FOSTERING AWARENESS OF COGNITIVE AND METACOGNITIVE READING STRATEGIES IN TWO FOREIGN LANGUAGES (ENGLISH AND ARABIC)

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ABSTRACT

This study attempted to find out the impact of Cognitive and Metacognitive Reading Strategy Instruction (CMRSI) in L2 (English) in increasing the awareness and use of these reading strategies not only in L2 in which the CMRSI was given but also in L3 (Arabic) in which no CMRSI was given as a result of transfer of reading strategies from L2 to L3. It also aimed to find out which strategy items were most and least improved both in L2 and L3 as a result of CMRSI in L2. Fifty five fourth-grade high school male students majoring in math-physics took part in this study. As the reading process is believed to be the same across languages (Mokhtari & Reichard, 2004), the participants were put into two groups of low and high awareness of reading strategies in L1 (Persian). Then, they were given reading comprehension tests in L2 and L3 as triggers for the main instrument (i.e., cognitive and metacognitive reading strategy questionnaire) in English and Arabic. After this pretest stage, the two groups underwent the CMRSI. The same pretest instruments were also given to the students as posttest. It was found that there was a significant difference in the awareness and use of cognitive and metacognitive reading strategies from pretest to posttest in English and Arabic for students of low and high strategic reading competence level. However, this improvement was not necessarily the same for different strategy items. It is important to teach reading strategies in L2 as it will have effect on increasing awareness of strategies both in L2 and in L3 as a result

of transfer of reading strategies from one language to another. However, as not all strategy items show the same improvement from pretest to posttest, more attention should be paid to the item by item analysis of strategies after CMRSI to maximize students' awareness of all strategy items equally.

Keywords: *reading strategies, strategic competence, Arabic, English*

INTRODUCTION

The concept of communicative competence was put forward by Hymes (1966) as a reaction to the concept of linguistic competence introduced by Chomsky (1965). However, Canale and Swain (1980) identified four components of communicative competence including grammatical competence, sociolinguistic competence, discourse competence and strategic competence. Strategic competence refers to compensatory strategies in case of grammatical or sociolinguistic or discourse failures, such as the use of reference sources, grammatical and lexical paraphrase, requests for repetition, clarification, slower speech, or problems in addressing strangers when unsure of their social status or in finding the right cohesion devices (Peterwagner, 2005). However, the concept of strategic competence has been broadened by Bachman and Palmer (1996). In their theoretical model, language ability involves two components: language competence (or language knowledge) and strategic competence (or metacognitive strategies). The combination of language knowledge and metacognitive strategies "provide language users with the ability, or capacity, to create and interpret discourse, either in responding to tasks on language tests or in non-test language use" (Bachman & Palmer, 1996, p. 67).

"Learning strategies are specific actions taken by the learner to make learning easier, faster, more enjoyable, more self-directed, more active, and more transferable to new situations" (Oxford, 1990, p. 8). In studies of reading, strategies are defined as "ways of getting around difficulties encountered while reading" (Urquhardt & Weir, 1998, p. 95). Reading strategies indicate how readers conceive a task, how they make sense of what they read, and what they do when they do not understand (Singhal, 2001). One of the common classifications of reading strategies is the distinction between cognitive and metacognitive strategies. Koda (2005) posits that the

acquisition of strategic reading depends on the development of cognitive and metacognitive resources. As Dole et al. (1991 as cited in Allen, 2003, p. 319) state, reading comprehension is a 'constructive process' that uses students' cognitive and metacognitive strategies. Cognitive strategies are "actions or procedures readers use when working directly with the text" (Sheorey & Mokhtari, 2001, p. 436). Metacognitive strategies are, "Intentional and carefully planned techniques to monitor or manage reading task". (Sheory & Mokhtari, 2001).

Metacognitive awareness (e.g., the knowledge of the nature or purpose of reading and the knowledge of the strategies that students should use for reading comprehension) of reading strategies plays an important role in enhancing the learning of reading and reading comprehension (Auerbach & Paxton, 1997; Baker, 2008; Carrell, Gajdusek & Wise, 1998). Chamot (1998) states that awareness of one's own strategies is closely related to metacognition, and that more successful learners have better and more metacognitive awareness. Metacognition, or thinking about one's own thinking (Anderson, 2002) is considered "a predictor of reading comprehension ability" (Baker, 2008, p. 25). Findings in research into reading strategies show that less successful readers enhance their reading proficiency through training and scaffolding based on the strategies that are used by more successful readers (Mokhtari & Perry, 2008). Successful and less successful readers may use similar strategies but they may differ in the frequency and variety of strategy use. (Anderson, 1991; Ikeda & Takeuchi, 2006).

Awareness of the learning process, especially in the earlier stages of language learning seems to improve language learning and strategy use (Chamot, 1998; Cohen, 1995). Lee and Oxford (2008) also show that strategy awareness has a significant main effect on strategy use. As Pressley et al. (1989) note, a learner can actively transfer a given strategy to a new learning situation only when they are aware of a strategy (i.e., when the learner has metacogntive knowledge of the strategy). Transfer of reading strategies from L1 to L2 is considered a sign of effective reading (Grabe & Stoller, 2002; Mokhtari & Reichard, 2004) and effective readers tend to regard reading in L1 or L2 as a single system and use similar strategies in their L1 and L2 when appropriate (Garcia, Jimenez & Pearson, 1998). Mokhtari and Reichard (2004) state that skilled readers in L1 and L2 are not,

in fact different from each other in processing various reading materials and demonstrating metacognitive knowledge and strategies. However, research findings are not consistent with regard to this. For example, Alsheikh (2009) found that native speakers of Arabic used both problem-solving and support strategies more often in their L2 (English) than they did in their L1 (Arabic). Feng and Mokhtari (1998) also found that Chinese learners of English used problem-solving and support strategies more frequently when reading in L2 (English) than when they read in L1 (Chinese). In multilingual studies, Alsheikh (2011) found that participants tended to use more strategies in their L2 and L3 than in their L1.

The experience of learning a second foreign language is not a new experience and the learner already knows what learning a foreign language feels like. Thus, an interesting question in L3 learning is whether it draws upon L2 learning experience at all. Research has shown that L2 learning experiences and strategies affect the learning of an L3 (Hufeisen, 2000 as cited in Cenoz et al., 2003). Bartelt (1989 as cited in Chan, 2001) mentions that the role of L2 seems to be prominent in building L3 reading strategy. Hoffmann (2001) states that bilinguals may be able to acquire a third language more easily compared to monolinguals learning a second language. Chan (2001, p. 11) states, "The learning experience of L2 affects the acquisition process of L3 learners as they become skillful in both metalinguistic knowledge and general learning strategies".

In the Iranian context, at high school level, there are two foreign languages taught. These two languages, namely English and Arabic are obligatory courses. However, despite the importance of reading strategy awareness in language learning studies, few studies have been conducted regarding the awareness of cognitive and metacognitive strategies in the learning of these two foreign languages simultaneously in the Iranian context. This study therefore mainly aimed to investigate the impact of CMRSI in L2 (English) on increasing the awareness and use of these strategies not only in L2 (English) but also in L3 (Arabic). It also aimed at finding out which individual cognitive and metacognitive strategy items were most and least improved in L2 and L3 as a result of this instruction in L2. Therefore, based on these goals, this study asked the following research questions:

1. Does reading strategy instruction in L2 affect awareness of reading strategies in L2 and L3 at high and low levels of strategic reading competence?

2. Which items of cognitive and metacognitive strategies show more improvement in L2 and L3 at high and low levels of strategic reading competence as a result of reading strategy instruction in L2?

METHODOLOGY

Participants

Fifty five fourth-grade high school male students, majoring in math-physics from a government-sponsored school were selected based on convenience sampling to take part in this study. They had already passed general Persian (L1), English (L2) and Arabic (L3) as well as science courses which were taught in Persian at grades one, two and three of high school, with the minimum passing score of 10 out of 20.

Hardin (2001) attempted to examine how 50 fourth-grade Spanish-dominant students utilized cognitive reading strategies to enhance comprehension of expository texts in Spanish and transfer strategic reading behaviors to reading in English. Results indicated that strategic behaviors in L1 undergird L2 reading behaviors and that the level of second language proficiency played a less prominent role in second-language strategic reading than did the level of strategy use in L1. Studies also showed a high correlation coefficient for the process of reading between different languages (Yamashita, 1999; Sarig, 1987). Mokhtari and Reichard (2004) stated that skilled readers in L1 and L2 were not that different from each other in terms of processing various reading materials or demonstrating metacognitive knowledge and strategies. These were the reasons for setting L1 strategic competence as a criterion to homogenize and group students. Therefore, in this study in order to set a level for comparing students so that their reading strategies awareness could be assessed in L2 and L3 as a result of the instruction of the reading strategies, the subjects were divided into two groups based on their reading strategies awareness in L1 (Persian). The questionnaire of reading strategies (see appendix for questionnaire)

was employed to classify the participants into low and high L1 reading strategy awareness groups. Those who scored below the mean score were considered as the low group and those who scored above the mean score were considered as the high group (see Table 1).

Table 1: The Mean and Standard Deviation of Questionnaire Scores in Persian Reading Strategies

Grouping based on awareness of reading strategies in L1	M	SD	N
High	145.00	13.08	31
Low	118.00	10.02	24
Total	263.00	24.00	55

Instruments

Reading strategy questionnaire

Studies of reading generally take a process (strategic reading behavior) and/or product (reading score) view of reading. Product oriented studies use reading comprehension tests as a criterion for data collection while process oriented studies employ questionnaires, interviews or think-aloud techniques for this purpose. Questionnaires are the most popular tool to establish what students are like at the start of their language course (Robinson, 1991). Best (1987) maintains that a questionnaire is the most appropriate and useful data collection device in research projects. In this study, the strategic approach was measured by means of a five-point Likert scale ranging from strongly disagree to strongly agree reading strategies questionnaire which would offer an immediate retrospective picture of reading behavior. The instrument was in the participants' L1 (Persian) to make sure the items were well understood by the participants. The participants were informed of the purpose of the study and that there was no right or wrong answer for the items in the instrument. All the items in the questionnaire were adopted from some related questionnaires in research-validated studies (see Oxford, Cho, Leung & Kim, 2004; Sheorey & Mokhtari, 2001; Taillefer & Pugh, 1998).

The internal consistency reliability coefficient of the instrument at the piloting stage was 0.83 as it was piloted among 13 students. To make sure of the content validity of the questionnaire, the instrument was shown to two

experts in the field to get their opinion about the items. They were also asked to give their opinions on the clarity of the translation. Cognitive strategies are about knowing what strategies to use and how to use them; on the other hand, metacognitive strategies are about understanding the rationale for applying a particular strategy in a particular context, and evaluating its usefulness in terms of appropriacy and effectiveness for that context. There are two reasons why students were tested about their knowledge of cognitive and metacognitive strategies (see Fogarty, 1994). First, through cognition, good readers construct their knowledge and through metacognition, they identify strategies. Therefore, constructing understanding requires both cognitive and metacognitive elements. Second, metacognitive strategies help students to successfully use and transfer these strategies cross-linguistically, as the ultimate goal of strategy instruction is transfer. As Auerbach and Paxton (1997) state, strategic reading can only become efficient when metacognitive strategies are actively used. There were 33 items in the questionnaire: items 9, 10, 11, 12, 13, 14, 15, 16, 19, 20, 21, 22, 26, 27, 31, 33 were cognitive strategies and the rest were metacognitive strategies in reading.

Reading tests

A. Reading comprehension test in Arabic. This test contained two passages, each with fifteen items. The items in terms of recognizing main ideas, vocabulary and inferencing were the same for the two passages in the reading comprehension test in Arabic. To construct the L3 (Arabic) reading comprehension test, the following features were borne in mind: length of texts, content, interest of students, format of the test (a multiple-choice format was used) and time (the time allotted was 30 minutes as determined in the piloting stage). It was then given to two Arabic teachers to obtain their opinion about the suitability of the text for this study. Both of these teachers were experts in Arabic Language and Literature. They had ten and thirteen years of experience respectively in teaching Arabic to high school students. After piloting the test with 13 students, the reliability of the test through the K-R21 formula was 0.71 . This test was validated against the 50 item reading section of the Arabic Proficiency Test (APT) (1994) which was developed by the University of Michigan and the Center for Applied Linguistics. The correlation coefficient was 0.70 which was appropriate for this study.

B. Reading comprehension test in English. The test of reading comprehension in English was from the reading component of the *Cambridge Preparation for the TOEFL Test*. The time allowed was 40 minutes as determined at the piloting stage. To ensure that this test was an appropriate one in terms of text difficulty level to be given to both groups of proficiency, first, two passages were randomly selected from the course books of the pre-university students taking part in this study. The readability formula was run to obtain an index of readability for them. The mean index was 19.87. Then the readability formula, after studying many texts, was run for the above-mentioned test of TOEFL, which turned out to be 20.80 and was suitable for the purpose of this study. Next, to check its reliability, it was piloted with 13 students and through the K-R21 formula, the reliability was 0.71. Then after calculating the correlation coefficient (0.75) between the Nelson test of proficiency and the test of reading in English in the piloting stage for the purpose of having a valid test, this reading test was deemed to be suitable for this study.

C. Reading comprehension test in Persian. The reading comprehension test in Persian contained two passages, each containing fifteen items. The items for the two passages in terms of recognizing main ideas, vocabulary knowledge and inference were the same. After administering this test to a similar group of 13 students, the reliability of the scores of this test according to the KR-21 formula was 0.92. This test was also shown to some experts in Persian language and literature to check the suitability of the text as well as the nature of the test items for students. Since to date, there has been no objective index for determining the difficulty level of Persian reading texts, the researcher relied on the experience of Persian language experts and his own experience in order to select suitable texts for the purpose of this study. The time allocated for the reading test in Persian was 30 minutes as determined at the piloting stage. The time factor was carefully controlled as too much time allowed would change rapid expeditious reading into slow careful reading.

PROCEDURES

First, the reading test in L1 (Persian) functioning as a trigger to the strategic reading behavior in L1 was administered to students. Therefore, the data from this test was not used in the data analysis and discussion of the study. Immediately after this test, a reading strategy questionnaire in L1 was employed to classify the subjects into two groups of low and high awareness of reading strategies in their L1 reading. Those who scored below the mean (24 students) and those who scored above the mean (31 students) were considered as low and high groups respectively.

After informing the participants of the purpose of the study, the reading strategy questionnaire as well as the reading comprehension tests in English and Arabic was administered to the students in the two groups during regular class time. Instructions were given to the participants on how to answer the questionnaire items and reading test batteries. They were asked to take the reading tests in English and immediately after that, they were given the strategy questionnaire as a retrospective measure in determining what strategies they used for reading in English. The same procedure was repeated for the reading test in Arabic in the following session. Time limitation was set for the reading tests but there was no time limit for answering the questionnaire and the researchers answered any possible questions raised by the participants who sought for more clarity. The questionnaire was delivered in Persian (L1) as it was thought to enable the participants to easily reflect on their strategic behavior.

After the pretest, the two high and low groups received reading strategy instruction with English language texts. In order to teach students how to read strategically, the five elements proposed by Winograde and Hare (1988 as cited in Carrell 1998) were used. They were: what the strategy is, why the strategy should be learnt, how to use the strategy, when and where the strategy should be used, and how to evaluate the use of the strategy. The texts used in the treatment were similar to the texts in the English reading tests in length, genre and general content. The course consisted of seven 35 or 40 minute sessions. After the treatment was over, each group was given the posttests in English and Arabic as had been done in the pretest stage. It should be noted that as this study was about raising awareness and use of reading strategies in two foreign languages (L2 and L3) as a result

of teaching reading strategies in L2, and was not to see the effect of this instruction on their reading performance, the two reading tests in these two languages (English and Arabic) functioned as triggers for strategic reading behavior and the data from them was not used for statistical analysis and discussion in the study.

ANALYSIS OF DATA

Data were analyzed using paired samples t-test. The analysis of data shows there was a significant difference in the awareness and use of cognitive and metacognitive reading strategies from pretest to posttest in Persian and English for students of low strategic reading competence level in both languages, as the p-value observed did not exceed the .05 significant level (see Table 2).

Table 2: Paired Samples t-test for Pretest and Posttest Cognitive and Metacognitive Reading Strategies in Arabic and English for Students of Low Strategic Reading Competence Level in Both Languages

	Language	Domain	Mean		SD		Mean Difference	t	p
			Pre-test	Post-test	Pre-test	Post-test			
Low Level	Arabic	Cognitive	20.0333	50.2000	4.38	3.21	-30.16667	-31.534	.000
		Metacognitive	23.4	52.93	5.26	3.63	-29.53333	-28.064	.000
	English	Cognitive	19.57	50.63	3.56	3.20	-31.07	-32.042	.000
		Metacognitive	23.43	54.0	4.19	2.62	-30.57	-31.497	.000

The analysis of data shows that there was a significant difference in the awareness and use of cognitive and metacognitive reading strategies from pretest to posttest in Arabic and English for students of high strategic reading competence level in both languages, as the p-value observed did not exceed the .05 significant level (see Table 3).

Table 3: Paired Samples t-test for Pretest and Posttest Cognitive and Metacognitive Reading Strategies in Arabic and English for Students of High Strategic Reading Competence Level in Both Languages

	Language	Domain	Mean		SD		Mean Difference	t	p
			Pre-test	Post-test	Pre-test	Post-test			
High Level	Arabic	Cognitive	22.4333	54.1333	3.6358	3.4713	-31.7	37.184	.000
		Metacognitive	28.4000	57.4667	22.7423	3.3086	-27.06	-6.773	.000
	English	Cognitive	20.432	53.333	4.43	2.288	-32.898	-34-83	.000
		Metacognitive	30.45	50.987	6.12	4.133	-20.5	-38.32	.000

Post hoc Analysis for Friedman's Test to Rank Cognitive and Metacognitive Strategy Items

For more detailed studies, the Friedman's test was conducted to rank the degree of use of cognitive and metacognitive strategies in Arabic and English for both high and low strategic groups in reading (see Table 4) in the pretest and posttest.

For the low group, the p observed ($p=0.000$) the difference between the items of cognitive reading strategies in Arabic both before and after the treatment was significant ($p<0.05$). Analysis of mean scores showed that at the pretest stage, items 13 (I pay attention to the beginning and end of each paragraph) and 27 (I visualize information read) had the highest and lowest mean scores respectively. However, after treatment, items 33 (I go back to read the details of the passage to find the answers of some questions) and 31 (I make inferences after finishing reading the passage) showed the highest and lowest mean scores respectively.

For the high group, the p observed ($p=0.000$) between the items of cognitive reading strategies in Arabic both before and after the treatment was significant at .05 level. Analysis of mean scores showed that at the pretest stage, items 33 (I go back to read the details of the passage to find the answers of some questions) and 31 (I make inferences after finishing

reading the passage) had the highest and lowest mean scores respectively. After treatment, items 33 (I go back to read the details of the passage to find the answers of some questions) and 31 (I make inferences after finishing reading the passage) also showed the highest and the lowest mean scores respectively.

Table 4: Friedman's Test to Rank the Degree of Awareness of Cognitive and Metacognitive Strategies for High and Low Groups in Arabic and English

Strategic Competence	Language	Reading Strategy Domain	Pretest		Posttest	
			Item showing highest mean score	Item showing lowest mean score	Item showing highest mean score	Item showing lowest mean score
High	Arabic	Cognitive	33*	31*	33*	31*
		Metacognitive	5	29	4	30
	English	Cognitive	33*	31*	33*	31*
		Metacognitive	5	32	4	29
Low	Arabic	Cognitive	13	27	33	31
		Metacognitive	2	32*	8	32*
	English	Cognitive	13	26	33	31
		Metacognitive	2	30*	4	30*

For the low group, the p observed (p=0.000) the difference between the items of cognitive reading strategies in English both before and after the was significant at 0.05 level. Analysis of mean scores showed that at the pretest stage, items 13 (I pay attention to the beginning and end of each paragraph) and 26 (I interpret the text -make inferences, draw conclusions, etc.) had the highest and lowest mean scores respectively. However, after treatment, items 33 (I go back to read the details of the passage to find the answers of some questions) and 31 (I make inferences after finishing reading the passage) showed the highest and lowest mean scores respectively.

For the high group, the p observed (p=0.000) the difference between the items of cognitive reading strategies in English both before and after the treatment was significant at 0.05 level. Analysis of mean scores showed that at the pretest stage, items 33 (I go back to read the details of the passage

to find the answers of some questions.) and 31 (I make inferences after finishing reading the passage.) were the highest and lowest mean scores respectively. After treatment, items 33 (I go back to read the details of the passage to find the answers of some questions) and 31 (I make inferences after finishing reading the passage) still showed the highest and lowest mean scores respectively.

For the low group, the p observed (p=0.000) the difference between the items of metacognitive reading strategies in Arabic both before and after the treatment was significant at 0.05 level. Analysis of mean scores showed that at the pretest stage, items 2 (I read the topic or heading of the passage to help predict the contents) and 32 (I evaluate what is read) were the highest and lowest mean scores respectively. However, after treatment, items 8 (I read the questions before I read the passage carefully) and 32 (I evaluate what is read) showed the highest and the lowest mean scores respectively.

For the high group, the p observed (p=0.000) the difference between the items of metacognitive reading strategies in Arabic both before and after the treatment was significant at 0.05 level. Analysis of mean scores showed that at the pretest stage, items 5 (I determine what to read) and 29 (I try to understand text organization) were the highest and lowest mean scores respectively. However, after treatment, items 4 (I think about the reasons why I am reading the text) and 30 (I do questioning for clarification) showed the highest and lowest mean scores respectively.

For the low group, the p observed (p=0.000) the difference between the items of metcognitive reading strategies in English both before and after the treatment was significant at 0.05 level. Analysis of mean scores showed that at the pretest stage, items 2 (I read the topic or heading of the passage to help predict the contents) and 30 (I do questioning for clarification) had the highest and lowest mean scores respectively. However, after treatment, items 4 (I think about the reasons why I am reading the text) and 30 (I do questioning for clarification) showed the highest and lowest mean scores respectively.

For the high group, the p observed (p=0.000) the difference between the items of metacognitive reading strategies in English both before and after the treatment was significant at 0.05 level. Analysis of mean scores

showed that at the pretest stage, items 5 (I determine what to read) and 32 (I evaluate what is read) had the highest and lowest mean scores respectively. However, after treatment, items 4 (I think about the reasons why I am reading the text) and 29 (I try to understand text organization) showed the highest and lowest mean scores respectively.

DISCUSSION AND CONCLUSION

Studies have shown that awareness of the learning process helps students learn a language and use strategies (Chamot, 1998; Cohen, 1995; O'Malley & Chamot, 1990; Oxford, 1990; Oxford & Cohen, 1992). A typical finding in research on reading strategies is that higher awareness is likely to lead to better reading comprehension, and that less successful readers can develop their reading proficiency via training and scaffolding based on the strategies that are used by more successful readers (Mokhtari & Perry, 2008). Dreyer and Nel (2003) found that students who received strategic reading instruction attained significantly higher marks for reading comprehension tests than the students in the control group.

This study has two main findings. First, it was found that there is a significant difference in the awareness and use of cognitive and metacognitive reading strategies from pretest to posttest in Arabic and English for students of low and high strategic reading competence level. Lee and Oxford (2008) have shown that strategy awareness has a significant main effect on strategy use. Mokhtari and Reichard (2004) state that less successful students who are often unaware of their own cognitive process must be helped to acquire and use reading strategies that have been found to be successful. As Pressley et al. (1989) note, a learner can actively transfer a given strategy to a new learning situation only when the strategy is in the learner's awareness (i.e., when the learner has metacogntive knowledge of the strategy). Regarding the effect of L1 on L2, transferring learning or reading strategies from one's mother tongue to L2 is considered a mark of efficient reading (Grabe & Stoller, 2002; Mokhtari & Reichard, 2004) as skilled L2 readers tend to regard reading as a single system (Garcia, Jimene & Pearson, 1998). Hoffmann (2001) states that bilinguals may be able to acquire an L3 more easily compared to monolinguals learning an L2. In line with the first finding of the study, Hufeisen (2000) states that L2 learning

experiences and strategies affect learning of an L3. Bartelt (1989 as cited in Chan, 2001) mentioned that the role of the L2 seems to be prominent in L3 strategy building. Chan (2001, p. 11) states, "The learning experience of L2 affects the acquisition process of L3 learners as they become skillful in both metalinguistic knowledge and general learning strategies".

Second, for a more detailed study, the Friedman's test was conducted to rank the degree of awareness of cognitive and metacognitive strategies for high and low groups in Arabic and English in the pretest and the posttest (see Table 4).

The findings of this study showed an improvement in mean score from the pre-test to the post-test. However, generally, this improvement from the pretest to the posttest was not of the same degree for different strategy items. In other words, as a result of reading strategy instruction, items showing the highest or the lowest improvement in the post-test were not the same items which had the highest or the lowest mean scores in the pre-test. This happened for many groups as represented in Table 4. For example, for the low cognitive strategy group in Arabic, the highest score in the pretest pertained to item 13 (I pay attention to the beginning and end of each paragraph) and the highest score in the posttest pertained to item 33 (I go back to read the details of the passage to find the answers of some questions). However, some items as signified by asterisks in Table 4 remained the same from the pretest to the posttest and the treatment did not change the rank of these items. This happened to both groups: a) pretest and posttest for English and Arabic test for cognitive reading strategy for the high strategic competence group, and b) posttest only for English and Arabic test for metacognitive reading strategy for the low strategic competence group.

These findings are supported by past research. In a study about reading in L1 and L2 by Garcia, Jimenez and Pearson (1998), it was found that effective readers tend to regard reading in L1 or L2 as a single system and use similar strategies in their L1 and L2 when appropriate. Meanwhile, Mokhtari and Reichard (2004) stated that skilled readers in L1 and L2 are not, in fact, different from each other in processing various reading materials and demonstrating metacognitive knowledge and strategies. However, Alsheikh (2009) found that native speakers of Arabic used both problem-solving and support strategies more often in their L2 (English) than in their L1 (Arabic).

Feng and Mokhtari (1998) also found that Chinese learners of English used problem-solving and support strategies more frequently when reading in L2 (English) than when they read in L1 (Chinese). In multilingual studies, Alsheikh (2011) found that participants tended to use more strategies in their L2 and L3 than in their L1.

From the findings of this study, it is concluded that it is important to take the teaching of reading strategies in the "first foreign language" (L2) seriously as it has impact on fostering strategy awareness and use both in "the first foreign language" (L2) and "the second foreign language" (L3) as a result of transfer of reading strategies from one language to another. As Sheorey and Mokhtari (2001) stated it is important for reading strategies to be part of reading instruction in a foreign language. Such instruction can help promote an increased awareness of the mental processes involved in reading and the development of thoughtful reading.

Another conclusion is that in addition to the overall analysis of the strategies using the overall mean scores, it is important to conduct an item by item analysis of strategies to see which item is the most or the least affected as a result of reading strategy instruction. This will help teachers find out more detailed information about the effect of reading strategy instruction on fostering the awareness and use of each single reading strategy.

Thus, it is recommended that teachers should consider the processes involved in reading in a foreign language so that improvements in awareness of reading strategies are observed. In addition, an item by item analysis of reading strategies is strongly recommended as the instruction of reading strategies does not have an equal impact on the improvement of each single strategy. In doing so, different variables such as level of awareness of the strategy, strategy type (i.e., cognitive or metacognitive), language being learnt (L2, L3, etc.), and others should be considered as well as these variables have impact on the results.

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APPENDIX

READING STRATEGY QUESTIONNAIRE

Name: (Optional)
Gender:

Dear Participants,
The researchers of this study want to find out about your strategic reading behavior for reading in English/Arabic/Persian. Please read the statements carefully and tick the most appropriate answer according to the scale given.

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Pre-reading activities					
1) I preview the text before reading.					
2) I read the topic or heading of the passage to help predict the contents.					
3) I look at the pictures, graphs, maps, diagrams, etc. of the passage.					
4) I think about the reasons why I am reading the text. (To get the main idea, obtain specific information, understand most or all of the message, enjoy a story, etc.).					
5) I determine what to read.					
6) I skim each paragraph for the main idea(s).					
7) I adjust my reading rate.					
8) I read the questions before I read the passage carefully.					
9) I use my background (world) knowledge to help me understand the passage.					
While-reading activities					

10) I pay attention to the parts of the sentence such as phrases and clauses.					
11) I pay attention to the sentence structure such as subjects and objects.					
12) I link information in one sentence with information from the preceding ones.					
13) I pay attention to the beginning and end of each paragraph.					
14) If I don't understand something such as a word or phrase, I guess its meaning using clues from the text such as parts of speech, surrounding words, verb tense, singular and plural, synonyms and antonyms, appositive, punctuation marks, contrasts, description, cause-effect, use of the, etc.					
15) If I do not understand some part of the text, I try to guess its meaning by activating my background knowledge.					
16) I propose some questions according to my thoughts about the article.					
17) I write comments or questions in the margins.					
18) I orchestrate various strategies.					
19) I read aloud when the text becomes hard.					
20) I re-read for better understanding.					
21) I take notes, highlight or underline the important points while I am reading the passage.					
22) I scan (read quickly) for the answer to some questions and for details.					
23) I check or evaluate my comprehension.					
24) I predict or guess text meaning.					
25) I check my predictions about the text while reading.					

26) I interpret the text (make inferences, draw conclusions, etc).					
27) I visualize information read.					
28) I do monitoring and clarifying.					
29) I try to understand text organization.					
30) I do questioning for clarification.					
Post-reading activities					
31) I make inferences after finishing reading the passage.					
32) I evaluate what is read.					
33) I go back to read the details of the passage to find the answers of some questions.					