
Method	597.390	1	597.390	149.172	.000	.724
Error	228.269	57	4.005			
Total	69897.000	60				
Corrected Total	1418.183	59				

a. R Squared = .839 (Adjusted R Squared = .833)

Sum of squares, degrees of freedom, mean of squares and, F are computed in Table6. Given that significant difference in this test is less than 0.01 (Sig<0.01) with 95% confidence we can conclude there is significant difference between data.

Table7- Moderated means

Method	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
experimental group	36.994a	.369	36.256	37.733
control group	30.572a	.369	29.834	31.310

a. Covariates appearing in the model are evaluated at the following values: pre-test = 28.1667.

The mean of moderated means for experimental group is 36.994 and for control group is 30.572. Then scores of students in experimental group has a significant increase after receiving reciprocal instruction.

Discussion

The results indicated that reciprocal teaching had positive effect on the English reading comprehension and metacognitive reading strategies of high-school students. The post-test mean score of the experimental group was meaningfully higher than that of the control group

at 0.01 level. Also, the students in the experimental group used significantly more metacognitive reading strategies after reciprocal teaching at 0.01 level.

In this study, the students learned to predict, to create questions, to find the main idea of paragraphs, to clarify words, phrases, or sentences, and to summarize the text. The four key strategies helped them overcome difficulties when reading texts as they planned, evaluated and monitored their comprehension. Therefore, reciprocal teaching is a kind of reading instruction that facilitates the teaching of English reading comprehension.

The effects of reciprocal teaching and skill-based teaching on English reading ability

The post-test mean score of the students in reciprocal teaching was higher than the skill-based group. This finding highlights that reciprocal teaching was more effective in improving English reading ability than skill-based teaching. In this study, skill-based teaching, as an approach widely used by Iranian high-school teachers, was assigned to the control group. Reciprocal teaching was assigned to the experimental group as a new technique, and because it differs from skill-based teaching, the participants needed to pay more attention in order to learn this new approach.

The metacognitive reading strategies students used before and after reciprocal teaching

It was found from the questionnaire, for the use of the ten metacognitive strategies, that the participants employed metacognitive and self-regulation strategies more often after they studied through reciprocal teaching. Reciprocal teaching, which consists of four main reading strategies Predicting, Clarifying, Questioning, and Summarizing, can promote other metacognitive reading strategies and self-regulation strategies like Verification Prediction, Self-management, Goal Setting, Note Taking, Inferences, Selective Attention, and Self-evaluation.

In this study, the participants used the three parts of the metacognitive processing: planning, monitoring, and evaluating (Cohen, 1998; Pressley, 2002). Through planning, the readers organized their reading before actually getting into a text.

The participants designed a goal before reading and organized what they should do while reading and after reading. The students used predicting as instructed from reciprocal teaching, which promoted their use of Prediction, Background Activation, Self-management, and Goal Setting. They predicted by using their background knowledge and they also planned before reading by using Self-management, and Goal Setting.

Finally, they evaluated their planning. They checked whether the reading strategies they used solved their reading problems or whether they needed to adapt these strategies.

In the experimental group, the participants improved their self-regulation strategies through the metacognitive process. Reciprocal teaching is one of the reading strategy instructions that improve readers' self-regulation. It leads students to think about their reading process, develop a plan of action, monitor their own reading in order to construct their own knowledge, and self-evaluate their reading process (O'Malley & Chamot, 1990; Wang, 2003). At the end, they are able to become independent readers, which is the goal of teaching reading for EFL students.

The results of this study indicated that the students in the experimental group employed the self-regulation strategies more often after the instruction than they did before. The difference is significant and stands at 0.05 level. These findings suggest that the metacognitive reading strategies raised the participants' awareness of the reading task and improved their performance in reading comprehension. Moreover, this study found that both self-regulation and reading

comprehension improved with metacognitive training. To sum up, reciprocal teaching provides effective metacognitive reading strategy instructions

Participants were offered opportunities to practice on their own in cooperative groups. They learned not only from the teacher, but from friends too. They regulated their own rules and read consciously using the four key reading strategies through the three processes of metacognitive strategy.

Based on the findings previously discussed, reciprocal teaching is one of the reading strategy instructions that can be used in Iranian high school classrooms or in any EFL classroom to help students improve their English reading comprehension and metacognitive awareness.

The results revealed that reciprocal teaching had positive effects on the English reading comprehension of the students in the reciprocal group who also increased their use of the metacognitive strategies after the instruction

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