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Research Article

Metacognitive Awareness of Reading Strategies & Reading Comprehension among Iranian English Major Students

Zohreh Seifoori, Mahsa Youssefi

Department of English, Tabriz Branch, Islamic Azad University, Tabriz, Iran

Abstract.
This study aimed to investigate the relationship between metacognitive awareness of reading strategies of Iranian university students across three English majors: English Language Teaching (ELT), English Literature (EL), and English Translation (ET), and their reading comprehension skill. Participants in the study were 26 ELT, 26 EL, and 25 ET students including both males and females from Islamic Azad University, Tabriz Branch. The groups' initial homogeneity was verified via a Preliminary English Test (PET) and a reading comprehension test. Their metacognitive awareness of reading strategies was also measured through the Metacognitive Awareness of Reading Strategies Inventory (MARSI) (Mokhtari & Reichards, 2002). Statistical analyses of the research data indicated that ELT students obtained significantly higher mean scores in reading comprehension and strategy awareness than EL and ET students who were not significantly different from each other. The correlation analyses revealed that students' reading comprehension and metacognitive awareness of reading strategies were correlated in all of the three groups. The results emphasize the role of strategy use as a device to improve English students' reading comprehension and have implications for material developers and English teachers.

Keywords: Reading strategies; Metacognitive Awareness of Reading Strategies; reading comprehension

I. Introduction

Reading is likely to take up a large proportion of the time each student devotes to his university work. If students fail to read and comprehend the key materials of a content area course, their ability to learn the skills and concepts of that subject will be severely hindered. Understanding the shapes of the letters and the words is not the whole of the story. Often the ability of decoding the text into understandable language is considered as being all that is required to be done, but it is only one element of the vast process. Even when students decode the text effortlessly, moving along through a text and constructing meaning from it, is a laborious task. Effective understanding of the decoded text is the most crucial part of the reading process in the educational setting. Many

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students wrongly believe that speed reading could improve their ability to comprehend the academic texts. Efficient analysis and comprehension of texts is a complex process which plays a central role in academic success.

On the other hands, there is a change in the form of expectations from the students, nowadays. They are supposed to possess adequate skills that make them capable of coping with any learning struggle in the acquisition of four language skills. There is an acute tendency toward making students independent in the process of learning and reducing the reliance on the materials provided by the teachers. To make students independent, cognitive and metacognitive strategies should be taught to them. Kelly, Moore, and Tuck (2001) claimed that development of metacognition and self-regulated learning strategies affects and contributes to the success of the students. Flavell (1979) originally coined the term metacognition in the late 1970s by which he meant "cognition about cognitive phenomena," or more simply "thinking about thinking" (p. 906). According to Kuhn and Dean (2004), metacognition is something that makes a student able to retrieve and deploy a certain strategy taught in the context of a particular problem in a similar but new setting. It seems that application of metacognitive strategies during reading a text can facilitate the comprehension process and make the students self-dependent. Tracey and Morrow (2006) defined metacognition as "the process of thinking about one's own thinking" (p. 61). Brown (1985, as cited in Abromitis, 1994) asserted that knowledge about the cognition and the regulation of cognition are the two aspects of metacognition. The first one refers to the knowledge of readers about their own cognitive abilities and the second includes the strategies and processes that readers use to get rid of the difficulties they encounter during reading a text.

Anderson, Hiebert, Scott, and Wilkinson (1985) stated that metacognitive control has two components: comprehension monitoring and corrective strategy use. Comprehension monitoring includes the ability of noticing comprehension failures and inconsistencies within the text and corrective strategy use refers to using strategies for coping with comprehension failures and correcting them. According to Israel (2007), metacognitive strategies of reading are planning, monitoring and evaluating strategies. Planning occurs before reading, monitoring is used during reading, and evaluation is done after reading. Brown (1980, as cited in Vianty, 2007) exemplifies clarifying the purposes of reading, identifying the significant facets of a message, monitoring progressive activities to examine whether comprehension was taking place, occupying with self-questioning to determine whether goals were being attained, and taking corrective action when failures in comprehension were discovered as the instances of reading metacognitive strategies involved in reading.

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Metacognitive Strategies (MCSs)

According to O'Malley and Chamot (1990), metacognitive strategies are "higher order executive skills that may include planning for, monitoring or evaluating the success of a learning activity" (p.44). Cohen (1998, p. 7) espoused that metacognitive strategies "handle pre-assessment and pre-planning, on-line planning and evaluation, and post-evaluation of language learning activities". Putting all these together, metacognitive strategies are defined as thoughts or behaviors consciously employed by the learner to think about the learning task, plan for the task, monitor the task, and evaluate how well he/she has completed the task.

Metacognitive strategies range from simple processes such as underlining, outlining, note taking, summarizing, self-questioning to more complex methods such as hierarchical summaries, conceptual maps, thematic organizers, and metaphorical thinking. Older students best handle the more complicated methods. The most significant aspect of strategies to teach to the students is when to utilize such a strategy. According to Chastain (1988), most of the learning strategies are procedural in form. The best example of a procedural learning strategy is the SQ3R. The five steps of this strategy are survey, develop questions, read, recall, and review.

Measuring Strategies

Making use of questionnaires in a research study is one of the most commonly used techniques to collect data since they "can be objectively scored and analyzed" (Oxford, 1990, p. 199). They vary from more structured, in which the items can range from "yes or no" answers or indications of frequency, to less structured questions asking respondents to depict or explain the language learning strategy in a detailed way. The data obtained from highly structured questionnaires are uniformly organized because of the standardized categories provided for all respondents and they lend themselves to statistical analysis (Cohen & Scott, 1996).

A major benefit of large-scale questionnaires pointed out by Cohen and Scott (1996) is that they have the potential to generate and test hypotheses because of the large number of respondents. Oxford (1990), on the other hand, asserts that the more structured questionnaires "might miss the richness and spontaneity of less structured formats" (p. 199). Various questionnaires have been designed by different scholars to measure strategies used by students while doing different language tasks. Here, two mostly know questionnaires are explained.

The Strategy Inventory for Language Learning (SILL)

A good example of a structured learning strategy questionnaire is the SILL developed by Oxford (1990) and has been used in many parts of the world with the learners of many different

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languages such as Chinese, French, German, Spanish, Japanese, and Turkish. The SILL has 50 items grouped under 6 sections. Its 5-point scale ranges from 'never or almost never' to 'always or almost always.' Oxford (1990) points out that the overall average shows how often the learner are inclined to use learning strategies in general, while the means for each section of the SILL stand for which strategy groups the learner is liable to use most frequently.

The Metacognitive Awareness of Reading Strategies Inventory (MARSI)

The MARSI survey, which was developed by Mokhtari and Reichard (2002), is a self-reported instrument designed to examine students' use of reading strategies for academic reading purposes (Mokhtari & Reichard, 2002). The MARSI is one of the few instruments to measure metacognitive knowledge associated specifically with reading. This instrument was piloted and evaluated several times in terms of validity, reliability, and consistency (Mokhtari & Reichard, 2002). Its items were exposed to "successive cycles of development, field-testing, validation, and revision" (p. 251). Initially, a hundred items were generated; removal of many redundancies culminated in the final version.

The questionnaire contains thirty statements presented on a Likert-item scale ranging from 1 to 5, 1 means I never or almost never do this while 5 means I always or almost always do this. The MARSI includes three domains of reading strategies: Global reading, Problem-solving, and Support strategies. Global reading strategies are more targeted toward analyzing a text holistically. Problem-solving strategies are oriented towards finding solutions to understanding a text when it becomes difficult. Support strategies are based on the use of external reference material such as note-taking (Mokhtari & Reichard, 2002). The scales are Global Reading Strategies, Problem-Solving Strategies, and Support Reading Strategies.

II. Literature Review

A number of researches have been conducted to explore the importance of metacognitive reading strategies in different aspects of learning a foreign language. In this section a number of these studies will be presented.

Vianty (2007) investigated the students' use of metacognitive reading strategies when reading in two languages of English and Bahasa Indonesia. One hundred and one Indonesian students completed Metacognitive Reading Strategies questionnaire (MRSQ) both in Bahasa Indonesia and English. After conducting a paired sample t-test it has been indicated that significant differences exist between the students' use of particular metacognitive reading strategies in English and Bahasa texts. On the whole, the students used analytical reading strategies more

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frequently when reading in Bahasa and pragmatic reading strategies more frequently when reading in English.

Likewise, Hassan (2008) investigated the relationship between metacognitive strategy awareness in reading and reading ability in L1 and L2. He selected 40 Malaysian secondary school students to take part in a reading metacognitive awareness questionnaire. Students also completed four sets of reading comprehension tests to determine their reading competence in L1 and L2. Results indicated that reading metacognitive strategy awareness significantly contributed to the participants' reading ability for both L1 and L2. Hassan suggested that students were aware of what constitutes efficient reading, and the higher their knowledge of efficient reading, the better their reading ability.

Karbalaei (2010) compared the metacognitive reading strategies used by EFL and ESL readers in reading academic texts in English. One hundred and ninety undergraduate students (96 Iranians and 93 Indians) completed an instrument designed to measure the students' metacognitive awareness of reading strategies after performing a reading comprehension test. Although the two student groups had been schooled in significantly different socio-cultural environments, the subjects in both groups reported a similar pattern of strategy awareness while reading academic texts. Concerning the difference existing among both groups, Iranian students reported no significant difference in using problem-solving reading strategies. Indians reported more awareness and use of global support and total metacognitive reading strategies.

Karami and Hashemian (2012) examined the possible effects of the Iranian elementary female L2 learners' metacognitive reading strategy knowledge on their reading comprehension in 3 different stages of reading, that is, pre-reading, while-reading, and post-reading phases. They used Oxford Placement Test in order to control the language proficiency factor and at last selected 40 L2 learners. They selected participants from two different age groups; twenty from the young people, ranging from 15 to 20 years old and twenty from adults, ranging from 35 to 40 years old. The participants completed a reading strategy survey and took a reading comprehension test. After conducting a number of descriptive and inferential statistics it has been indicated that there was not significant relationship between the young and adult Iranian female L2 learners' comprehension level and their use of reading strategies. In fact, the data collected from the young group resulted in a significant relationship between reading comprehension and metacognitive reading strategy use.

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Most of the studies undertaken in the field of reading strategies have been focused on learners of general English courses. Yet, whether English major students in EFL contexts use reading strategies differently and the extent to which they may differ in their metacognitive awareness of reading strategies was less investigated. The purpose of the present enquiry, thus, was to investigate Iranian ELT, EL and ET students' reading comprehension skill, their awareness of Metacognitive Awareness Reading Strategies (MARSs), and the probable relationship between these variables. To achieve this goal, the following research questions were proposed:

1. Do Iranian university students majoring in ELT, EL, and ET differ in their reading comprehension?

2. Do Iranian university students majoring in ELT, EL, and ET differ in their knowledge and use of their MARSs?

3. Is there any significant relationship between reading comprehension and metacognitive awareness of reading strategies of Iranian ELT, EL and ET university students?

III. Methodology

Participants

The participants in this study were 77 male and female senior students at Islamic Azad University of Tabriz majoring in English Teaching (ELT), English Translation (ET), and English Literature (EL). The participants were attending classes in three groups including 26 ELT, 26 EL, and 25 ET students.

Instruments

Three different instruments were used to collect the research data. The first instrument was the reading, grammar, and vocabulary sections of a 45-item PET which was used to assess groups' homogeneity of the participants in the selected areas at the onset of the study. Administration of this test took 45 minutes.

The second instrument was the reading section of a different version of PET which provided a practical way of assessing students' reading comprehension in English. It consisted of 30 items and was administered in 30 minutes.

The third instrument was Metacognitive Awareness of Reading Strategies Inventory (MARSI) (Mokhtari & Reichard, 2002). It is a Likert scale questionnaire with scores ranging from 1 to 5 which indicate the least frequent use of the strategies to the most frequent one. It was used to assess the participants' metacognitive awareness and use of reading strategies when reading.

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The time allotted to the administration of the questionnaire was 15 minutes. It includes 30 items to measure three broad subscales of: A) Global Reading Strategies (GLOB) (13 items): a set of generalized, intentional reading strategies oriented toward setting the stage for the reading act. B) Problem-Solving Strategies (PROB) (8 items): localized, focused problem-solving or repair strategies used when problems occurs in understanding the information provided in the text. And C) Support Reading Strategies (SUP) (9 items): using support mechanisms to sustain responses to reading.

Yet, in the present study, no distinction was held among various sub-components of the Inventory and the total score was calculated as the individuals' general metacognitive awareness of reading comprehension.

Procedure

The study began with the administration of a modified version of PET to all of the participants. The purpose of this test was to assess the participants' initial homogeneity in reading comprehension skill and the required sub-skills across their majors. As there was not a significant difference among the students' scores, all the participants took part in the study and none of them were excluded.

Further, the reading part of another version of PET was administrated to the participants who were required to answer 30 close-ended questions that were scored objectively according to the provided answer key.

Right after the test, the MARSI was administered to the students and they were instructed to select the number that best indicates their use of metacognitive reading strategies in reading academic texts.

Data Analysis

A number of descriptive and inferential analyses were conducted by SPSS (V. 17) software on the data in the three groups. Three Analysis of Variance (ANOVA) tests were conducted on the data from the PET, the reading comprehension and the MARSI to assess the groups' initial homogeneity and to answer the first two questions. Further, the degree of the relationship between reading comprehension of the participants' and their metacognitive awareness of reading strategies was calculated through Pearson's correlation analyses.

IV. Results

The Language Proficiency Test

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The mean score of the participants' proficiency test in ELT, EL, and ET groups were 40.15, 39.69, and 39.84 out of 45, receptively. To assess the significance of the observed difference, we ran an ANOVA on the participants' proficiency test scores. Table 1demonstrates the findings.

Table 1
The ANOVA Analysis of the Groups' PET Scores

	Sum of Squares	df	Mean Square	F	Sig
Between Groups	2.88	2	1.44	.165	.84
Within Groups	648.28	74	8.76		
Total	651.16	76			

As observed, the difference among the groups' mean scores did not reach significance level ($p=0.84 > 0.05$), confirming the initial homogeneity of the groups' in terms of their knowledge of English vocabulary and grammar and their reading skill.

The Reading Comprehension Test

The first research question addressed the reading comprehension of the three groups of research participants. First, the Leven's test of homogeneity of variance revealed that the underlying assumption of homogeneity of variances required for the one-way ANOVA had been been met , $F(2, 74) = 1.166$, $p = 0.317$, *t,* that is, $p\ (0.317) > 0.05$. Second, the descriptive statistics were calculated for the three groups; the ELT group with an average of 25.12 stood above the ET group, 22.92, and the EL group, 22.69. Next, to verify the exact nature of the difference, we submitted the scores to another one-way ANOVA, the results of which are presented in Table 2 below.

Table 2
The ANOVA of the Groups' Reading Comprehension Scores

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	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	95.75	2	47.87	5.78	.005
Within Groups	612.76	74	8.28		
Total	708.51	76			

As it is observed in Table 2, the p-value is equal to 0.005, which is less than 0.05, and indicates significant difference among the three groups in terms of their reading comprehension (F (2, 74) = 5.782, p = 0.005). To locate the difference more precisely, therefore, we ran a Tukey Post Hoc test, the results of which are illustrated in Table 3.

Table 3

The Tukey Post Hoc Multiple Comparisons of the Groups' Reading Comprehension Scores

(I) Major	(J) Major	Mean Differ (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
ELT	EL	2.46*	.79	.00	.55	4.37
	ET	2.23*	.80	.01	.31	4.16
EL	ELT	-2.46*	.79	.00	-4.37	-.55
	ET	-.22	.80	.95	-2.16	1.70
ET	ELT	-2.23*	.80	.01	-4.16	-.31
	EL	.22	.80	.95	-1.70	2.16

. The mean difference is significant at the 0.05 level.

Based on Table 3, the ELT groups' reading comprehension mean score differed significantly from those of EL (p=0.008<0.05) and ET (p=0.019<0.05) averages. As the mean differences indicate, ELT group outperformed both EL (I-J= 2.46) and ET (I-J= 2.23) groups whose reading comprehension did not show any significance difference (p=0.957 > 0.05).

The Metacognitive Awareness of Reading Strategies (MARSs)

The second research question addressed the MARSs of the three groups of research participants. To assess normal distribution of MARSI scores in three groups, we first ran the

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Shapiro-Wilk test which verified the normality of the research data in all groups, with p values of .11, .87 and .11 for ELT, EL and ET groups, respectively. The variances of the MARSs results in the three groups were also found homogeneous, ($F(2, 74) = 0.728$, $p = 0.486 > 0.05$), and the assumption for the One-way ANOVA was met.

Further, we estimated the descriptive statistics of the groups' metacognitive awareness of reading strategies as measured by MARSI. The ELT group with a mean of 126.65 and an SD of 15.65 proved to be more aware and more heterogeneous compared to the EL group with a mean of 116.23 and an SD of 11.99 and the ET group who obtained the mean of 115.60 and the SD of 13.08. The significance of the difference among the groups' awareness of MARSs was checked through another one-way ANOVA test, as depicted in Table 4 below.

Table 4
The ANOVA of the Groups' MARSI Scores

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1988.59	2	994.29	5.14	.008
Within Groups	14296.50	74	193.19		
Total	16285.09	76			

As observed in Table 4, the p-value is equal to 0.008 which is less than 0.05, and reveals significant difference among the three groups ($F\ 2, 74) = 5.147$, $p = 0.008$). To determine the significance of the difference, we again ran the Tukey Post Hoc test, the result of which are demonstrated in Table 5.

Table 5
The Tukey Post Hoc Multiple Comparisons of the Groups' MARSI Scores

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(I) Major	(J) Major	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
ELT	EL	10.423*	3.85	.02	1.20	19.64
	ET	11.054*	3.89	.01	1.74	20.37
EL	ELT	-10.423*	3.85	.02	-19.64	-1.20
	ET	.63	3.89	.98	-8.68	9.94
ET	ELT	-11.054*	3.89	.01	-20.37	-1.74
	EL	-.63	3.89	.98	-9.94	8.68

*. The mean difference is significant at the 0.05 level.

It is clear from the Table 5 that the mean of the ELT groups' MARSI scores differed significantly from those of EL ($p=0.023<0.05$) and ET ($p=0.016<0.05$) groups, revealing a better metacognitive awareness of reading strategies in comparison to EL (I-J= 10.42) and ET (I-J= 11.05) groups. Yet, the EL and ET groups were not found significantly different in their metacognitive awareness of reading strategies, ($p=0.98>0.05$).

The Group's Reading Comprehension and Their MARSI

In order to determine whether there was any significant relationship between reading comprehension of Iranian university participants majoring in ELT and their use of Metacognitive Awareness of Reading Strategies, the we ran the Pearson's correlation analysis the results of which are presented in the Table 6 below.

As it is clear from Table 6, there is a high positive correlation between reading comprehension and MARSI scores of ELT participants ($p<0.01$) with the coefficient of 0.974. Therefore, the third null hypothesis of the study is rejected. It means that there is a significant relationship between reading comprehension and MARSI scores among Iranian university participants majoring in ELT.

Table 6

Pearson's Correlation between ELT Participants' Reading Comprehension and MARSI Scores

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		eading	IARSI
eading	earson Correlation		74**
	ig. (2-tailed)		00
		5	5
IARSI	earson Correlation	74**	
	ig. (2-tailed)	00	
		5	5

*. Correlation is significant at the 0.01 level (2-tailed).

The Groups' Reading Comprehension and Their MARSI

Research questions three through five addressed any significant relationship between the participants' reading comprehension test scores and their metacognitive awareness of reading strategies in ELT, EL and ET groups. To answer these research questions, we conducted three Pearson's correlation analyses, the results of which are reported in Table 7.

As demonstrated in Table 7, a significantly positive relationship was found between the groups' reading comprehension test scores and their metacognitive awareness of reading strategies as measured by MARSI, ($p<0.05$).

V. Discussion

Expectations are high from educated learners of English as a foreign and second language when it comes to ubiquitous skills like reading comprehension and metacognitive awareness of reading comprehension skills particularly when these learners are prospective teachers who will function key roles in opening up new horizons to the future generation by teaching them English which is a global language. The present study set out to compare the reading comprehension and the MARSs of ELT, EL and ET university seniors and to find out any probable relationship among the two variables.

Table 7

Pearson's Correlation between The Groups' Reading Comprehension and MARSI Scores

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ELT Group		Reading	MARSI
Reading	Pearson Correlation	1	.968**
	Sig. (2-tailed)		.000
	N	26	26
MARSI	Pearson Correlation	.968**	1
	Sig. (2-tailed)	.000	
	N	26	26
ET Group			
Reading	Pearson Correlation	1	.988**
	Sig. (2-tailed)		.000
	N	26	26
MARSI	Pearson Correlation	.988**	1
	Sig. (2-tailed)	.000	
	N	26	26
EL Group		Reading	MARSI
Reading	Pearson Correlation	1	.988**
	Sig. (2-tailed)		.000
	N	26	26
MARSI	Pearson Correlation	.988**	1
	Sig. (2-tailed)	.000	
	N	26	26

**. Correlation is significant at the 0.01 level (2-tailed).

The results emerging from the present study indicated that ELT participants had a significantly more advanced reading comprehension and were more aware of metacognitive reading strategies compared to both EL and ET participants, the difference between whom did not reach significance level. It was also found that metacognitive reading strategies awareness was significantly correlated with reading comprehension across three majors. The results of the

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correlation tests indicated positive, linear and statistically significant correlation between participants' perception of the positive reading strategies that they use and reading comprehension scores for all three majors. This suggests that the more they employ top-down reading strategies, the better their reading comprehension scores would be. The strength of the correlation was similar across majors. The findings suggest that metacognitive awareness of reading strategies significantly contributed to L2 reading comprehension regardless of the participants' majors.

In the present study, three groups of graduate English major participants from the same language background were compared in terms of their reading comprehension and their awareness of metacognitive reading strategies. These findings lend extra support to prior research on the positive relationship between reading comprehension and metacognitive awareness of reading strategies among native and non-native readers (Carrell et al., 1989) who indicated that students rated with a high reading ability reported a higher use of almost all of the reading strategies in the survey than did those students who rated themselves with a low reading ability. They are also in line with Vianty (2007) conducted the same comparison between learners from two different languages, his results were in the same line with findings of the present study as well as other studies (Alhaqbani & Riazi, 2012; Hassan, 2008; Karami, & Hashemian, 2012; Karbalaei, 2010).

Research in L1 literacy has also found a similar relationship between reading comprehension and metacognitive awareness of reading strategies among native speakers of English. Baker and Brown (1984) discovered that non-proficient readers indicated a lack of reading skills and strategies. Proficient readers, on the contrary, were found more able to check their cognitive processes while reading. Moreover, they not only were attentive of which strategies to employ, but also were likely to be better at regulating the use of such strategies. That is, the readers with a high reading ability knew which strategies to use and how to use them, and most importantly, they knew the situations under which they ought to be used (Sheorey & Mokhtari, 2001).

VI. Conclusion

Language pedagogy all over the world highlights the need for learner autonomy through learner investment and strategy training. This necessity is more intense for foreign language learners and prospective teachers who suffer from restrictions in the educational contexts including limited exposure to the target language. The higher awareness of ELT students in the Iranian context indicates their self-attempt in enhancing their knowledge of metacognitive awareness reading strategies which could have developed as a result of being exposed to technical materials in teaching courses like language teaching methodology. The high correlation between these

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strategies and the ELT participants' reading comprehension underscores the interaction between the two and the facilitative role the former can have in enhancing the latter. Not only recent research findings, including the present enquiry, suggest that teaching learners how to use strategies should be a prime consideration in the reading classroom (Barnett, 1988), but also demands in different majors require learners to be strategic and independent. Since students often face new materials to read, they must be able to derive the author's meaning. They constantly need to guess, predict, check their prediction, and so forth. Finally, it should be borne in mind that gaining mastery in strategy training and use is a gradual process demanding consistent practice and perseverance (Richards & Renandya, 2002). Yet, planning contextualized needs-based strategic investment programs can be suggested as an option for the plethora of EFL learners who strive to promote their mastery over the target language.

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