

The impact of vocabulary knowledge on reading comprehension ability of Iranian English learners receiving reciprocal teaching and cooperative grouping intervention program

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Abstract

This study investigates the impact of vocabulary knowledge on reading comprehension ability of Iranian English language learners receiving reciprocal teaching and cooperative grouping intervention program. To this aim, 80 students participated in the vocabulary test as the pre-test and they were asked to fill out the questionnaire. Then, they were distributed in four groups. Control groups (A & B) received the typical instruction of reading comprehension. On the other hand, experimental groups (A & B) received the intervention program. At the end of the course, all the students took part in the vocabulary test as the post-test and they were also asked to fill out the questionnaire provided for them after the post-test. The results were analyzed by the use of a series of independent –sample t-tests and MANOVA. It was found out there was relationship between vocabulary knowledge and the level of motivation in reading comprehension skill of Iranian EFL learner.

Keywords: vocabulary knowledge; reading comprehension; reciprocal teaching and cooperative grouping intervention program; intervention program; Iranian English learners

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1. Introduction

Reading is one of the most important language skills in Iranian foreign language context. This significance is represented in the design of reading-based foreign language textbooks which are usually used in Iranian high schools. Despite this fact, Iranian foreign language learners are not usually proficient readers at the university level. Therefore, finding a way to help Iranian foreign language readers to tackle the problems that they face in the process of reading could be a critical step in the field of language teaching. Reviewing the literature, it has been found that there are different reasons for the difficulties that the readers face in the process of comprehension consequently different solutions to improve language learners' reading comprehension ability have been proposed. In most of the studies in the field of reading comprehension, the main concern is specified to the text, reader and activity. These three elements define reading comprehension that occurs within larger socio-cultural contexts (Alderson, 2000).

Considering the reader, his/her performance on a specific text depends on many factors. These factors may affect readers' skill in positive or negative ways. Some of them, which influence the readers, are affective, cognitive and social variables (Alderson, 2000). Also the readers may change over time, as they develop cognitively, gain experience with more difficult texts and benefit from instruction. Therefore classroom instruction influences the performance of the readers on the text. There are different types of intervention and instruction programs in the field of reading comprehension. One of them is reciprocal teaching and cooperative grouping which has been considered in this study. In addition, the interaction of individual differences with this type of the intervention program could be an area of investigation (Ardasheva & Tretter, 2013). Since Dornyei (2005) maintains that much of the difference in L2 skill has been related to individual differences (IDs) and he continues that "no other phenomena investigate within SLA have come even close to this level of impact" (p. 2). Individual differences could be categorized under the following groups: background characteristics (e.g., age), socio-affective factors (e.g., motivation), and levels of L1 and L2 skills (e.g. vocabulary knowledge) (Ehrman & Oxford, 1995).

Consequently, the present study designed to shed light on the effect and interaction of EFL learners' individual differences (L2 vocabulary knowledge and level of motivation) for Iranian English learners receiving reciprocal teaching and cooperative grouping as the intervention program to find the possible factors which would help Iranian English learners to improve their reading comprehension ability. This study is significant since the results would remind EFL teachers of the significant role of vocabulary in increasing the level of reading comprehension of the language learners. This awareness enables the teachers to choose and manipulate the right kind of textbooks considering the students' characteristics and the type of intervention. Therefore, the main research questions of this study are as follows:

- Is there any significant relationship between vocabulary knowledge and the level of motivation in reading comprehension skill of Iranian English learner?
- Is there any significant relationship between Iranian EFL learners' level of vocabulary knowledge and the type of intervention in reading comprehension skill?

2. Review of the related literature

Reading comprehension is one of the main skills in developing language proficiency. Reading is a complex

activity. Researchers believe that there are some general factors which have an impact on L2 reading comprehension such as individual factors (e.g., L1 knowledge, language proficiency, the use of strategy, knowledge of different text types and pragmatics, metalinguistic knowledge, background knowledge, and motivation) and contextual factors (e.g., text topic and content, text type and genre, text readability, verbal and non-verbal communication) (Alderson, 2000, p. 60). Therefore, many researchers have focused on diverse factors which would affect reading comprehension ability of language learners. In this regard, Ur (1996) characterized different processes which would highlight the differences between efficient and non-efficient readers. One point that she elaborates on is the role of incomprehensible vocabulary. It has been discussed that there is a close relation between vocabulary knowledge and comprehension (Baumann, 2005). In fact incomprehensible vocabulary would discourage the readers to continue reading .It would act as an obstacle in the process of comprehension.

Researchers distinguish two aspects of vocabulary knowledge: breadth and depth. The breadth of vocabulary knowledge deals with quantitative aspect of this type of knowledge that is the number of words a person knows but the qualitative part of vocabulary knowledge is related to its depth which is defined by Curtis and Longo (2001) as the level of flexibility and accuracy of word knowledge. Both of these aspects are important; however, many studies have been focused on the quantitative aspect of vocabulary knowledge (Qian, 2002). As a result, finding a way to enable readers to expand their vocabulary knowledge and their guessing the meaning ability would be helpful. One way to make readers competent in the process of reading comprehension is the role of instruction and intervention which would meet the students' learning needs in one or more of the specific areas of reading (Carrell & Wise, 1998).

One intervention program is reciprocal teaching and cooperative grouping. This type of intervention originates from Vygotsky (1978) which emphasizes the role of social interaction. The program is based on four main strategies: questioning, clarifying, summarizing and predicting (Palincsar, Ransom, & Derber, 1988). The first strategy is questioning. It involves asking questions about significant but unclear parts. In fact this strategy checks the degree of comprehension on the part of the learners. The second strategy is clarification of the unclear and puzzling parts. The third strategy requires the participant to summarize the text by identifying the main themes and the last stage is prediction of what is going to happen in the following sections (Hashey & Connors, 2003). First the teacher models the use of strategies then he/she observed and evaluated the use of strategies by the students carefully to decide whether scaffolding is needed to facilitate the process of using strategies by the students. Through practicing these strategies in groups of four, the learners would be involved in a process of social interaction.

Palincsar and Brown (1984) believe that key strategies in this intervention program would aid students to distinguish and respond to signs of comprehension failure. Effective reciprocal teaching procedure takes advantage of thinking aloud, scaffolding and using cooperative learning during the process (Foster & Rotoloni, 2005). The next point that Ur (1996) draws on is motivation. She believes that the motivated reader would take on challenging tasks in the process of reading comprehension while the reader who has no interest would not take the problem of being involved in the demanding tasks required in the process of reading comprehension. There are different definitions of motivation. However, this study considers Wigfield and Guthrie's definition (1997). They define motivation as having three sets of constructs (not a unitary concept). These constructs are as follows:

- constructs about their efficacy ,
- constructs about intrinsic and extrinsic motivation, and
- constructs about social aspects of motivation (p. 420).

Self-efficacy is defined by Bandura, (1986) as, "People's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances"(p. 391).Meanwhile, readers with

intrinsic motivation would read the texts since they enjoy reading interesting materials. They would take the challenge of reading different types of text which gives a sort of satisfaction. As a whole, they read because they like. But those learners with extrinsic motivation read because they want to obtain tangible rewards (Komiyama, 2013). Finally, social reasons for reading refer to the social aspects of reading e.g. the role of family in improving the motivation of the readers to read (Guthrie et al., 2007).

In addition, Solheim (2011, p. 4) has suggested that there is a connection between motivation with its different constructs and reading comprehension ability and it is mediated through strategy use (which could be provided through reciprocal teaching and cooperative grouping intervention program). The use of strategy would help learners to accomplish their tasks and as a result affects the learners' self-efficacy, motivation and their desire to be recognized as a good reader considering their ability to fulfill a given task. Consequently, this study tries to investigate the effect of a strategy-based intervention on developing vocabulary knowledge of Iranian English learners. Meanwhile, it would examine the relationship between vocabulary knowledge and the level of motivation.

3. Method

This study was based on a quasi-experimental, pretest/posttest design. The participants were not randomly assigned to groups but rather belong to whole classes. In this study, there were a pre-test and post-test. Meanwhile; there were four groups of participants. The control groups were the ones which received the typical reading instruction and the experimental groups received the intervention.

3.1 Participants

The participants in the present study were 80 full-time undergraduate university students. They were all studying English translation at Quchan Azad University and Tabaran Institute of higher Education in Mashhad. Their ages were between 20-30 years old and the participants were both male and female. In this study, the participants were distributed in four groups: experimental A, experimental B, control A and control B. Experimental group A was composed of 12 language learners belonging to the intervention study group. Experimental group B was composed of 28 students who were also receiving the reciprocal teaching and the cooperative grouping as the intervention program. While, control group A, composed of 12 students, and control group B, composed of 28 students received the typical instruction.

For this course, all the students had the same course book "Active Skills for Reading: Book 3" by Anderson (2008); in addition, they had to cover "504 essential words" by Bomberg, Liebb, and Triager (2012) as the supplementary material to expand their vocabulary knowledge. The reading course book was based on different chapters. There were two texts in each chapter. Each text started with pre-reading activities to tap the background knowledge of the readers. It was accompanied by the reading skills' section which included a series of activities to improve reading skills of language learners such as skimming and scanning. Then the text was presented to the students. Each text in a chapter was about a general topic such as selling India's rainy seasons, cultural taboos, fashion, etc. The chapter was subsequently followed by a series of reading comprehension and vocabulary skill questions. Moreover, a vocabulary text book was also covered. It also had different chapters. Each Chapter included a number of words accompanied by a series of fill in the blanks, recognition tests and matching items.

3.2 Instrumentation

The following instruments were used in this study:

Vocabulary tests - The Nation's vocabulary level test (2012) was used as the vocabulary test in this study. The test has five levels. The levels addressed are the 2000, 3000, 5000 and 10 000 frequency levels and a section for academic vocabulary. Two representative samples of 30 words were taken from each of the five levels. The

items were randomly chosen as the words to be tested. In each item, there was one word in the block as the distracter. Students were asked to choose the right word to go with each meaning. The KR reliability estimates (by SPSS) for the pretest and posttest of vocabulary test are as follows:

Table 1

KR-21 Reliability Indices

	No of items	Mean	Variance	KR-21
Pre-Vocabulary	30	18.42	23.463	0.72
Post-Vocabulary	30	25.06	17.401	0.79

3.3 Questionnaire

An adapted version of the motivation for reading questionnaire (MRQ) developed by Wigfield and Guthrie (2010) was used to assess different aspects of reading motivation. This questionnaire was given to the participants two times (at the beginning of the semester and at the end of the semester). The questionnaire administrators were available to answer questions the children have about wording of the items. It had 53 items. It addresses different aspects of reading motivation by learners. They are as follows: Reading Efficacy (3 items), reading challenge (5 items), reading curiosity (6 items), reading involvement (6 items), importance of reading (2 items), reading work avoidance (4 items), competition in reading (6 items), recognition for reading (5 items), reading for grades (4 items), social reasons for reading (7 items) and compliance (5 items). It took the children approximately 15 to 20 min to complete the questionnaire. The Cronbach's alpha reliability (through the use of SPSS) indices for the pretest and posttest reading motivation were .93 and .96.

3.4 Procedure

Eighty students took part in this study. All of them took part in the pre-test (the vocabulary test). Then, the participants were distributed in four groups: experimental A, experimental B, control A and control B and they were asked to fill out the motivation questionnaire. Control groups (A & B) received the typical teaching of reading comprehension which was usually used in these universities. The typical instruction was as follows: The instructor started the session by asking a general question about the topic of the text. Then he/she read the text. After reading the text, the teacher explained the grammatical rules and the new vocabularies to students. Next, the students were supposed to read the text aloud or silently and underlined the parts that they could not comprehend. The instructor would provide a paraphrase or an explanation in order to help the readers to tackle the comprehension of the unknown parts. Finally, the students were asked to answer the comprehension check questions. Also they were asked to read the text at home and be well prepared for the next session since the instructor would ask the learners to read the text and answer the comprehension questions for the next session.

On the other hand, experimental groups received reciprocal teaching and cooperative grouping as the intervention program based on strategy training and instruction. The instructor modeled each strategy (questioning, clarifying, summarizing and predicting) then it was practiced by the learners in stoups. This study took 14 sessions of 90 minutes during a semester. At the end of the course, all the students (both in the control and treatment groups) took part in the post-test of vocabulary. Meanwhile, the students were also asked to fill out the questionnaires provided for them after the test.

4. Results and discussions

A factor analysis through the varimax rotation probed the underlying constructs of the pretests and posttests of reading comprehension and vocabulary tests. The SPSS extracted one factor which accounted for 60.99 percent of the total variance. Table 2 displays the factor loadings of the 4 tests under the single extracted factor. Song (2005) mentions that factors more than 0.4 have significant loadings; therefore, it could be concluded that all the factors could be considered in this study.

Table 2*Component Matrix*

	Component 1
Pre-Vocabulary	.855
Post-Vocabulary	.827
Post-Motivation questionnaire	.686
Pre-Motivation questionnaire	.452

The groups should be homogenized on the pretests before discussing the results of the posttests. A multivariate ANOVA (MANOVA) was run to compare the experimental and control groups' means on the eleven components of the reading motivation in order to homogenize the two groups in terms of the reading motivation prior to the administration of the treatment. Based on the results displayed in Table 3, it can be concluded that there was not any significant difference between the two groups' overall means on the reading motivation ($F(11, 68) = .83, p > .05, \text{partial } \eta^2 = .11$) and the participants were homogenous concerning the level of motivation.

Table 3*Multivariate Tests, Pretests of Reading Motivation by Groups*

	Effect	Value	<i>F</i>	Hypothesis df	Error df	Sig.	Partial Eta Squared
Intercept	Pillai's Trace	.999	4840.004	11	68	.000	.999
	Wilks' Lambda	.001	4840.004	11	68	.000	.999
	Hotelling's Trace	782.942	4840.004	11	68	.000	.999
	Roy's Largest Root	782.942	4840.004	11	68	.000	.999
Group	Pillai's Trace	.119	.836	11	68	.605	.119
	Wilks' Lambda	.881	.836	11	68	.605	.119
	Hotelling's Trace	.135	.836	11	68	.605	.119
	Roy's Largest Root	.135	.836	11	68	.605	.119

Meanwhile, an independent samples T -test was run to compare the experimental and control groups' mean scores on the pretest of vocabulary in order to prove that both groups enjoyed the same level of vocabulary knowledge prior to the administration of the treatment. The results of the independent samples t-test ($t(78) = 1.48, p > .05, r = .16$ representing a weak effect size) (Table 4) indicate that there was not any significant difference between the two groups' mean scores on the pretest of vocabulary. Thus it can be concluded that they enjoyed the same level of vocabulary knowledge prior to the administration of the treatment.

Table 4*Independent Samples T-Test, Pretest of Vocabulary by Groups*

	<i>F</i>	<i>Sig.</i>	<i>T</i>	<i>df</i>	<i>Sig.</i> (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	.004	.951	1.489	78	.141	1.600	1.075	-.540	3.740
Equal variances not assumed			1.489	77.845	.141	1.600	1.075	-.540	3.740

To examine the first research question which asks whether there is any relationship between vocabulary knowledge and the level of motivation in reading comprehension skill of Iranian EFL learner, an independent samples t-test was run. The results of the independent samples t-test ($t(78) = 2.40, p < .05, r = .23$ representing an almost moderate effect size) (Table 5) indicated that there was a significant difference between the two groups' mean scores on the posttest of vocabulary. Thus it can be concluded that the first null-hypothesis as there was not any relationship between vocabulary knowledge and the level of motivation in reading comprehension skill of Iranian EFL learner was rejected.

To study the second research question which raised whether there is any relationship between Iranian EFL learners' level of vocabulary knowledge and the type of intervention in reading comprehension skill, an

independent samples t-test was used. An independent t-test was run to compare the experimental and control groups on the posttest of vocabulary in order to probe the second research question. The results ($t(78) = 1.37, p > .05, r = .15$ representing a weak effect size) (table 6) indicated that there was not any significant difference between the two groups' mean scores on the posttest of vocabulary. Thus it can be concluded that the second null-hypothesis as there was not any relationship between Iranian EFL learners' level of vocabulary knowledge and the type of intervention in reading comprehension skill was not rejected. Therefore, it could be concluded that the type of instruction did not affect the vocabulary knowledge of foreign language learners.

Table 5

Independent Samples Test, Posttest of Vocabulary by Reading Motivation Levels

	F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	2.077	.154	2.401	78	.019	2.175	.906	.372	3.978
Equal variances not assumed			2.401	75.725	.019	2.175	.906	.371	3.979

Table 6

Independent Samples Test, Posttest of Vocabulary by Groups

	F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	.557	.458	1.375	78	.173	1.275	.928	-.572	3.122
Equal variances not assumed			1.375	77.367	.173	1.275	.928	-.572	3.122

Although, it has not been the concern in this study but the effect of instruction on motivation was also investigated (Table7). It was found that the type of instruction affected reading motivation of Iranian English learners.

Table 7

Multivariate Tests, Posttests of Reading Motivation by Groups

	Effect	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Intercept	Pillai's Trace	.998	2903.943	11	68	.000	.998
	Wilks' Lambda	.002	2903.943	11	68	.000	.998
	Hotelling's Trace	469.755	2903.943	11	68	.000	.998
	Roy's Largest Root	469.755	2903.943	11	68	.000	.998
Group	Pillai's Trace	.989	549.168	11	68	.000	.989
	Wilks' Lambda	.011	549.168	11	68	.000	.989
	Hotelling's Trace	88.836	549.168	11	68	.000	.989
	Roy's Largest Root	88.836	549.168	11	68	.000	.989

Note. The partial $\eta^2 = .98$ indicated that group differences accounted for 98.9 percent of reading motivation

Based on the results displayed in Table 7 it can be concluded that there was a significant difference between the two groups' overall means on the posttest reading motivation ($F(11, 68) = 549.16, p < .05, \text{partial } \eta^2 = .98$) and the intervention program affected the level of motivation of foreign language learners.

5. Conclusion and pedagogical implication

Considering the results of the study, it could be concluded that there is a relationship between vocabulary knowledge and the level of motivation in reading comprehension skill of Iranian language learners. The findings are in line with Ur's (1996) ideas which express that motivation plays a significant role in reading comprehension ability and a motivated reader would be more apt to take the challenge of being involved in the

process of reading comprehension. The level of motivation and its different constructs among language learners are varied since each individual is unique in his/her feelings and affection. Meanwhile, lack of motivation would provide the reason for why learners are not always proficient in the process of reading comprehension and feel incompetent in this process.

The results would remind teachers of the importance of paying attention to the level of motivation among their language learners since each individual is unique in his/her affection, needs and interest. Meanwhile, it would direct teachers' attention towards understanding why language learners are not always proficient in the process of comprehension and express failure in this process. To this aim, teachers could use a reading interest questionnaire to show the students' areas of interest. The results help teachers and material developers in selecting different types of texts with different topics and tasks that would fit with the students' level of motivation and lead to the more engagement of the readers in the process of reading comprehension.

In addition, learners with different characteristics would like to know the goals of the course and the instructor expectation during it. To this aim, preparing an organized lesson plan with all the details and clarification improve learners' level of motivation and enable them to accomplish their tasks including reading ones more easily. Meanwhile, lack of motivation and interest on the part of the learners towards the reading activities would be the consequence of the instruction techniques and procedures which are used by the teachers in the classrooms. Therefore, instruction should include a variety of attractive activities and the appropriate texts which would match the learners' educational backgrounds and their level of motivation so that they could become motivated and encouraged to find the learning process pleasing (Tomlinson, 2003).

Consequently, in language courses which focus more on vocabulary learning, awareness of the role of motivation on vocabulary learning of English learners would help curriculum developers and teachers to manipulate the instruction through fostering the level of motivation among language learners. One way to achieve this goal is through the use of instruction. Although it was found that the type of instruction did not have any significant effect on the vocabulary knowledge of Iranian English learners, the reciprocal teaching and cooperative grouping intervention program presented helpful strategies such as questioning, summarizing and predicting to English learners and Oxford (1990) maintains that more motivated learners tended to use more strategies than less motivated ones. Therefore, this intervention would provide a rich context for motivated readers to use reading strategies.

5.1 Suggestions for further research

A further study can be conducted to find out if there is a relationship between other factors of individual differences (e.g. background characteristics such as L1 background knowledge) and the reading comprehension ability of language learners. In this way, it can be found to what extent individual differences influence on the impact of the intervention. Further research can also be conducted to investigate if there is any difference or similarity with adult participants by comparing the present study results conducted on young adults. Such a study could reveal that choices of the instruction are affected by the age of readers. Furthermore, future researchers might also collect data through think-aloud protocols in addition to the data which is collected by questionnaire. This might help them to collect more information concerning the use of the intervention programs.

Another area of research could be the study on the effect of other types of intervention programs on the level of motivation and vocabulary knowledge of foreign language learners. Mnemonic and direct instruction intervention programs could also be implemented to find their effect on learners with different level of motivation and vocabulary knowledge. One more suggestion could be an investigation on the interaction of different types of text with the intervention program to see whether there are any differences between the impacts of different types of text (e.g. user-friendly vs. personal texts) on different intervention programs.

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