The effects of explicit cognitive strategy training on Iranian students' performance in IELTS reading

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Abstract

This study aims to ascertain whether Cognitive Strategy training has an impact on the development of reading skills of upper intermediate and advanced students participating in IELTS preparation courses, and whether the related effect has lingered for a certain period of time (1 month) or not. The present research is in the type of a quasi-experimental study with pre-test and post-test. For this purpose, the study carried out with 42 students participating in IELTS preparation courses who were randomly assigned to an experimental group (N = 22) and a control group (N = 20). After that, the experimental group was instructed via explicit cognitive strategy training, while the control group received cognitive strategy training implicitly. At the end of the course, both groups were given a posttest. The results of the posttests revealed that the experimental group's results were significantly higher than those of the control group; therefore, explicit cognitive strategy training significantly affected IELTS participants' reading performance. The analysis of the results of the delayed posttest also revealed that the participants of the experimental group were still significantly superior to the control group.

Key words: Cognitive strategy, IELTS exam, IELTS reading module

Introduction

In many second or foreign language teaching situations, reading receives a special focus (Jack C. Richards, &Willy A. Renandya 2010).Language students need a large amount of comprehensible input and reading materials are as a source of input (Krashen, 1985; Kasap&Peterson,2018). Good reading of texts also provides good models for writing, to stimulate discussion and to study language. Considering the importance of reading, many studies have been done to reveal its nature and to find the most efficient ways to teach it.

As it is true for the other three language skills, reading is a process which involves activating relevant knowledge and related language skills to accomplish an exchange of information from one to another. Reading is a skill in which the reader focuses or the present materials and integrates it with his/her previous knowledge and life experience. (Chastain, 1988)

Widdowson (1979) defines reading as "the process of getting information via print". By talking about getting information, it seems that he/she wants to imply that reading is a one way process from writer to reader. In other words, he/she explicitly does not say that. UrguhartWeir (1998) believes that reading is "the process of reading and interpreting information encoded in language from via the medium of print". Reading is a way of encoding message in print.

After being enlightened on the nature of reading, scholars wished to find a way to ease the task of reading and enhance learners' comprehension. To this end, they decided to devise strategies. A strategy is viewed as a flexible plan or technique used by readers in the attempt to get information or make meaning from a text (Pearson,

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Roehler, Dole & Duffy, 1992).In another point of view, a strategy is a plan selected deliberately by the reader to accomplish a particular goal or to complete a given task (Kasap&Power,2019; Paris, Lipson, &Wixson, 1983; Paris, Wasik, & Turner, 1991).

Knowing that there exists a variety of strategies, teachers have always been trying to find the most suitable strategy to improve students' comprehension. This effort is even greater for the teachers who are trying to train students to participate in tests which measure language proficiency, such as IELTS. This is because, for being successful in these tests, and for being able to answer the questions in the reading part, the participants are required to read difficult texts in a short time and at the same time remember a great deal of information.

Cognitive strategies have been used by professional teachers to help their students improve their reading comprehension abilities. EnySyatriana (2012) conducted a study in which cognitive reading strategies were taught to students and proved that these strategies were effective in developing students reading comprehension.

Although many scholars have studied the effects of instructing cognitive strategy on students, they have rarely studied the effectiveness of this sort training on achievements of students in specific tests measuring language proficiency such as IELTS. Knowing that cognitive strategy training has shown to be facilitating the task of reading in general, this research studied the effect of cognitive strategies specifically on the performance of upper intermediate and advanced students participating in IELTS preparation courses.

In this paper I will investigate the following research questions:

1. Does the Explicit cognitive strategy training significantly affect IELTS candidates' performance?
2. Does the effect of teaching cognitive strategy training explicitly to IELTS candidates' linger for a certain period of time (1 month in this study)?

Review of literature

Reading is a very important part of educating, whether in learning one's first language or second language. It is not only the most important mean of transferring knowledge but also the only possible way to penetrate the world of knowledge.

Knowing the importance of reading, scholars have been trying to define reading and understand what happens during comprehending a text. Fort his reason, many have provided definitions of reading and the how to do it. In the following parts, a brief review of the researches was done by several renowned scholars of the field such as Grabe, (2009) Koda, (2005), Cain and Oakhill, (2007) and Perfetti and Adlof, (2012). These scholars suggest that while reading a text, there were a number of reading processes at work.

In the area of scrutinizing the essence of reading, Grabe (2009) has made the biggest of contributions by conducting various studies and reporting them in his book, "Reading in a Second Language, Moving from Theory to Practice". According to Grabe (2009), reading is composed of two levels of processes: lower-level processing and higher-level processing.

Reading in L2

During the 19th century, being able to read in a second language was more important than being able to speak it (Howatt, 1991). The same view continued through the twenty century, while the National Education Association's Committee of Ten declared that "foreign language instruction in American schools should be for reading only" (Bernhardt, 1998, p. 48). However, this viewpoint did not agree with the curriculum running in schools after the Second World War, which emphasized the ability to speak a second language. Despite speaking taking over reading, teaching and learning to read remained as a non-separable part of language learning. And a great body of research has been conducted to penetrate the mystery of reading in a foreign language. In the following part the results of the studies done by Bernhardt (2011), which is among the most referenced and most reviewed studies, will be briefly explained.

At first, it was believed that reading a second language is the same as reading the first language but then it became clear that literacy in the first language acts like a channel (Kasap,2021) that helps and guides reading. Learners take advantage of the already known strategies for establishing the sound system relationship and eliciting meaning from the clauses and phrases while trying to read in a second language (Bernhardt, 2011).

Empirical Studies on strategies-based in L2 Reading

Being able to read in a second language has received so much attention from a long time ago and its different dimensions have been the subject of many studies. Goodman (1968) conducted research named psycholinguistic framework which is a framework that posits that a reader is actively engaged in relating experience (psycho) with words (linguistic) on the page. To see how a reader uses experience along with the knowledge of the language, Goodman asked readers, (especially young readers) to read out some related text together. He used the miscue technique to gather his data. The miscue technique, according to Bernhardt (2011) is defined as "mistakes that readers make while reading orally, including ones based on self-correction, words that look similar, substituting one word for another, or changing grammatical category" (Bernhardt, 2011,23).

The results of his study indicated that reader put their own meaning into the text while comprehending and that what they understand can change what they "see". The more readers are involved in comprehending, the higher the

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probability of increased miscues. This is a classic depiction of "top-down" reading—that "hypothesize[s] that reading becomes more conceptually driven as fluency develops" (cited in Bernhardt, 2011, p.23).

In the second research conducted by Cattell (1885), he observed readers while reading a newspaper through a pinhole in the newspaper. Through these observations, Cattell was persuaded that the eye was stationary most of the time during reading. By the emergence of the 20th century and the computerized facilities, readers' eye movement became the subject of such experiments. This time, however, the results were different. It was revealed that readers' eyeballs moved across the lines and made fixations as long as 100 milliseconds. It was also revealed that readers tend to have fixations on about 80% of the content words and about 20% of the function words. These data were collected during a vast and important series of research done at the University of Minnesota, the University of Illinois, and at Carnegie-Mellon University (LaBerge & Samuels, 1974; McKonkie & Rayner, 1975; Carpenter & Just, 1977) (cited in Bernhardt, 2011, 27).

In a study done by Doly (2021), it was attempted to find out whether metacognitive strategies affected tertiary level students' reading comprehension. The researcher chose a qualitative, multiple case study approach to conduct the study. In the first phase, the participants were asked to comprehend a text without any training on metacognitive strategies. The second phase consisted of a training on metacognitive strategies of reading while the third phase asked the participants to read a new text utilizing the learnt strategies. Finally, the participants shared their views on their experience through a semi-structured interview. The findings revealed that students have improved their ability to comprehend a text after receiving the metacognitive training in terms of timing, fluency and motivation for reading.

Reading Strategies

According to David Perry (2013) comprehension strategies are the resources used by the readers to understand a text. These strategies are mostly unconsciously used to the point that comprehension breaks down and the readers then consciously employs them to comprehend. However, according to Block (1996), strategies are the ways readers conceive a task, the textual cues they pay attention to, how they make sense of the text, and what they do when they don't understand a text. In fact, strategies are conscious ways of employing some of the processes.

Grabe, (1991), believes that there are six general component skills and knowledge areas that are used in reading (including: 1. Automatic recognition skill. 2. Vocabulary and structural knowledge. 3. Formal discourse structural knowledge. 4. Content/world back ground knowledge. 5. Synthesis and evaluation skill/strategies. 6. Metacognitive knowledge, as mentioned earlier.) an only conscious attention toward any of these processes will end

the reader to use a strategy (cited in Celce Murcia, 2001, p. 154).

Cognitive Strategies

Cognitive strategy, which is the focus of this research, is one of the strategies which has received a lot of attention on the side of different scholars. In this part different definitions of cognitive strategy by different sources were provided.

Perhaps the most straight forward explanation of cognitive strategy is given by the British Council. It is as the following:

> "Cognitive strategies are one type of learning strategy that learners use in order to learn more successfully. These include repetition, organizing new language, summarizing meaning, guessing meaning from context, using imagery for memorization. All of these strategies involve deliberate manipulation of language to improve learning. Classifications of learning strategies distinguish between cognitive strategies and two other types, metacognitive strategies (organizing learning), and social/ affective strategies (which enable interaction)" ((taken from the British Council website, https://www.teachingenglish.org.uk/article/ cognitive-strategies).

On the other hand, a very comprehensive and detailed classifications was given by O'Malley and Chamot (1987). They have categorized the strategies into three parts, the second part of which illuminates cognitive strategies:

> "1. Metacognitive strategies: These involve executive processes in planning for learning, monitoring one's comprehension and production, and evaluating how well one has achieved a learning objective.
>
> 2. Cognitive strategies: The learner interacts with the material to be learned by manipulating it mentally (as in making mental images or relating new information to previously acquired concepts or skills) or physically (as in grouping items to be learned in meaningful categories or taking notes on or making summaries of important information to be remembered).
>
> 3. Social-affective strategies: The learner either interacts with another person in order to assist learning, as in cooperation or asking questions for clarification, or uses some kind of affective control to assist learning". (pp. 241-242)

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Strategy Training

It has been proved that being a strategic reader makes reading more efficient. But, the process of making learners into strategic readers in not reached overnight and demands students and teachers to work hard and be patient.

A method of developing strategic readers is by using a teaching approach called "questioning the author". This approach was developed by Beck et al. (1997) and attempts to focus students' attention on the meaning by asking a set of questions after one meaning episode, which is no longer than two paragraphs. The questions to be asked, according to McKeown, Beck, & Worthy, (1993) are as the following:

1. What is the author trying to tell you?
2. Why is the author telling you that?
3. Does the author say it clearly?
4. How could the author have said things more clearly?
5. What would you say instead?

Constantly asking these questions through teacher to student or student to student interaction lead the readers to internalize the strategies and improve their comprehension as a result.

IELTS

IELTS, which stands for the international English language testing system, according to the website of British council, "is the world's most popular English language proficiency test for higher education and global migration, with over 2.9 million tests taken in the last year" (British Council website). The design of the test is in way that the scores would reflect the participants' ability to use the language in actual life context in the target language counties. IELTS measures the test takers' language proficiency level in all the four skills that are: listening, reading, writing, and speaking.

Methodology

Study Design

The design of this study is pretest-posttest and the type of research is quasi-experimental. As far as this design includes selecting groups, without any random pre-selection processes, this method suited this study. Considering the fact that we were measuring the effect of the independent variable, that is cognitive strategies, on our dependent variable, that is students' performance in IELTS reading section, and we had only access to students participating in specific IELTS preparation course, this design is a perfect match.

Participants

The participants of this study included 42 students who had enrolled in IELTS preparation course in two different institutes, namely Tagh-e Kasra and Nasl-e Farada language institutes. The number of students varied from 2 to 6 students in each class and the students included both male and female students. The participants aged between 21 and 43. Both male and female learners participated in the study (24 males and 18 female).

These participants were all in the same level of language proficiency that is upper intermediate and advance. This was made sure of by conducting Oxford Quick Placement Test (Appendix A) before the experiment. After the placement test was conducted, the participants were randomly divided into the experimental group (N = 22) and the control group (N = 20).

Materials

In order to conduct the experiment, the following types of materials were employed:
The Guideline Pamphlet

This pamphlet, which is available in the appendices (Appendix B), includes the instructions related to the general rules of strategy training approaches and the specific rules and steps for teaching the reading material according to the cognitive strategy training rules.

Course Book: IELSTS Master Class

The textbook which was chosen to work on in this course was IELST Master Class (Haines & May, 2006). This book is a good choice for upper intermediate and advanced students wishing to take part in IELTS academic exam. The book consists of 14 units; each unit contains practices for each module including one long reading. Each text is followed by IELTS formatted question types. The semester, which the participants were attending, covered half of the book, that is the first seven units; therefore, only seven reading texts were worked on.

Instruments

In order to collect the required data, the following types of instruments were employed:

Oxford Quick Placement Test: To make sure that students are all homogeneous in terms of level of language proficiency, Oxford Quick Placement Test was conducted. The exam is comprised of 60 questions in 2 parts. The questions evaluate the test takers' language usage abilities, vocabulary, and grammar using multiple choice question, cloze tests, and recognition questions. It is designed by Oxford University Press and University of Cambridge Local Examinations Syndicate and is considered and used as a standard test all around the world. It should be noted that learners are put in different proficiency levels based on the scores they received and the placement criteria the test

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developer has identified which is also mentioned in appendices.

Pretest: The pretest, which was conducted at the beginning of the course, included the reading section of the first test taken from IELTS Cambridge series, book 11. Thus, the pretest included three parts and forty questions. As IELTS has stated, participants have 60 minutes.

Posttest: The participants in both groups took the posttest at the final session of the class. The post test was the reading section taken from the second test in IELTS Cambridge series, book 11and lasted for one hour

Delayed Posttest: Delayed posttest was conducted 4 weeks after the course was finished and both groups were asked to take the exam. The exam duration was one hour and it included the reading section of the second test in IELTS Cambridge series books

The results of pretest, posttest, and delayed posttest for both, the control group and the experimental group are available in.

Procedure and Data Collection

At first, in order to select and place participants, Oxford Quick Placement Test was administered. After that we made sure that students are all in the same level of language proficiency, that is upper intermediate and advance level. The participants were asked to take pretest which included the reading section of an IELTS exam. The next step to be taken was instructing the experimental group explicitly via cognitive strategy training, while the control group received the method of instruction implicitly. To make sure that the teachers would perform homogenously and correctly in teaching the cognitive strategies, they were asked to instruct the experimental groups using the instruction notebook prepared by the researcher of this study. This notebook includes two sections which will be elaborated in the following parts:

1. The rules of strategic training stated by Pressly (1998): Pressly (1998) believed that strategy training requires: a) long term commitment, b) effective explanation of the strategy along with focusing on one or two strategies at a time, C) teacher taking the role of a coach, d) explaining strategies out aloud, e) talking about when and where to use strategies, f) focusing on how students come to understand information in the text (cited in Celce-Murcia,2001).

2. The cognitive strategy table to be used along with the particular questions and instructions for each reading:

The table of strategies along with the sentences used for practicing on each strategy will be stated here:

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Table 1: Strategy Use Guideline (Adopted from Oslon & Land, 2003)

Planning and Goal Setting	*Visualizing*
(according the question type that follows the text)	• I can picture. . .
	• In my mind I see. . .
• My purpose is (for example to see if the fact is true, false, or not given)	• If this were a movie. . .
• My top priority (for example, is to locate the place of specific information based on each question).	*Forming Interpretations*
	• What this means to me is. . .
	• I think this represents. . .
• To accomplish my goal, I plan to (find the right topic for each paragraph)	• The idea I'm getting is. . .
	Monitoring
	• I got lost here because. . .
	• I need to reread the part where. . .
	• I know I'm on the right track because. . .

The cognitive strategies used in this research are taken from what was introduced by Oslon (2003) as the Tool Kit. These strategies have been previously proved to be effective for teaching reading to adults (Olson, 2003, p. 8. Adapted from Flower and Hayes (1981); Langer (1989); Paris, Wasik and Turner (1991); Tierney and Pearson (1983); and Tompkins (1997)). The list of these strategies used in this method is very long, however, we may mention them here briefly in the bellow graph taken from Olson and Land (2007).
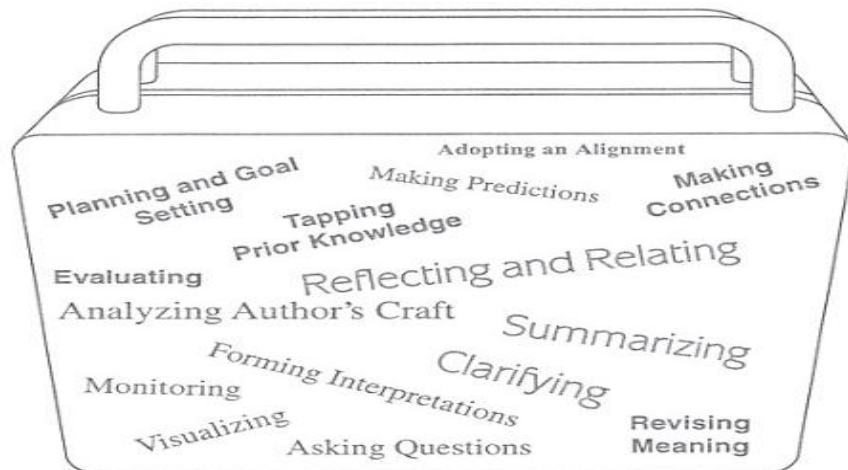

Figure1: Cognitive Strategies: A Reader's and Writer's Tool Kit

The course lasted eight weeks, and the classes were held two times a week for 90 minutes. Each session, roughly half of the time, that is about 45 minutes, was dedicated to teaching reading to both groups. As formerly mentioned, half of the book that is the first seven units were worked on during this course. At the end of the course, students took the posttest and a delayed posttest. More elaboration on these tests is provided in the next part.

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Data Analysis

After all the necessary data was collected, SPSS software is used to compare the data. First of all, the pretests are compared to assure that both groups are homogeneous in the first place, to this aim, the T-test was used. Posttests of the two groups will be compared using the same technique using SPSS software. To answer the second question, one-

Result

Initially, an independent samples t-test was conducted to make sure that the two groups were not significantly different from each other. The result indicated that it was indeed the case.

Table2: Independent Samples T-test Results for the Two Groups on the Pretest

	N	M	sd	T-Test	p	Level of Significance
Experimental Group	22	28.32	3.56			
			3.50	0.33	0.73	P > 0.05*
Control group	20	27.95				

A second independent samples t-test was conducted after the experiment to see whether the two groups receiving different treatments had performed differently. The results are presented in the following table.

Table3: Results of the Independent Samples T-test on the Posttest

	N	M	sd	T-Test	p	Level of Significance
Experimental Group	22	31.50	3.12			
				2.25	0.03	P > 0.05*
Control group	20	29.50	2.56			

Therefore, the answer to the first research question of this study is positive: IELTS candidates who received cognitive reading strategy performed better than those who did not. In other words, it could be claimed that the treatment had a significant effect on the performance of the experimental group on the posttest. However, since the magnitude of the p value is very close to the cut-off point (0.05), this result should be claimed cautiously. In such cases, it is necessary to calculate the effect size of the significance to see how much of the difference is actually caused by the treatment.

Based on Cohen (1988), the magnitude of the differences in the means of the two groups in this study was large (eta squared = 0.11). It means that the treatment had a large effect on the outcome in that eleven percent of the variance between the two groups was due to the treatment.

In order to answer the second question of this study, a series of paired samples t-tests were conducted to see if the performance of the two groups was maintained over time. The results for the experimental group are presented first in Table 4.5:

Table 4: Paired Samples T-test Results for the Experimental Group on the Posttest and the Delayed Posttest

	N	M	sd	T-Test	p	Level of Significance
Posttest	22	31.50	3.12			
Delayed posttest	22	31.36	2.55	0.41	0.68	P > 0.05*

The above table shows that there was no significant difference between the experimental group's performance on the posttest and the delayed posttest. This result is of significance to the present study since it shows that the experimental group performed as well on the delayed test as it did on the posttest. In other words, instruction on cognitive reading strategies had had a lingering effect on the experimental group's performance. This finding enables the researcher to answer the second research question positively.

However, one point remains to be uncovered and that is to see if the control group had also maintained their learning through the time interval. To that end, the performance of the control group on the posttest and the delayed posttest was also checked and compared. The results are presented in Table 5.

Table 5: Paired Samples T-test Results for the Control Group on the Posttest and the Delayed Posttest

	N	M	sd	T-Test	p	Level of Significance
Posttest	20	29.50	2.56			
				1.42	0.17	P > 0.05*
Delayed posttest	20	28.75	3.50			

A non-significant difference was found in the performance of the control group on the posttest and the delayed posttest. Looking at the average mean score on the two tests, it is revealed that the control group also performed as successfully on the delayed test (M = 28.75) as they did on the posttest (M = 29.50). This shows that whatever method they used for successful reading comprehension was well established (learned).

Discussion

Considering results, we may discuss that students may benefit more from explicit cognitive strategy traning rather than the implicit one. And, their reading comprehension abilities and their competency to answer the follow up question has improved significantly compared to the control group, who did receive an implicit cognitive strategy training. However, it should be mentioned that both groups did significantly better in posttest comparing to the pretest, but the results showed that the experimental group was superior. Hence, the results propose that explicit cognitive strategy training is helpful in IELTS reading.

The answer to the second question revealed that the effect of the explicit cognitive strategy training is long lasting. However, the closeness of the results of the delayed posttest in control group and the experimental group may put the argument forward that if the interval between posttest and the delayed posttest was longer, the results would be clearer and more determined.

The findings of this study about instructing reading comprehension through strategic cognitive training were in line with the results of the previous studies in the literature for example, Yusfarina et al. (2012) did a research on Enhancing Reading Comprehension through Cognitive and Graphic Strategies on secondary school students in Malaysia. The results revealed that implementation of cognitive reading strategies increased students' reading comprehension effectively compared to conventional methods of teaching reading.

The third research in this area is done by Doly (2021). The results of this study revealed that the findings revealed that students have improved their ability to comprehend a text after receiving the metacognitive training in terms of timing, fluency and motivation for reading.

Conclusion

As it was mentioned in the preceding sections, the aim of this study was twofold. Firstly, it aimed to measure the effect of explicit cognitive reading strategy on IELTS candidates' performance. Secondly, to assess the lingering effect of cognitive reading strategy to IELTS candidates' after a certain period of time (1 month in this study). After that the gathered data was analyzed, it became clear that the IELTS candidates in the experimental group, who had received cognitive strategic training explicitly, had significantly outperformed the control group, who were told to read the readings as fast as they could and, were asked to memorize the new vocabulary. Thus, we may conclude that explicit cognitive strategic training can be beneficial for improving IELTS candidates reading skills. A second conclusion to be drawn from this research is that not only the students did benefit this method in short term, but also the analysis of the results of the delayed posttests suggest that, they did benefit this trainings in long term as well.

Implications of the Study

Along with the growing need of students to achieve success in IELTS exam, finding an effective way to help students to enhance their ability in reading comprehension, as well as improving their performance in the follow up questions, is of grave importance to both students and instructors. Hence, the result of this study will be applicable to teachers who wish to pave the way for their students so that they will reach

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success in the shortest possible time. Therefore, pedagogically, this study has taken a step to suggest teachers a way, that is explicit cognitive strategy training, to help their students.

In addition, this study has offered a new trend in the area of preparing students for the reading section of the IELTS exam, which has added up to the limited bulk of information in this area.

Limitations of the Study

Despite the fact that in this study it was proved that cognitive strategic training is superior over conventional trainings in improving students reading comprehension ability in short term as well as in long term, there are still some uncertainties and limitations in this study. Firstly, the students participating in this study were chosen only from the upper intermediate and advance levels and the results might have varied if students were chosen from other levels of language proficiency. Secondly, the students had been working on IELTS texts and the specific follow up questions specified for IELTS all during the course and the tests. The results may have varied, if different questions types or texts were instructed.

Suggestions for Further Research

The topic of strategic training is vast and a great bulk of data is available regarding this issue. However, not much research has been done on the use of this strategies and the level of their effectiveness in specific exams such as IELTS, TOEFL, FCE, etc. Thus, this area of research is still almost intact and further research will be useful to both test takers as well as the students. Prospective researchers may choose to probe the effectiveness of varicose strategies, not only for the reading skill, but also other skills, for different tests.

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