

The effects of vocabulary pre-teaching and pre-questioning on intermediate Iranian EFL learners' reading comprehension ability

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Abstract

Reading comprehension is a key issue in learning English as a foreign language (EFL), and it is critical that teachers utilise pre-reading strategies in reading classes to help students enhance their comprehension. The present study investigated the effectiveness of two pre-reading strategies such as pre-questioning and vocabulary pre-teaching on EFL students' performance in reading comprehension. A group of 60 students participated in this study. An experimental design was used with 20 students being assigned to the first experimental group that received vocabulary pre-teaching while the second experimental group of 20 students received pre-questioning and the remaining 20 students received the traditional method. Students in the groups were asked first to perform the pre-reading strategy, read a passage and then answer comprehension questions. Results indicated that there were statistically significant differences among the groups. The experimental groups outperformed the control group. However, between the two experimental groups, the vocabulary pre-teaching group outperformed the pre-questioning group.

Keywords: EFL teaching, pre-reading strategies, pre-questioning, reading comprehension, schema theory, vocabulary pre-teaching.

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1. Introduction

Reading is one of the four necessary important language skills for those learning English as a second or foreign language (ESL/EFL). EFL students need to read textbooks, articles or magazines written in English to acquire knowledge and gather information for both their careers and their academic studies and so forth. The ability to comprehend texts which make up the bulk of their foreign language learning is, therefore, very important for all of them. Poor English reading ability of EFL students is commonly recognised in the classes. Several causes have been identified in regard to the EFL students' poor English reading problem. These include a lack of reading resources, a lack of strong reading culture, a lack of reading strategy knowledge and teachers' use of unsuccessful teaching methods.

Research indicates that two factors play a major role in how well the students can understand a text: adequate vocabulary and background knowledge. The more words students know and recognise, the better they understand a text (Nation, 2001). At the same time, the more prior knowledge and experience students have about the topic of a given text, the better they understand it. Nation (2001) argues that although vocabulary comprehension is not the equivalent of reading comprehension, no text comprehension is possible without understanding the text vocabulary.

On the other hand, Ajideh (2006) believes that in most cases, a common problem that students experience in reading classes is the feeling that they know absolutely nothing about the subject they are reading and accordingly, their attempts to answer reading comprehension questions prove largely futile. The truth is that the problem may not be the lack of background knowledge, but rather the failure to activate that knowledge. Ajideh continues that the majority of English teachers simply turn a blind eye to pre-reading activities. These activities, which are based on the schema theory, may offer a solution to this problem because they have the ability to eliciting prior knowledge and building background information.

This research has two main purposes: (1) understanding the possible effect of pre-reading activities on the vocabulary learning and (2) investigating whether pre-questioning is more effective than vocabulary pre-teaching for Iranian EFL students or vice versa. The study will help teachers to better understand how pre-reading activities are being used as an alternative vocabulary teaching method. Usually, teachers spend a lot of time looking for various vocabulary teaching methods that they can use on a regular basis. This study may shed more light on the use of pre-reading strategies in reading classes which provide students with the meaning of keywords while other strategies help motivate students to read the passage.

2. Literature review

2.1. Schemata and reading skills

It is to be noted that no writing or text relates to every detail. There are certainly some lacks of information in the writing, and it is assumed that the reader will fill up those lacks with the assumptions which are shared by both the writer (encoder) and the reader (decoder). The more the shared assumptions are, the more effective the reading will be. These assumptions are technically described as schemata (plural of schema). They are abstract ideas of certain experiences and affect largely to interpret a text more precisely. Again, the knowledge people get from experiences is organised in a variety of ways depending on the individual minds. For this reason, people have different experiences of the same incident, and consequently, different interpretations of the same text.

According to Nuttall (1996), the schema 'is a mental structure. It is abstract because it does not relate to any particular experience, although it derives from all the particular experiences we have had. It is a structure because it is organised; it includes the relationships between its component parts' (p. 7).

If a reader possesses sufficient and/or similar schemata of the writer and the text can activate them properly, he/she will be able to interpret the text successfully and meaningfully. On the other hand, a reader of weak schemata cannot penetrate the thought and message of the writer and will remain in a state of darkness and spend much time groping the meaning of the text. Nuttall (1996) has illustrated this by an example. The first sentence from the example is, *The bus careered along and ended up in the hedge*. In this text of a single sentence (p. 7), bus schema can be cited to illustrate the idea. It is to be noted that there is no mention of the road in the text, but the reader does not face any difficulty in understanding the elaboration that the bus was running along 'a road'. 'This means that our road schema is hovering at the back of our minds in case of need; the road schema for some readers will include components such as walls, hedges, fences which mark the limit of a road'.

However, if the reader's road schema does not include 'hedge' along the roads, s/he will be in difficulties to understand the meaning of the text, and will, perhaps, be in a puzzle where the bus actually stopped! Thus, reading makes use of our existing schemata, and if necessary, modifies it (in the above example, the reader may check and learn the word, hedge, which will add knowledge to his/her existing schemata). Moreover, all the schemata should not, and need not be recalled. In a responsive reader, only the relevant schemata are activated.

Schemata in a reader are not constant. They are always changing. Existing schemata may be changed or modified by new experiences—experiences derived from reading or from our daily affairs. To put it in Nuttall's (1996) word, 'a schema grows and changes throughout our lives, for as long as we retain the capacity to learn' (p. 8).

It has already been stated that schemata of a student play a vital role in exploiting and understanding a text. According to Shahidullah (1996), 'teaching of reading concerns mainly with schema activation and schema availability' (p. 214). Social, cultural, historical or even mythical or religious schemata are all important to understand a text properly.

2.2. Studies into accuracy and cohesion

Pre-teaching is an instructional method that has been found to make a passage easier to comprehend by allowing the brain to focus on this comprehension and not decoding or determining the meaning of unknown words during target passage reading. This focus aided the student in the creation of a 'vocabulary fluency' gaining the ability to be automatic and accurate in determining meaning while reading. The technique of pre-teaching helped to support the connection of vocabulary and comprehension instruction. Providing students with rich instruction focused on the content the students are reading, or are about to read, increased the likelihood that students' comprehension will improve (Graves, 2006). Having a strong understanding of the meanings of words ensured that students will be able to understand the text they are reading. Beck, Perfetti and McKeown (1982) explained:

A vocabulary training programme can lead to gains in comprehension. Following instruction, subjects process individual word meanings more accurately and more rapidly. Improvements in comprehension follow because the construction of passage meaning is made easier because individual word meanings are understood (p. 520).

The need to stop comprehension in order to determine and decipher meanings took the short-term brain capacity away and hinders a thorough understanding of the text. Comprehension can be disrupted if too many of the words in the passage are unknown (Jalongo & Sobolak, 2011). Pre-teaching vocabulary provided the outlet for understanding unknown words prior to the beginning to read a text and therefore, avoids this problem. Pre-teaching also incorporated instruction that '...provides both definitional and contextual information about the words to be learned as well as multiple exposures and opportunities to use them' (Blachowicz, Fisher & Ogle, 2006, p. 57).

When the classroom teacher introduced the vocabulary before reading, the student has a head start on what terms and content will be addressed in the text. This activation of schema helped the reader to begin their interaction with the text. If there is no connection between these terms already, the pre-teaching would help to establish this background knowledge. If there is a connection between the terms, the pre-teaching would aid the reader to activate the meanings of the terms. Beck, Omanson and McKeown (1982) found that when main concepts are introduced prior to reading, both skilled and less skilled readers benefitted; in fact, less skilled readers performed just as well as the skilled readers from the control group receiving no prior knowledge activation.

Pre-teaching vocabulary has been found to be related to the access, instrumental and knowledge effects of vocabulary knowledge as well as prior knowledge activation. Students that have been to pre-taught vocabulary are able to comprehend a passage with more difficult words. Kameenui, Carnine and Freschi (1998) conducted a study in which a control group was given a passage using easy words and the treatment group was given a passage with difficult synonyms substituted for those easy words. They found through the pre-teaching that the students that were pre-taught the difficult words had the same gains in comprehension as those who were given the easy words. 'The substitution of familiar words for difficult or unfamiliar synonyms in a text makes the text easier to comprehend. People are helped to comprehend a text if they learn the meanings of the unfamiliar words it contains' (Kameenui et al., 1998, p. 385). Medo and Ryder (1993) had similar findings when they determined that there is better comprehension with the high-frequency words than with the low-frequency words. Changes from low to high word frequency facilitated reading comprehension. In their study, Brabham and Lynch-Brown (2002) found that students had increased word knowledge when the teacher explained the word meanings before and after a story that was read to them. Students had gains of 10% when assessed on word knowledge in instructed and uninstructed meanings during the storybook reading (Biemiller & Boote, 2006).

Pre-teaching vocabulary also had benefits in allowing students to improve reading comprehension and word knowledge over time. In their 1982 study, Beck et al. taught 104 words over a 5-month period to elementary students. A variety of instructional methods were used and pre-tests and post-tests were given. After the study, there was a medium effect size demonstrating growth in reading comprehension. This study was replicated 1 year later to have a stronger focus on the improvement of reading comprehension. The results again indicated that the vocabulary instruction prior to reading enhanced comprehension of the stories containing the instructed words. The study showed that students can thoroughly learn a year's worth of vocabulary over the course of 175 days through the use of reading comprehension integrated with word study. This study highlighted the importance of stressing the breadth and depth of vocabulary learning in order to facilitate ownership.

The most important key to create an interactive learning is the initiation of interaction from the teacher by using question (Brown, 2001, p. 169). Appropriate questioning can fulfil a number of different functions, such as:

- (a) Teacher questions give students the opportunity to produce language comfortably without having to risk initiating language themselves. It is very scary for the students to have to initiate conversation or topics for discussion.
- (b) Teacher question can serve to initiate a chain reaction of students' interaction among themselves.
- (c) Teacher questions giving immediate feedback about students' comprehension.
- (d) Teacher questions provide students with opportunities to find out what they think. As they are nudged into responding to questions about, say, a reading, they can discover what their own opinions and reactions are. This self-discovery can be especially useful for a pre-reading activity.

Based on Brown's (2001) explanation of display questions, schema theory and students' background knowledge explanation, he also defined pre-questioning implicitly as some questions which are provided before the students read the whole text in order to build the students' interest

and motivation, also their cognitive factors and pre questioning is very useful to activate the schemata, thus the students can predict what will be faced by them in the reading text.

According to Harmer (2001, p. 153), there are some kinds of pre-questioning, they are pre-questioning before reading to confirm expectations, pre-questioning before reading to extract specific information, pre-questioning before reading for general comprehension and pre-questioning before reading for detail comprehension. The explanations are as follows:

Pre-questioning before reading to confirm expectations. The use of pre-questioning as a tool for placing great emphasis on the lead-in stage (where students are encouraged to become interested in the subject matter of the text), encourages students to predict the content of the text and gives them an interesting and motivating purpose for reading.

Pre-questioning before reading to extract specific information. Pre-questioning as a tool to force the students to extract specific information from the text. They are going to answer before reading the text. If they do this, it will be possible for them to read in the required way, they should see the text only to extract the information the questions demand.

Pre-questioning before reading for general comprehension. In this case, pre-questioning used to build up the students' prior knowledge.

Pre-questioning before reading for detailed comprehension. This kind of pre-questioning intends to give the students some detailed information that should be found by them in the whole of the text.

According to Alexander and Heathington (1988, p. 225), teachers use questions before and after reading to achieve a number of purposes: (a) to motivate and arouse interest, (b) give the children reasons for further reading, (c) assess and develop background experiences, concepts and information, (d) improve comprehension, (e) help vocabulary development, (f) review and reinforce concepts and information, (g) serve as a basis for deciding whether or not children should read particular selections, (h) help students to determine the most appropriate reading rate and (i) aid in memory.

Based on the purpose, the pre-questioning greatly assists students in reading comprehension cognitive, especially since students are challenged and feel aroused, reading comprehension is highly complex information processing that involves the interaction between reader and text (Silberstein, 1994). On the one hand, pre-questioning can build the interest and motivation before the students read the text. On the other hand, it needs more time and power in the class for the teacher. If the teacher does not master the class, it can make useless (Silberstein, 1994). Moreover, students must be asked about mastering the material whether their vocabulary is very poor and it will influence in comprehend the reading text (Israel, Block, Bauserman & Kinnucan-Welsch, 2005).

3. Participants

The research study took place from late April to mid-June 2016 at a Language Institute in Ardabil. The students of six classrooms were asked to participate in the study. Although all students in six classes were invited to participate in this study, only the data from those with signed consent forms were used in the analysis. A total of 134 students were involved in the research. All of the data collected by the students was identified with a number. The number identified the student. All the learners took Oxford Proficiency Test to make sure they are at the intermediate level. The learners who got above 47 were considered as the sample of the study. A sample was composed of 60 female EFL students. There were two experimental groups and a control group. Twenty of the students were randomly assigned to each experimental group. Finally, 20 learners were in the control group. All the students' native language was Turkish; participants' ages varied from 19 to 30.

4. Procedures

An assistant teacher was asked to participate in a reading comprehension research study. The researcher prepared a booklet in order to discuss the expectations and procedures of the study in the training sessions. This training with the teacher took place in two sessions prior to the beginning of the research. The first session introduced the study and began a general explanation of the procedures. The second training session occurred a week later and reviewed the procedures and answered any questions the teacher had about the study.

The informed consent form was given to all of the students involved in the study one session prior to the beginning of the research. The form explained the process of the research and how the data would be collected, reported and destroyed.

Because students who attended the study were not homogeneous in terms of their English language proficiency, some were at the upper-intermediate level and others at a lower-intermediate level, students were required to take a placement test and then, the learners who were at the intermediate level were chosen as the sample of the study.

After administering the Oxford Placement Test for choosing the intermediate level learners, the researcher assigned the learners into three groups. All the groups took a pre-test of reading comprehension. The purpose of this pre-test was to determine whether the words as the target words were truly unknown to the students. The teacher passed out the pre-test and read the directions to the students.

English language learners went into the regular education classroom with a teacher. Lessons were taught at the different time of the day each week. The classroom teacher implemented all the activities and assessments during the reading prepared by the researcher for all three classes. Each daily pre-instruction lesson or reading activity averaged about 50 minutes in length.

The first experimental group was introduced to the vocabulary pre-teaching strategy. On the days of the experiment, the students were introduced to the new passage. The researcher read the title and then provided a short introduction to the topic in order to familiarise students with the content. Next, she asked them to look at a list of new vocabulary attached to the passage and questions. The researcher along with the students translated the new vocabulary and phrases into Persian. In some cases, the students asked for synonyms which were provided. At other times, students came up with synonyms themselves. Interestingly, the students had made certain logical connections between the words and the title of the passage. The learners expressed that they had already become actively involved in the text. Then, the teacher asked the participants to read the passage and answer the follow-up questions. Participants had an additional 10 minutes to answer the questions.

The second experimental group used a pre-questioning strategy. On the days of the experiment, the students were given a one-sentence summary of the passage content. The researcher started to ask some related questions. Although the participants were not sure of the answers, they provided any ideas that came to their minds. An important goal of this phase was to urge students to make inferences built upon their previous knowledge. Such an activity stirred up students' motivation to read the given texts. For example, when the researcher introduced the topic, the students knew nothing. When the participants were involved in pre-questioning, they were eager to read the text. After raising several important questions, the participants were given 10 minutes to read the passage and answer the following comprehension questions.

Students in the control group were instructed in reading comprehension through a regular instructional plan of language institute. The learners in the control groups read the text and answered the comprehension questions. They didn't receive any vocabulary pre-teaching strategies. They were given only the OPT and pre-test (reading comprehension test), and a post-test (reading comprehension test) is the same as the experimental groups. Their scores were compared with learners in the

experimental groups in order to determine the effect of pre-teaching strategies instruction on their reading comprehension. All the groups took the post-test after the last treatment session.

5. Results

The results of the post-test appear below in Table 1.

Table 1. Descriptive statistics for the post-test scores

Group	N	M	SD
Vocabulary	20	15.15	1.75
Pre-question	20	13.95	1.05
Control	20	11.40	1.50

As it can be seen from Table 1, the mean scores of the vocabulary pre-teaching, pre-questioning and control groups are 15.15, 13.95 and 11.40, respectively.

Table 2. Normality check for a score on post-test

	Kolmogorov Smirnov		
	Statistic	Df	Sig.
Post-test	0.126	60	0.091

The normality check of post-test scores (Table 2) showed the scores are normal. The following table presents an analysis of homogeneity of variances for the post-test.

Table 3. Test of homogeneity of variances

Levene statistic	df1	df2	Sig.
1.870	2	57	0.1640

Table 3 showed the homogeneity of the variance for the post-test. The obtained significant value is higher than 0.05 which suggests that variances for the groups are equal. Table 4 shows the mean comparison of pre-vocabulary teaching group with the control group.

Table 4. Mean comparison of pre-vocabulary and control groups

Group	Group	Mean differences	Std. Error	Sig.
Pre-vocabulary	Versus Control	3.75	0.46	0.000

The above table shows that the sig. value is smaller than 0.05 which means that there was a significant difference between the control group and the experimental vocabulary pre-teaching. The sig. value is 0.000. Table 5 shows the mean comparison of pre-questioning group with the control group on the post-test.

Table 5. Mean comparison of pre-questioning and control groups

Group	Group	Mean differences	Std. error	Sig.
Pre-questioning	Versus Control	2.55	0.46	0.000

A very short glance at Table 5 reveals that there is a statistically significant difference between the experimental pre-questioning group and control group. The sig. value is 0.000. The following table shows the result.

Table 6. Results of one-way ANOVA for post-test scores

	Sum of squares	Df	Mean square	F	Sig.
Between Groups	146.700	2	73.350	34.186	0.000
Within Groups	122.300	57	2.146		
Total	269.000	59			

Table 6 indicates the results of one-way ANOVA for the differences among the three groups on the post-test. There was a statistically significant difference among the groups, $F = 20.58$, $p > 0.000$.

Table 7. Scheffe post-hoc test results among the three groups for the post-test

Group (1)		Group (2)	Mean differences	Std. error	Sig.
1*	Versus	2**	1.20	0.46	0.042
1	Versus	3***	3.75	0.46	0.000
2	Versus	3	2.55	0.46	0.000

* = vocabulary pre-teaching

** = pre-questioning

*** = control

However, to pinpoint exactly where the differences existed, a Scheffe post-hoc test was run on the post-test. As Table 7 shows that the participants assigned to the vocabulary pre-teaching group outperformed the other groups, $p < 0.05$. Besides, the pre-questioning group outperformed the control group, $p < 0.05$.

6. Discussion

The result showed that the experimental vocabulary pre-teaching group outperformed the control group. This is in line with the finding of Anderson and Freebody (1981). They noted, one of the most consistent findings in L1 reading research has been the high correlation between vocabulary and reading comprehension.

Thus, pre-teaching vocabulary may be more successful if the words to be taught are keywords from the target passage. This study was conducted in a similar way to that of Hudson (1982) in the sense that the students learned vocabulary important to the story. The participants carried out the vocabulary strategy and then answered all the comprehension questions within 5 minutes (or 8 minutes for the Google passage, which was the longest). They then submitted both the answer sheet and the vocabulary list.

In the vocabulary pre-teaching strategy employed in the Taglieber, Johnson and Yarbrough (1988) study, the students read the sample sentences aloud and predicted the meanings of the words without looking at their L1 equivalents. This manner of vocabulary pre-teaching might be effective, but as Hulstijn (2001) pointed out, 'elaborating on a new word's meaning in itself may not suffice to have it available for later access' (p. 276). Using L1 translations is also less laborious for students. Nation (2001) claimed that it was quite wrong to assume that L1 translations should not be used in teaching or testing vocabulary. He said that using the first-language meaning is like 'choosing a simple synonym' (p. 351), although using a second-language definition is more arduous.

The analysis of the data showed that the pre-questioning strategy was effective too. In the Taglieber et al. (1988) study, the pre-questioning strategy consisted of giving students a one-sentence oral summary of the passage and asking them to formulate some questions that they thought the passage might answer. However, the pre-questioning strategy in this study meant giving students a list of comprehension questions beforehand. Miciano (2002) examined if self-questioning as a reading strategy would help Filipino students improve their comprehension of prose texts in English. The

participants in her study were 'given a session training in question formulation which ran for 2 weeks' (p. 212). However, the results of her study indicated that 'self-questioning as a strategy in ESL reading may not significantly affect text comprehension' (p. 215). Carrell (1984) stated, 'Some texts which have comprehension questions following the passages suggest that these may be used as pre-reading questions' (p. 335). Ajideh (2006) proposed that teachers 'can adopt...reading questions from the comprehension questions that appear in the textbook after the reading selection or in the teachers' manual' (pp. 7, 8).

Pre-reading strategies, in general, improve students' comprehension of texts (Zhaohua, 2004) because pre-reading strategies activate students' prior knowledge (Maghsoudi, 2012). Mihara's (2011) findings advocated the use of pre-reading strategies. They found that students who use pre-questioning comprehend better than those who use vocabulary pre-teaching. The results of this study are in contradiction with Mihara's results.

The study finding provided an empirical answer to the study question posed. In addition, it asserted the employment of pre-reading strategies in reading lessons not only for facilitating reading comprehension by activating prior knowledge but also as an effective activity to stimulate students' motivation in reading classes. Motivation plays an important role in foreign language learning (Ur, 2007).

The present study suggests that for Iranian intermediate level students, vocabulary pre-teaching is more effective than pre-questioning. Data analyses show that for the three intermediate classes, members of the class that carried out the pre-vocabulary teaching strategy always did better on a reading comprehension test than those in the other. These results are not compatible with the Taglieber et al. (1988) study of Brazilian university students. Thus, this study would suggest that in this respect, Iranian and Brazilian students are not similar. However, in the vocabulary strategy used in this study, keywords and phrases were listed. The students were not allowed to look at the vocabulary list while reading the passage. The pre-questioning group was not able to answer the questions, and so they probably were confused while reading the passage.

After the implementation of the vocabulary pre-teaching, students in the treatment groups had greater comprehension on the post-test compared to the pre-questioning and control groups. While this finding was similar to previous studies, this study provided insight into the use of selected pre-teaching strategies (Armbruster & Nagy, 1992; Medo & Ryder, 1993) and the components of pre-teaching (Blachowicz, Fisher & Watts-Taffe, 2011; Christ & Wang, 2010). The students who were part of the treatment groups received rich pre-vocabulary teaching. Also, the target words were directly related to the passage, which allowed for the complete transference of meaning.

This finding confirmed that students in the treatment groups benefited greatly from the vocabulary pre-instruction that included multiple exposures and ownership of created understanding. This allowed them to gain 'vocabulary fluency' and impacted their ability to concentrate more on the text for comprehension than on stopping to determine meaning.

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