The Effect of Teaching Cognitive and Metacognitive Strategies on Reading Comprehension Ability

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The demands of the changing world impose on learners the need to become autonomous readers. This places a responsibility on the shoulders of the teachers to develop an approach to teaching reading which will help readers become independent strategic ones. The purpose of this study is to investigate the effect of teaching reading strategies on the development of reading comprehension of Iranian EFL learners. An experimental design was adopted to accomplish this investigation. To do so, two intact classes of 35 students were selected. Then to find out the homogeneity of the participants, Oxford Placement Test was administrated to both classes’ among whom 60 students who scored above 47 were selected as homogeneous and were assigned to two experimental and control groups. The students in the experimental group participated in 10 sessions and were taught two strategies of reading comprehension: activating background knowledge and contextual strategies. At the same time, the materials in the control group were taught through conventional methods of reading and translating the texts into Persian. In the 10th session, the post-test was administrated to both groups. The results of the t-test confirmed the positive effect of reading strategies instruction on the development of reading comprehension ability. These findings may furnish language teachers with the empirical evidence that capitalizing on the students' awareness of the strategies and helping them to use these strategies will significantly develop their reading abilities.

Keywords: Reading, Reading Comprehension, Language Learning Strategies (LLSs), Strategy-Based Instruction (SBI), Reading Strategy, Cognitive Strategy, Metacognitive Strategy
Reading is often said to be the main concern of learners in countries in which English is taught as a foreign language (Farhady, 1998). Furthermore, reading is supposed to be a primary source of language input, a pleasurable activity, and a means of extending one’s knowledge of language (Chastain, 1988). According to Zarei (2010), reading is a process involving the activation of relevant knowledge and the related language skills to accomplish an exchange of information from one person to another. It is an interactive process in which the reader brings his personal knowledge or schema to the text in front of him. The goal is to engage in the thoughts, facts, viewpoints, beliefs and tendencies that the writer has used in order to get his meaning across.

A large body of research shows that, before reading a text, successful readers skim through it, looking at subheadings and graphics so as to get a general idea of what the text is about, making predictions based on the title. As they read, they connect the material in the text to what they already know, ask themselves questions about the text, trying to paraphrase or consider what they know about the structure of the text and so on (Carter, & Nunan, 2001; Chastain, 1988; Richards & Renandya, 2002).

Reading strategies, along with other learning strategies, are of paramount importance since they can not only tell us the degree to which readers interact with the written text, but also differentiate proficient readers from those who are not (Chastain, 1988). Strategy instruction, or teaching students in the use of learning strategies in order to improve their learning effectiveness, has currently drawn the attention of many L2 professionals (Brown, 2001; Larsen Freeman, 2003). It has been found that students will benefit from strategy instruction if they (a) understand the strategy itself, (b) perceive it to be effective, and (c) do not consider its implementation to be overtly difficult (Brown, 2000).

One of the major problems of the students in learning a foreign language, especially English, is their low comprehension in reading academic texts. According to Mirhassani (1995), “although the importance of reading comprehension for educational and professional success has been acknowledged, English language teachers’ ultimate expectations have not been realized up to the present time” (p. 25). To the researcher’s knowledge, in Iranian guidance schools an enormous amount of time, money and effort is spent on teaching reading, but at the end of each course some of our students are just able to read five or six texts embedded in their textbooks and answer some pre-determined comprehension questions successfully. If they are given a new unseen text with three or four unknown words, speaking from personal experience, they will complain about lexical problems in it. They can never skip unknown words neither can they guess the meaning of unknown words. They can not tolerate the ambiguity and their background knowledge is of no practical use (Reza pour, 2009).
The fact is that our conventional transmission model of teaching assigns a passive role for learners in the learning process. It is supposed that everything is embedded in texts and students attach a lot of significance to their textbook, believing that learning any grammatical point or vocabulary of the text will finally bring about success. However, they cannot cope with comprehending a text.

In most recent years, in the light of many studies of successful and unsuccessful learners, teachers have rightfully come to understand that it is a mistake to think that learners will read effectively if we explain everything to them (Malek, 2008). Since strategy instruction results in successful L2 learning (Carter & Nunan, 2001), most practitioners and researchers ask teachers to raise their students’ awareness of the strategies underlying classroom tasks (Kazem pour, 2007).

In the large number of research studies conducted in the past three decades, comprehension strategy instruction including reading strategies has been justified to be beneficial for helping students become strategic readers and improve their reading comprehension (Koda, 2004; Lee, 2003; Lenski & Nierstheimer, 2002; Rosenshine & Meister, 1994). Therefore, strategy instruction which focuses on teaching reading strategies to students to help them become strategic readers and more self-regulated learners seems not only promising but also necessary.

According to Chamot (2001), learning strategies are important in second language acquisition for two main reasons. First, by investigating the strategies used by second language learners during the learning process, better insights into the cognitive, social, and affective processes in language learning can be gained. Second, it may be possible to teach less successful language learners to use the strategies successful learners employ so that they can become better language learners too. Chamot (2001) also asserts that the two main goals in language learning strategy research are to identify and compare the strategies used by more and less successful learners, and then, give instruction to less successful ones so as to help them to learn foreign and second languages more successfully.

Concerns about the functions and usefulness of reading strategies form the basis for the research questions of this study. Consequently, the following research question is hoped to be answered in the study:

**RQ:** Does reading strategy instruction have any effect on students’ reading comprehension ability?

The following null hypothesis is formulated for the above research question:

**H0.** Reading strategy instruction has no effect on students’ reading comprehension ability.
Review of Literature

Current research into language learning strategies originated from the framework of learning strategies began in the early seventies which focused on the language learning strategies of successful (good) language learners (Rubin, 1975; Stern, 1975; Naiman et al., 1978 as cited in Ok, 2003). These researchers recognized lists of learning strategies employed by successful ESL/EFL learners.

Rubin (1975) focused on successful second language learners and concluded that the characteristics of good language learners are: to be willing and accurate guessers, to have drive to communicate, to learn from communication, to be uninhibited and willing to make mistakes, to pay attention to form by looking for patterns, to take advantage of every opportunity to practice, to monitor the speech of themselves and others, and to focus on meaning. Rubin suggested that language teachers could help less successful learners to promote their language proficiency by paying more attention to productive language learning strategies.

Stern (1975, as cited in Ok, 2003) provided a set of ten strategies of good language learners: planning strategies (a personal learning style or positive learning strategy), active strategy (an active approach to the learning task), empathic strategy (a tolerant and outgoing approach to the target language and its speakers), formal strategy (technical know-how of how to tackle a language), experiment strategy (a methodological but flexible approach, developing the new language into an ordered system and constantly revising it), semantic strategy (constant searching for meaning), practice strategy (willingness to practice), communication strategy (willingness to use the language in real communication), monitoring strategy (self-monitoring and critical sensitivity to language use), and internalization strategy (developing the second language more and more as a separate reference system and learning to think in it).

According to Singhal (1998), good readers are purposeful, thoughtful and reflective about the reading process, and monitor and evaluate their understanding of text and use of strategies as they read. According to Beckman (2002), the following outcomes can be expected from students when they becomes strategic:

- Students trust their minds.
- Students know there is more than one right way to do things.
- They acknowledge their mistakes and try to rectify them. They evaluate their products and behavior.
- Memories are enhanced.
- Learning increases.
- Self-esteem increases.
- Students feel a sense of power.
● Students become more responsible.
● Work completion and accuracy improve.
● Students develop and use a personal study process.
● They know how to "try".
● On-task time increases; students are more "engaged".

To conclude, language learners who use language learning strategies more than others generally achieve greater language proficiency. Research into L2 learning demonstrated that good language learners used strategies more frequently and appropriately to enhance their target language learning.

According to Oxford (1990), learning strategies are steps taken by students to enhance their own learning. Learning strategies are becoming widely recognized throughout education in general. Under various names, such as learning skills, learning-to-learn skills, thinking skills, and problem-solving skills, learning strategies are the way students learn a wide range of subjects, ranging from native language reading through electronics troubleshooting to learning new languages. It has been suggested that strategy instruction can help students to become better learners; it assists them in becoming independent and confident learners, and finally, become more motivated as they begin to understand the relationship between their use of strategies and success in learning languages (Chamot & Kupper, 1989; Chamot & O’Malley, 1994).

In the strategy-based instruction, students are expected to work independently and be responsible for their own learning. Learners are therefore challenged to manage their language studies in a variety of ways. Students who have a repertoire of strategies at their disposal can make sophisticated learning decisions. In other words, strategy-based instruction aims to assist learners in becoming more responsible for their efforts in learning and using the target language. It also aims to assist them in becoming more effective learners by allowing them to individualize the language learning experience.

Strategy teaching does not require commercial materials, nor does it need to be a separate part of the curriculum; it does not consist of “tricks” or isolated activities. Rather, strategy instruction is a process that involves teaching students to read employing strategies used by good readers, to write using approaches used by good writers, and to solve problems using techniques used by good problem solvers.

Research on strategy instruction reveals that it should be authentic and relevant to the learners’ needs, woven into regular language instruction (Ehrman, 1999; Chamot & O’Malley, 1996 as cited in Soleimani, 2008).

**Method**
This section presents the overall design and methodology of the research, characteristics of the participants, materials, procedures, design and statistical analysis employed in the course of the study.

Participants

According to the research question posed in this study, the researcher wanted to find out the possible effect of teaching reading strategies on students’ reading comprehension ability. To this end, 70 male students aged 17 to 19 participated in this study. They came from 2 classes: Kish language institute (N=35) and Abu Ali Sina institute (N=35). Language proficiency level of the students was measured by administrating Oxford Placement Test. 60 out of 70 students were found to be at the intermediate level. These 60 learners formed two classes which were randomly assigned as the experimental and control groups.

Instrumentation

Two tests were used in this study to serve the purpose of the researcher:
1. Proficiency test: Oxford Placement Test was administrated to make sure the participants were homogenous in terms of their language proficiency (See Appendix A). According to the Table of interpreting scores in OPT (p. 2), scores from 0 to 28 are considered as elementary, from 29 to 46 as pre-intermediate, and from 47 to 70 as intermediate.
2. Longman Introductory Course for the TOEFL Test: To measure the participants’ Reading proficiency, reading comprehension section of the Longman TOFEL Test entitled "Longman Introductory Course for the TOEFL iBT Test (Phillips, 2007) was used for both experimental and control groups (See Appendix B). This book, is used for intermediate-level students. The text starts below the level of the TOEFL test and continues up to the level of the easier tasks on the TOEFL iBT.

Procedure

To accomplish the purpose of the study, 70 male students participated in this study. To make sure of the homogeneity of the subjects, in session 1 Oxford Placement Test was administrated, and 60 out of 70 subjects whose scores were above 47 were included in the study and were divided in two experimental and control groups. The researcher assigned the homogenized subjects to two groups of 30. The students in the experimental group received 10 sessions of instruction and were taught two strategies of reading comprehension (activating background knowledge and contextual reading strategy).
In session 2, a reading pre-test was administered to the students of both groups. In session 3, after making sure of the students' homogeneity, the researcher-teacher tried to elicit the students' reading strategies by asking them what they would do while reading a text in L2. Then, she defined the concept of the strategy to the students and discussed the benefits of strategy use, and when and how they can be used. The teacher introduced the two of cognitive and metacognitive reading strategies that good readers employ when they are reading texts (activating background knowledge by using the titles and contextual reading strategy). Also, she tried to remind the importance of strategies every session.

From session 3 to 6, the reading strategies were modeled: first, the teacher used the title of the reading texts in order to activate the students’ background knowledge by asking some questions about the title; then, she made a prediction about what the text is going to talk about. Then, she helped students use the contextual clues for guessing the meaning of unknown words. It should be mentioned that sometimes the titles were not known to the readers. In such cases, the students were required to read the beginning sentences of the paragraphs to see what the text is going to talk about. In this way, they could activate their own background knowledge and make their own prediction. From session 7 to 9, the students themselves tried to employ the strategies independently and without the researcher's assistance and modeling (See Appendix C).

Meanwhile the control group received the conventional instruction for reading i.e., the teacher gave the text to the students and they were required to read them silently and answer the questions.

At the end of the course, in session 10, a post-test was administrated to both groups to find out whether any progress had been made as a result of treatment (See Appendix D).

Design

This study had a quasi experimental design. The independent variable was reading strategy instruction. The dependent variable was reading comprehension.

Statistical Analysis

As mentioned before, a reading pre-test was administered to the students of both groups and a \( T \)-test was run on the pretest scores of the two groups to make sure the groups were homogeneous regarding reading ability.

Moreover, in order to determine the effect of reading strategy instruction, a reading post-test was administered to both groups and the independent \( T \)-test was run on the post-test scores of the two groups to find out whether any progress was made as a result of treatment.
Results

In this section, the researcher presents the results and the findings of t-test which confirm the positive effect of reading strategy instruction on the development of students' reading comprehension.

As mentioned before, Oxford Placement Test was administered to make sure the participants were homogeneous in terms of their language proficiency. 60 out of 70 students who scored above 47 participated in the study.

In order to measure the participants’ reading proficiency, the reading comprehension section of the Longman TOFEL Test, version 2007, was used for both experimental and control groups. Two tests were administered to the participants: a reading pre-test and a reading post-test. Also, a T-test was run on the pretest scores of the two groups to make sure the groups were homogeneous regarding reading ability.

Table 4.1

<table>
<thead>
<tr>
<th>One-Sample Kolmogorov-Smirnov Test</th>
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<tbody>
<tr>
<td>N</td>
</tr>
<tr>
<td>Normal Parameters</td>
</tr>
<tr>
<td>Mean</td>
</tr>
<tr>
<td>Std. Deviation</td>
</tr>
<tr>
<td>Most Extreme Differences</td>
</tr>
<tr>
<td>Absolute</td>
</tr>
<tr>
<td>Positive</td>
</tr>
<tr>
<td>Negative</td>
</tr>
<tr>
<td>Kolmogorov-Smirnov Z</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
</tr>
</tbody>
</table>

According to One-Sample Kolmogorov-Smirnov Test, p-value is Sig> 0.05. So, this finding showed that test distribution is normal.

Table 4.2 represents the mean scores of the reading comprehension pre-test of the experimental and the control groups.

Table 4.2

<table>
<thead>
<tr>
<th>Descriptive Statistics for Groups on Pre-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group</td>
</tr>
<tr>
<td>----------</td>
</tr>
<tr>
<td>Experimental</td>
</tr>
<tr>
<td>Control</td>
</tr>
</tbody>
</table>
As illustrated in Table 4.2, the mean of the control and experimental groups are 16.06 and 16.03 respectively. Table 4.3 indicates that there is no difference between the experimental and control groups before teaching reading comprehension strategies ($t (58) = -.089, p>.05$).

Table 4.3

*Independent Samples T-Test on Pre-test*

<table>
<thead>
<tr>
<th></th>
<th>Levene's Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig.</td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>.033</td>
<td>.856</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>-.089</td>
<td>57.997</td>
</tr>
</tbody>
</table>

The results of the post-tests, were put into SPSS, the description of which appears in Table 4.4.

Table 4.4

*Students’ Mean Scores of Reading Comprehension in Post-test*

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>30</td>
<td>17.0000</td>
<td>1.72207</td>
<td>.31441</td>
</tr>
<tr>
<td>Control</td>
<td>30</td>
<td>16.0667</td>
<td>1.41259</td>
<td>.25790</td>
</tr>
</tbody>
</table>

As can be seen from Table 4.4, the mean scores of the control and experimental groups are 16.06 and 17 respectively. In other words, the mean score of the experimental group, which received reading strategy instruction as the treatment, was raised from 16.03 on the pre-test to 17 on the post-test, which showed an improvement in reading comprehension.

To determine the effect of reading strategy instruction the learners’ reading comprehension ability, an independent *T*- Test was run on the post-test scores of the experimental and control groups. Table 4.5 shows the result.

Table 4.5

*Independent Samples T-Test on Post-test*

<table>
<thead>
<tr>
<th></th>
<th>Levene's Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
</tr>
</thead>
</table>
As it is indicated in Table 4.5, the experimental group performed significantly better than the control group (t (58) = 2.29, p < .05). Moreover, since the two-tailed significance value is .025, less than alpha = .05, there is a significant difference between the two groups. Figure 4.1 explicitly indicates this improvement. Figure 4.1, clearly, suggests that the experimental group had higher scores in their post-test scores than the control group.

![Figure 4.1](image)

**Figure 4.1.** Comparison of means obtained in pre-test and post-test by two groups

Table 4.6

Table 4.6 shows the effect size statistic for two groups. According to Pallant (2007), “Eta squared represents the proportion of variance of the dependent variable that is explained by the independent variable” (p. 175).

**Measures of Association**

<table>
<thead>
<tr>
<th></th>
<th>Eta</th>
<th>Eta Squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control &amp; Experimental</td>
<td>.304</td>
<td>.092</td>
</tr>
</tbody>
</table>
The results of t-test confirmed the positive effect of reading strategy instruction on the development of reading comprehension ability. So the null hypothesis which states that the reading strategies instruction does not have any positive effect on students’ reading comprehension is rejected.

**Discussion**

The findings of this study revealed that teaching reading strategies is effective in improving students’ reading comprehension ability. The results, also lend support to the findings of several studies indicating that teaching learning strategies can be effective for developing students’ proficiency level in a number of different skills (Cohen, 1998; Hsiao & Oxford, 2002; O'Malley & Chamot, 1990).

In this study, the experimental group received instruction on two reading strategies (activating background knowledge and contextual reading strategy). This group had higher post-test scores compared with the control group. Although the performance of the experimental group improved, this improvement was not very significant. One possible reason might be the time factor. Time is an essential variable in strategy training. It might be that more time would be needed to achieve more significant results. O'Malley and Chamot (1990) have mentioned this factor by arguing that:

> The teaching of the strategies will involve a considerable investment of time and effort in order to be effective, i.e., we need long-term studies investigating the effect of strategy training. Otherwise, their teaching might not obtain the intended result as it is expected (O'Malley & Chamot, 1990, p. 53).

However, as mentioned in the review of the literature, teaching reading strategies is useful in helping learners understand authentic materials. Barnett (1988) investigates the use of reading strategies is effective in reading comprehension. The results show the students who effectively use reading strategies understand more of what they read than those who do not use them.

Kern (1989), based on the findings of his study, suggests that strategy-based reading instruction is an effective way to improve the students' reading comprehension. The results of another study by Burke (1997) indicated that there was no significant difference in the reading comprehension performance of the students following strategy instruction. So, the present study rejects Burke’s (1997) finding regarding the inefficiency of reading strategy instruction and confirms Barnett (1988) and Kern’s (1989) suggestions. The results of the present study also confirm that reading comprehension could be developed through systematic instruction on language learning strategies.

**Conclusion**
This study aimed at examining the effect of teaching reading strategies on students’ performance on reading comprehension.

Recent researches suggest that teaching learners how to use strategies should be a prime consideration in the reading classroom (Barnett, 1988). Because, appropriate use of language learning strategies leads to improved proficiency or achievement overall or in specific skill areas (Chamot & Kupper 1989; Cohen, 1990; O’Malley & Chamot, 1990; Oxford, 1993; Wenden & Rubin 1987).

According to Oxford and Nyikos (1989), appropriate use of learning strategies enables students to take responsibility for their own learning by enhancing learner autonomy, independence, and self-direction. So, our students need to become aware of the learning strategies through strategy instruction. They constantly need to guess, predict, check their prediction, etc. To assist the students to be an efficient reader, teachers have the responsibility of introducing the students to the processes involved in reading and helping them develop a battery of strategies for successful comprehension.

According to Dakun (2006), learning strategies can help language learners to make their learning more efficient and enjoyable. Cognitive strategies help learners to use the language more or learn more efficiently. These strategies can directly facilitate learning so as to help achieve a specific learning goal. Metacognitive strategies, on the other hand, help the learners to plan and monitor their learning. They help the learners become more independent and personalize their learning by allowing them to take control over the learning process. Besides, social and affective strategies can help keep the learners motivated and deal with the frustrations of learning a new language. They can also help the learners to find opportunities to use the language and learn the new culture.

It has been suggested that learning strategy instruction may help learners in three ways: firstly, learning strategies instruction can help students to become better learners, secondly, skills in using learning strategies assist them in becoming independent and confident learners, and finally, they become more motivated as they begin to understand the relationship between their use of strategies and success in language learning (Chamot & Kupper, 1989; Chamot & O'Malley, 1994).

Thus, it is an essential job for second language teachers to help their students understand when, where and how to employ and deploy appropriate strategies or combinations of strategies according to contexts, tasks and their personal learning experiences.

Empirical research has showed that strategies are teachable, and direct and explicit strategy instruction contributes to improved language performance and proficiency.
Suggestions for Further Research

Today, the issue of strategies and their contribution to language learning is said to be one of the hot topics in the field of ESL and EFL. In this study, the impact of strategy instruction on the development of reading was investigated, but surely a chain of other studies in this field is required to verify and investigate the claim of this study, along with many other key issues in this regards.

First, the experiment reported in this study made use of 60 intermediate students. Other studies may be conducted using other students with different language proficiency.

Second, since gender may have an influence on strategy use, the gender differences in EFL situation deserve further investigation.

Third, strategy awareness plays an important role in the effective use of strategies. Then, it seems to be crucial for future researchers to investigate the ways which can be used in practical situations to help our Iranian students become aware of the importance of other language learning strategies.

Fourth, the focus of attention in this study was on Iranian intermediate students, reading skills. Other studies may investigate the degree of success of Iranian students in listening, speaking and writing when strategy instruction is incorporated into their ongoing classroom program.

Finally, another suggestion for further study would be to assess the extent to which our students transfer their strategy-based behaviors from the experiment to subsequent language classes.

References


تأثیر تدریس استراتژی‌های شناختی و فراشناختی بر توانایی درک مطلب خواندن

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این مطالعه تأثیر تدریس استراتژی‌های شناختی و فراشناختی خواندن را بر روی توانایی درک مطلب زبان آموزان ایرانی بررسی می‌کند. ابتدا یک تست تعیین سطح از دو گروه به تعداد شست نفر به منظور اطمینان از هم سطح بودن فراگیران گرفته شد. دو گروه مشابه از سی دانش‌آموخته با رده سه‌نفره سال در مقطع متوسطه براي این مطالعه انتخاب شدند. به طور تصادفی، یکی از گروه‌ها به عنوان گروه شاهد و دیگری به عنوان گروه چسبین در نظر گرفته شدند. سپس یک پیش آزمون از زبان آموزان هر دو گروه گرفته شد و از آزمون T بر روی گروه‌های این پیش از آزمون فراگیران به منظور اطمینان از هم سطح بودن شرکت کننده‌ها در مهارت خواندن اعمال شد. بعد از اطمینان از همسانی سطح ورودی گروه‌ها، استراتژی‌های شناختی و فراشناختی (استفاده از عنوان و حدس زدن معی کلمه از بالات) در طول هفته جلسه به فراگیران تدریس شد. سپس از آزمون T بر روی گروه پس از آزمون هر دو گروه به منظور بررسی تأثیر تدریس استراتژی‌های بر روی گروه چسبین در نظر گرفته شد. نتایج نشان داد که تدریس استراتژی محور خواندن تأثیر مثبت و معنی‌داری بر روی توانایی درک مطلب زبان آموزان دارد. این یافته‌ها نشان می‌دهد که تدریس زبان‌های خارجی در حیطه‌های اکادمیک همچون برای پرداختن به باج‌ها و تمرکز بر عملی استراتژی‌ها باشد. نتایج این مطالعه برای طراحان کتاب درسی، برنامه‌ریزی و تربیت علمی می‌تواند مفید باشد.

کلید واژه‌های اصلی: استراتژی‌های پادگانی زبان خواندن، مطلب خواندن، استراتژی‌های شناختی، استراتژی‌های فراشناختی.
Bio data

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