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Iranian EFL Learners' Academic Self Efficacy, Metacognitive Reading Strategies, and Reading Comprehension Achievement: Exploring the Relationships and Predicting Roles

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Abstract

This study scrutinized the probable significant relationships among Iranian EFL learners' academic self-efficacy, metacognitive reading strategies, and reading comprehension test performance. Relevantly, the significant predicting roles of the learners' metacognitive reading strategies as well as academic self-efficacy for reading achievement were statistically investigated, increasing the depth of the study. Furthermore, the probable significant differences between the learners' academic self-efficacy as well as the utilization of metacognitive reading strategies were investigated across three reading proficiency levels. To this end, 100 BA students, majoring in English Language Teaching at Islamic Azad University-Neyshabur Branch-Iran participated. Three standard instruments were employed, including academic self-efficacy and metacognitive reading strategies questionnaires along with the reading comprehension section of a TOEFL test. The study followed a quantitative correlational design. Since the normality of data was proved, the parametric statistical analyses, including descriptive statistics, Pearson's correlation coefficients, multiple regression analyses, and one-way analysis of variance were employed. The findings demonstrated significant positive relationships among the learners' reading achievement, academic self-efficacy, and utilization of metacognitive reading strategies. In addition, it was found that metacognitive reading strategies can better predict reading comprehension than the learners' academic self-efficacy. Academic self-efficacy was also proved as a significant predictor of the learners' utilization of overall metacognitive reading strategies. No significant differences were proved between three proficiency levels in the utilization of metacognitive reading strategies as well as academic self-efficacy. The findings have some insightful pedagogical implications as well as some useful hints for language teachers and syllabus designers.

Keywords: academic self-efficacy, metacognitive reading strategies, reading achievement

1. Introduction

Reading comprehension is a cognitive skill, enabling learners to acquire academic knowledge and comprehend information from the text, which plays a vital role in any L2 teaching and learning programs (Chamba & Ramirez-Avila, 2021). It should be given much attention by both teachers and learners because it has substantial effects on enhancing other skills, language components, and topical knowledge (Al-Jarf, 2021). There exist many L2 learners, knowing many grammatical rules and lexical items, yet unable to comprehend reading passages effectively, leading to great demotivation and frustration in language learning process. As reading comprehension is a strategic process, knowing the repertoire of strategies facilitating reading comprehension process seems necessary.

Not only is reading comprehension an essential skill for language learning, but also for successful interaction in dealing with daily social affairs independently such as reading and understanding labels, directions, academic/occupational application forms, newspapers, and so forth (Chatman, 2015; Hoeh, 2015). The need for effective reading comprehension is of critical importance in every educational and personal life situation, and those who do not possess proper reading competence are inevitably put at a great disadvantage (Blair, Rupley, & Nichols, 2007).

Reading strategies are some techniques, methods, and tips utilized by readers in order to facilitate and enhance the reading process, which are of many classifications and types such as cognitive, metacognitive and socio-affective strategies (Ali & Razali, 2019). Reading strategies are defined as the mental operations, readers purposefully employ in the complex process of making sense of the texts they have read (Barnett, 1989). Kodan and Akyol (2018) described reading strategies as conscious, flexible instantiated plans, which are utilized and adapted to a wide variety of texts. Reading strategies are employed and regulated consciously by novice readers, but later they may be subconsciously or even unconsciously used in automatic manner at advanced levels.

Consequently, reading strategies seem the very essence of effective reading comprehension, which the learners are heavily involved in a series of planned actions under their conscious control (Ahmadian & Pasand, 2017). In the process of extracting meaning from reading passages, proficient language learners consistently use a variety of appropriate strategies, contributing to effective deep understanding, which differentiates them from novice readers. Proficient strategic readers are acutely aware of reading process through frequent strategic monitoring and regulating, assisting them in dealing with reading challenges (Koda, 2005).

Thus, the essence of teaching the systematic use of reading strategies is greatly felt in the initial phase of language learning because it leads to the leaners' improvement in all academic subjects to acquire academic knowledge from the content. The learners with low reading skills may have low motivation and ineffective challenging behavioral reactions, leading to low achievement (Sloat, Beswick, & Williams, 2007). In contrast, the strategic readers are able to master academic reading skills successfully, leading to achieving academic success (Foorman, Breier, & Fletcher, 2003).

Raoofi et al. (2012) asserted that teaching reading strategy explicitly enhanced the Taiwanese undergraduate students' self-efficacy significantly. In a similar vein, Shang (2010) claimed that the more proficient learners, who frequently employed self-regulated learning strategies, showed stronger feeling of self-efficacy than less proficient learners in accomplishing writing tasks. Graham et al. (2020) reported that adequate explicit instruction of reading strategies developed significantly the French beginner students' reading self-efficacy.

In Zimmerman's (2013) self-regulated learning cyclical model, self-efficacy plays a crucial role, influenced by the performance phase, encompassing self-reflection and metacognitive monitoring. Bandura identified self-efficacy as a vital contributor to the learning journey, referring to it as 'mastery experiences,' where learners tackle challenging tasks, which underscores the importance of employing effective metacognitive strategies, facilitating successful learning outcomes, as noted by Bachman and Palmer (2010). The relation between metacognitive strategies and self-efficacy is reciprocal. This dynamic relationship has been illustrated in the studies by Gentner and Seufert (2020), as well as Kyo (2022), indicating that the strategies utilized by learners can significantly influence their confidence and perception of abilities. Thus, understanding and optimizing metacognitive strategies is essential for enhancing both self-efficacy and overall learning effectiveness.

Bandura (1997) considered self-efficacy as a major source in the learning process, regarded as 'mastery experiences' (p. 80), by which learners accomplish challenging tasks, emphasizing the necessity of applying efficient metacognitive reading strategies, which lead to successful learning process (Bachman & Palmer, 2010). The relation between metacognitive reading strategies and self-efficacy is of bidirectional type (Bandura, 1999; Zimmerman, 2013). In other words, metacognitive reading strategies establish a solid basis for self-efficacy, which may fluctuate concerning the

sort of metacognitive strategies, utilized by the learners (Gentner & Seufert, 2020; Kyo, 2022; Nejati, 2024). The positive significant relation between language learners' self-efficacy and utilization of metacognitive reading strategies is demonstrated in figure 1, derived from Cai and Zhao (2023).

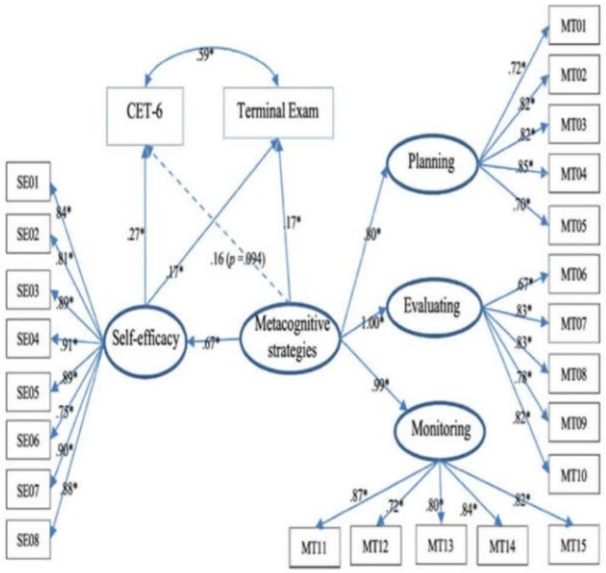

Figure 1. Statistical model of the relation between metacognitive strategies and self-efficacy, derived from Cai and Zhao (2023)

1.1 Statement of the Problem

Utilizing adequate reading strategies plays an important role in enhancing critical interactive thinking as well as self-monitoring abilities in reading comprehension process, assisting language learners in getting actively involved in the reading process. Conversely, relative lack of proper reading strategies potentially results in reading comprehension failure of different text types in spite of spending too much time on them. Thus, more systematic studies should be conducted to examine the adequate reading strategies, which should be utilized effectively to enhance reading comprehension level of language learners (Chatman, 2015; Ford & Opitz, 2008).

However, the necessity of investigating reading strategies in relation to different effective psychological factors is greatly felt. One of the most important psychological variables is learners' self-efficacy, believed to be an influential factor in L2 learning process (Li & Wang, 2010). Self-efficacy plays a prominent role in language learning, which refers to the language learners' beliefs in their own competences to check their efficiency in conducting particular tasks (Khurshid, Qasmi, & Ashraf, 2012). Lack of high self-efficacy in accomplishing particular instructional tasks is very common among language learners, leading to distracting their self-confidence. Low self-efficacy also leads to the failure of language learners in using adequate reading strategies.

Hence, the present study is an attempt to scrutinize the Iranian EFL learners' employment of metacognitive reading strategies in relation to the degree of academic self-efficacy beliefs. Further attempts have been made to explore the predicting degree of the learners' academic self-efficacy beliefs for the utilization of metacognitive strategies, which has been rarely explored up to now. The research findings can provide language teachers with profound insights into the way language is metacognitively processed under the influence of many paramount psychological variables, including the learners' academic self-efficacy beliefs, which can control and direct the effective application of reading strategies.

1.2 Purpose of the Study and Research Questions

Gaining an insight from the previous studies on the interplay between the variables, the present study is a systematic elaboration on the probable significant relation between Iranian EFL learners' reading achievement, academic self-efficacy beliefs, and applying metacognitive reading strategies. A systematic attempt was made to check the significant relation between the variables two by two as well as checking the significant predicting role of academic self-efficacy along with metacognitive strategies for reading achievement of the students. In addition, the probable significant differences between the learners at different reading proficiency groups in utilizing metacognitive strategies as well as academic self-efficacy were statistically analyzed. Furthermore, the predicting degrees of the learners' utilization of metacognitive strategies along with academic self-efficacy for reading comprehension achievement were checked, focusing on the variable that has better predicting power. Finally, the predicting degree of academic self-efficacy for the employment of metacognitive strategies was checked. In particular, the research questions, explored in this study, are as follows:

RQ1: Is there any significant relationship between Iranian EFL learners' reading ability and use of metacognitive reading strategies?

RQ2**:** Is there any significant relationship between Iranian EFL learners' reading ability and their academic self-efficacy beliefs?

RQ3: Is there any significant relationship between Iranian EFL learners' metacognitive reading strategies and their academic self-efficacy beliefs?

RQ4. Is there any significant difference between Iranian EFL learners' use of metacognitive reading strategies and their reading proficiency levels?

RQ5. Is there any significant difference between Iranian EFL learners' academic self-efficacy beliefs and their reading proficiency levels?

RQ6.Which variable (metacognitive strategies or academic self-efficacy beliefs) can better predict Iranian EFL learners' reading comprehension?

RQ7.To what extent Iranian EFL learners' academic self-efficacy beliefs can predict the employment of metacognitive reading strategies?

2. Literature Review

Reading comprehension is a holistic process of constructing meaning from written text through the interaction of the knowledge the reader brings to the text, the reader's interpretation of the language that the writer used in constructing the text and the situation in which the text is read (Lenz, 2005). Reading comprehension is the utilization of a skill for processing other academic skills such as listening and comprehending new forms of input or upcoming texts (Kirby, 2007). Perfetti et al. (2005) believed as the reader develops a mental concept of a text, comprehension occurs. Reading comprehension is the process of simultaneously extracting and constructing meaning through interaction and involvement with written language (Amiruddin et al., 2022; Brevik et al., 2019; Castles et al., 2018;).

In today's rapidly evolving learning environments, the relevance of metacognition in the field of language learning has gained paramount popularity (Askari, 2023; Foroutan & Sheikhy Behdani, 2024; Ghadamgahi & Ghafournia, 2022). The term 'metacognition,' initially proposed by Flavell (1979), is used to denote a learner's capacity to recognize and regulate their cognitive processes during their educational journey. In the field of reading comprehension, particularly in English as a Foreign Language (EFL), metacognitive strategies encapsulate the conscious regulation of cognitive processes to decipher and interpret texts (Paris & Winograd, 1990). The application of metacognitive strategies, notably planning, monitoring, and evaluating, has been recognized as essential in successful language learning (Chamot, 2005).

Although a wealth of research has validated a strong relationship between the employment of metacognitive reading strategies and reading proficiency of EFL learners, the contribution and controlling effect of some psychological variables on the use of metacognitive reading strategies has been rarely investigated (Ghafournia, 2023). One such a paramount psychological factor is the academic self-efficacy beliefs of EFL learners, which probably exert significant influence on the utilization of overall metacognitive strategies as well as the relevant strategy subcategories, affecting reading comprehension performance. A notable gap in the current literature indicates the necessity for a systematic study on the relationship between metacognitive reading strategies and academic self-efficacy beliefs with regard to reading comprehension proficiency levels of the learners.

Ferrara (2005) defined reading self-efficacy as the individuals' evaluation of the way they are able to do a certain task, affected by how effectively they have accomplished previous similar tasks concerning the probable responses and reinforcement, they have received. Self-efficacy is an individual's belief in the prerequisite abilities to manage performance. Self-efficacy is concerned with the way someone measures his/her ability do certain tasks. Bandura (1997) believed that self-efficacy beliefs reinforced individuals' motivation, enabling them to set particular goals; increase the required efforts; alleviate hardships, preserve, resolve the problems; and show remarkable resilience in case of failure.

Despite the profusion of the studies conducted to scrutinize the contributing role of reading strategies in reading comprehension process, the role of academic self-efficacy in relation to the use of reading strategies in enhancing reading comprehension has been rarely investigated. Consequently, the current study is a desperate attempt to narrow the gap through scrutinizing the probable significant relationships among the EFL learners' reading comprehension, academic self-efficacy, and employment of metacognitive reading strategies. In addition, further attempts were made to probe the predicting degrees of academic self-efficacy as well as metacognitive strategies for reading achievement of Iranian EFL learners. The probable significant differences between the learners at different reading proficiency levels in the use of metacognitive strategies as well as academic self-efficacy were also explored. The findings can provide a more fruitful insight into the psychological strategic process of reading comprehension and the essence of teaching adequate metacognitive strategies to regulate and monitor reading process along with focusing on enhancing positive academic self-efficacy of language learners. The findings would provide language teachers fruitful insights into the way strategic reading comprehension is processed and the significant role of students' self-efficacy, which should be enhanced through specialized teaching techniques.

3. Methodology

3.1 Research Design

A quantitative correlational design was employed, in which the correlation among language learners' academic self-efficacy, metacognitive reading strategies, and reading achievement was explored, as the three variables in this study. In addition, through regression analysis, the predicting roles of the language learners' academic self-efficacy as well as metacognitive reading strategies for reading achievement were explored.

3.2 Participants

The participants comprised 100 male and female EFL learners in unequal proportion (Male = 40 & Female =60), varying in age from 18 to 25. They were BA students, majoring in English Language Teaching at Islamic Azad university-Neyshabur Branch – Iran. Due to the purpose of the study, they were asked to take one particular version of TOEFL reading comprehension test, to be divided into three groups of high, intermediate, and low reading proficiency, concerning the standard deviation of the achieved scores from the mean. Table 1 shows the distribution of the students in each level of language proficiency.

Table 1. Distribution of the participants in three reading proficiency levels

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	High	26	26.0	26.0	26.0
	Intermediate	65	65.0	65.0	91.0
	Low	9	9.0	9.0	100.0
	Total	100	100.0	100.0	

As the findings show, the maximum number of the participants (65%), was at the intermediate level, 26 % of the participants were at the high level, and 9.0 percent of the participants were at low level.

3.3 Instruments

The three instruments were employed to collect the data.

3.3.1 Academic Self-Efficacy Questionnaire

The students' academic self-efficacy Inventory, derived from Faraman (1988), comprising 32 items in a 1 to 5 five-point Likert scale, varying from 1 (*very low)* to 5 (v*ery high)* was utilized in this study. The internal consistency, using Cronbach's Alpha reliability, was a = 0.761, which indicates the high reliability index of the questionnaire. The

questionnaire had been also previously piloted by Bafghi et al. (2022), and the high validity of the questionnaire had been proved by the researchers.

3.3.2 Metacognitive Reading Strategies Questionnaire

Metacognitive reading strategies questionnaire, designed by Mokhtari and Richard (2002), was employed to measure the participants' utilization of metacognitive strategies. It comprises 30 questions in one to five Likert –scale, ranging in answer from 1 *(never)* to 5 *(always*). Cronbach's Alpha reliability coefficient ($a = 0.811$) was used by the researcher, confirming the high reliability index. The questionnaire comprises three subcategories of global, support, and problem-solving strategies. Shikano (2013) also reported the reliability index of $a = 0.783$, which is an acceptable coefficient.

3.3.3 Reading Comprehension Test

To decide upon the participants' reading comprehension level, the reading section of Barron's TOEFL test was utilized. The test comprised five reading passages, followed by 50 multiple-choice questions. To confirm the reliability, KR-21 formula was used, proving the high estimate of reliability, as $\alpha = 0.795$.

3.4 Procedures for Data Collection

The target participants of this study were 100 Iranain BA students, majoring in English Language Teaching at Islamic Azad University-Neyshabur Branch-Iran. Initially, the participants were briefed on the major aims of the study as well as the instruments necessary for data collection process, including the two questionnaires of academic self-efficacy beliefs and metacognitive reading strategies along with the reading comprehension section of the TOEFL test. In order to determine the reading proficiency level of the participants, they were all required to take the one complete reading section of a TOEFL test. Due to practical administration problems, one version of the paper-based Barron's TOEFL Practice test was utilized in this study, which took about 90 minutes for the participants to answer concerning the students' feedback on the required time to answer the test thoroughly. Then, the questionnaires were distributed among the participants. The participants were well informed about the constructs of the study, and the confidentiality of their answers. Therefore, they were asked to give their honest responses to the questionnaire items. The dedicated time to answer the two questionnaires successively was about 45 minutes. Finally, the questionnaires and test papers were gathered, and the data were entered into SPSS for statistical processing.

3.5. Data Analysis

The normality of the data distribution was checked through Kolmogorov-Smirnov test. Pearson's correlation was employed to check the probable significant relation between the variables. Also, descriptive statistics were used to check the mean of the participants' academic self-efficacy as well as metacognitive strategies. Multiple regression analyses were used to check the relation between the variables as well as checking the predicting degrees of metacognitive reading strategies along with academic self-efficacy for reading achievement. Finally, one-way ANOVA test was run to check the significant differences between the participants' reading proficiency levels in terms of academic self-efficacy and utilization of metacognitive reading strategies.

4. Results

First, the normality of data was examined through Kolmogrov-Smirnov test, which confirmed the assumption of normality. Therefore, parametric statistical analyses were employed to explore the research questions. The results are demonstrated in Table 2.

Table 2. Kolmogorov-Smirnov test for the normality of metacognitive strategies and self-efficacy beliefs

		Self-efficacy	Overall Metacognitive Strategies
N		100	100
Normal Parameters[a,b]	Mean	110.7100	53.9100
	Std. Deviation	10.32042	3.72229
Most Extreme Differences	Absolute	.071	.075
	Positive	.047	.054
	Negative	-.071	-.075
Test Statistic		.071	.075
Asymp. Sig. (2-tailed)		.200[c,d]	.180[c]

a. Test distribution is Normal.

As shown in the table, P values are more than 0.05; p = .200, and p = .180 for the variables. Therefore, the data distribution was normal, and parametric statistical analysis should be used.

4.1 Research Question 1

The first research question is concerned with the significant relation between reading ability and utilization of metacognitive strategies. Initially, the descriptive statistics of each metacognitive strategy, concerning the separate three subcategories were calculated, shown in Table 3.

Table 3. Descriptive statistics of three subcategories of metacognitive reading strategies

	Global Strategies	Mean	Std. Deviation
1)	I have a purpose in mind when I read.	3.79	1.416
2)	I think about what I know to help me understand what I read.	3.85	1.201
3)	I preview the text to see what it's about before reading it.	3.80	1.303
4)	I think about whether the content of the text fits my reading purpose.	3.94	1.118
5)	I skim the text first by noting characteristics like length/ organization.	3.38	1.562
6)	I decide what to read closely and what to ignore.	3.14	1.470
7)	I use tables, figures, and pictures in text to increase my understanding.	3.79	1.250
8)	I use context clues to help me better understand what I'm reading.	3.90	1.314
9)	I use typographical aids like bold face and italics to identify key information.	3.38	1.619
10)	I critically analyze and evaluate the information presented in the text.	3.38	1.716

11)	I check my understanding when I come across conflicting information.	3.27	1.681
12)	I try to guess what the material is about when I read.	3.26	1.643
13)	I check to see if my guesses about the text are right or wrong.	3.62	1.575
15)	I check the difficulty of the text, before I read.	3.40	1.688
Total		3.08	1.34

	Problem-Solving Strategies	Mean	Std. Deviation
1)	I read slowly but carefully to be sure I understand what I'm reading.	2.73	1.651
2)	I try to get back on track when I lose concentration.	2.90	1.617
3)	I adjust my reading speed according to what I'm reading.	2.82	1.500
4)	When text becomes difficult, I pay closer attention to what I'm reading.	3.24	1.422
5)	I stop from time to time and think about what I'm reading.	2.99	1.467
6)	I try to picture or visualize information to help remember what I read.	3.17	1.602
7)	When text becomes difficult, I re-read to increase my understanding.	3.12	1.539
8)	I try to guess the meaning of unknown words or phrases.	4.15	1.038
	Total	3.14	1.479

	Support Strategies	Mean	Std. Deviation
1)	I take notes while reading to help me understand what I read.	4.15	1.132
2)	When text becomes difficult, I read aloud to help me understand what I read.	3.83	1.248
3)	I summarize what I read to reflect on important information in the text.	4.11	1.171
4)	I discuss what I read with other classmates to check my understanding.	4.05	1.140
5)	I underline or circle information in the text to help me remember it.	3.96	1.091
6)	I use reference materials such as dictionaries to help me understand what I read.	4.03	1.141
7)	I paraphrase to better understand what I read.	3.60	1.470
8)	I go back and forth in the text to find relationships among ideas in it.	2.69	1.516
	Total	3.80	1.238

Based on the findings shown in Table 3, the highest mean score (M = 4.15) is related to item 8 in problem-solving strategies, which is *"I try to guess the meaning of unknown words or phrases",* while the lowest mean score (M = 2.69) is related to item 8 in support strategies, which is *"I go back and forth in the text to find relationships among ideas in it."*

Table 4. Descriptive statistics of overall metacognitive reading strategies

N	Mean	Std. Deviation	Std. Error Mean
30	3.51	1.41	1.72

According to the findings in table 4, the mean score and Std. deviation of overall metacognitive strategies are (M = 4.23) and (*Std. deviation* = 2.01) respectively. Then, to explore the probable significant relation between the learners' reading achievement and employment of metacognitive reading strategies, Pearson's correlation coefficient was used, the results of which are demonstrated in Table 5.

Table 5. Pearson's correlation coefficients between learners' reading achievement and their use of metacognitive reading strategies

		Reading Achievement	Reading Strategies
Reading Achievement	Pearson Correlation	1	.814**
	Sig. (2-tailed)		.000
	N	100	100
Reading Strategies	Pearson Correlation	.814**	1
	Sig. (2-tailed)	.000	
	N	100	100

The findings shown in Table 5 indicate a positive strong significant relation between the participants' reading ability and the utilization of metacognitive reading strategies. That is, the higher the level of the learners' reading achievement, the higher the level of reading strategies. Since the Sig value is p =.000, less than .05, it is concluded that there is a significant positive relation between the learners' reading ability and the employment of reading strategies. The second research question probed the significant relation between the Iranian EFL learners' reading achievement and academic self-efficacy. At the first stage of data analysis, the related descriptive statistics of each item were calculated, the results of which are shown in Table 6.

Table 6. Descriptive statistics of the learners' academic self-efficacy beliefs

Statements	Mean	Std. Deviation
1) I organize note-taking during the lecture.	3.44	1.500
2) I participate in class discussions.	3.66	1.320
3) I answer the question in a hard lesson.	3.76	1.334

4) I answer the question in an easy lesson.	3.88	1.131
5) I give tests (multiple choices, correct / incorrect or sortable).	3.27	1.575
6) I give descriptive tests.	3.36	1.404
7) I write a high-quality dissertation or short research Listen	3.79	1.305
8) I notice carefully to difficult topics during the speech.	3.89	1.262
9) I tutor to another student.	3.82	1.298
10) I explain a concept to another student.	3.75	1.359
11) I ask the teacher to re-explain a concept you did not understand correctly.	3.42	1.465
12) I get good grades in most classes.	3.45	1.424
13) I study so that I understand exactly what you are reading.	3.78	1.268
14) I participate in student association elections.	3.66	1.372
15) I participate in extracurricular activities of the university) sports, art	2.71	1.465
16) I Gain the respect of professors.	2.96	1.470
17) I attend regular classes.	2.82	1.500
18) I regularly attend at classes related to a dull lesson.	3.24	1.422
19) I create in the teacher the idea that you are paying attention to the lesson.	2.99	1.467
20) I understand more about the ideas you read in your book.	3.14	1.583
21) I understand more about what is being taught in the classroom.	3.13	1.606
22) I perform a simple mathematical calculation.	3.63	1.368
23) I use the computer.	3.57	1.409
24) 24. I master most of the content related to the computational course.	3.59	1.342
25) I do private conversation with a teacher in order to get acquainted with him.	3.54	1.452
26) I link the content of one lesson to the content of other lessons.	3.67	1.371

27) I challenge the teacher's opinion in the classroom.	3.85	1.313
28) I use usefully of the library.	3.98	1.206
29) I get good grades.	3.38	1.413
30) I continuously and reassuringly study instead of accelerated learning.	3.22	1.554
31) I understand difficult phrases in the textbook.	3.19	1.454
32) I master the content of a lesson you do not like.	3.17	1.570

The highest mean score (M = 3.98) is for item 28, which is *"I use usefully of the library,* while the lowest score is for item 15 (M = 2.71), which is *"I participate in extracurricular activities of the university) sports, art"*

Table 7. Descriptive statistics of the learners' academic self-efficacy

N	Mean	Std. Deviation	Std. Error Mean
32	3.45	1.40	1.63

As shown in the table, the mean score and Std. deviation of the learners' academic self-efficacy are *(M* = 3.55) and (*Std*. = 1.39) respectively. The correlation coefficient between the learners' reading achievement and their self-efficacy beliefs was reported in Table 8.

Table 8. Correlation coefficients between EFL learners' reading achievement and self-efficacy beliefs

		Reading Achievement	Self-Efficacy
Reading Achievement	Pearson Correlation	1	.753**
	Sig. (2-tailed)		.000
	N	100	100
Self-Efficacy	Pearson Correlation	.753**	1
	Sig. (2-tailed)	.000	
	N	100	100

The findings show a strong positive significant relationship between the learners' reading achievement and their self-efficacy beliefs. The higher the level of reading achievement is, the higher the level of the learners' academic self-efficacy beliefs is. Since the Sig value is p = .000, which is less than .05, significant positive relation existed between the learners' reading achievement and their self-efficacy beliefs. The third research question was concerned with the probable significant relation between the learners' reading strategies and their self-efficacy beliefs. The Pearson correlation coefficient between the variables was shown in Table 9.

Table 9. Pearson's correlation coefficients between the EFL learners' reading strategies and self-efficacy beliefs

		Reading Strategies	Self-Efficacy
Metacognitive Reading Strategies	Pearson Correlation	1	.784**
	Sig. (2-tailed)		**.000**
	N	100	100
Academic Self-Efficacy Beliefs	Pearson Correlation	.784**	1
	Sig. (2-tailed)	**.000**	
	N	100	100

The indicated results revealed a strong positive significant relationship between the learners' reading strategies and their academic self-efficacy since the Sig value p = .000, less than .05. Hence, the higher the level of reading strategies is, the higher the level of students' self-efficacy is. The fourth and fifth research questions are concerned with the probable significant differences between the learners' three levels of reading proficiency, use of overall as well as the subcategories of metacognitive reading strategies, and their academic self-efficacy beliefs. Table 10 shows the related descriptive statistics.

Table 10. Descriptive statistics of the learners' metacognitive reading strategies and academic self-efficacy

						95% Confidence Interval for Mean			
		N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound	Minimum	Maximum
Overall Metacognitive Strategies	High	26	54.4423	4.87919	.95689	52.4716	56.4131	43.50	62.00
	Intermediate	65	53.8000	3.31521	.41120	52.9785	54.6215	46.50	60.00
	Low	9	53.1667	2.73861	.91287	51.0616	55.2718	49.50	58.50
	Total	100	53.9100	3.72229	.37223	53.1714	54.6486	43.50	62.00
Global Strategies	High	26	51.7692	6.35804	1.24691	49.2012	54.3373	40.00	65.00
	Intermediate	65	51.9231	5.96947	.74042	50.4439	53.4022	40.00	65.00
	Low	9	48.4444	5.10174	1.70058	44.5229	52.3660	41.00	57.00
	Total	100	51.5700	6.02730	.60273	50.3741	52.7659	40.00	65.00
Problem Solving Strategies	High	26	26.2308	5.87406	1.15200	23.8582	28.6034	15.00	38.00
	Intermediate	65	25.4462	5.06838	.62865	24.1903	26.7020	14.00	37.00
	Low	9	27.4444	4.87625	1.62542	23.6962	31.1927	21.00	33.00
	Total	100	25.8300	5.25521	.52552	24.7873	26.8727	14.00	38.00
Supporting Strategies	High	26	30.8846	3.82964	.75105	29.3378	32.4314	22.00	38.00
	Intermediate	65	30.2308	4.11844	.51083	29.2103	31.2513	20.00	38.00
	Low	9	30.4444	2.50555	.83518	28.5185	32.3704	27.00	34.00
	Total	100	30.4200	3.90591	.39059	29.6450	31.1950	20.00	38.00
	High	26	111.8846	11.79941	2.31406	107.1187	116.6505	84.00	127.00

Academic Self-efficacy	Intermediate	65110.3077	9.39402	1.16518	107.9800	112.6354	90.00	127.00
	Low	9110.2222	13.07457	4.35819	100.1722	120.2722	83.00	132.00
	Total	100110.7100	10.32042	1.03204	108.6622	112.7578	83.00	132.00

As shown in Table 10, Global strategies were used most frequently (M = 51.5700; Sd= 6.02730) while problem-solving strategies were used least frequently (M = 25.8300; Sd = 6.02730) by the participants, regardless of their reading proficiency levels. Academic self-efficacy was higher in the high proficiency group (M = 111.8846; Sd = 11.79941) than the other reading proficiency groups. To check the probable significant differences between the learners' proficiency levels in the use of metacognitive reading strategies as well as academic self-efficacy beliefs, a one-way analysis of variance was used, the results of which are shown in Table 11.

Table 11. One-way analysis of variance for the EFL learners' metacognitive strategies and academic self-efficacy

Variable		Sum of Squares	df	Mean Square	F	Sig.
Overall Metacognitive Strategies	Between Groups	13.127	2	6.563	.469	.627
	Within Groups	1358.563	97	14.006		
	Total	1371.690	99			
Global Strategies	Between Groups	97.057	2	48.529	1.345	.265
	Within Groups	3499.453	97	36.077		
	Total	3596.510	99			
Problem-Solving Strategies	Between Groups	37.211	2	18.605	.669	.514
	Within Groups	2696.899	97	27.803		
	Total	2734.110	99			
Support Strategies	Between Groups	7.945	2	3.973	.256	.774
	Within Groups	1502.415	97	15.489		
	Total	1510.360	99			
Academic Self-efficacy	Between Groups	48.534	2	24.267	.224	.800
	Within Groups	10496.056	97	108.207		
	Total	10544.590	99			

As inferred from Table 11, no significant difference was seen between the learners' academic self-efficacy beliefs as well as metacognitive reading strategies across three reading proficiency levels. Figure 2 shows the slight difference between the proficiency groups in the employment of metacognitive reading strategies.

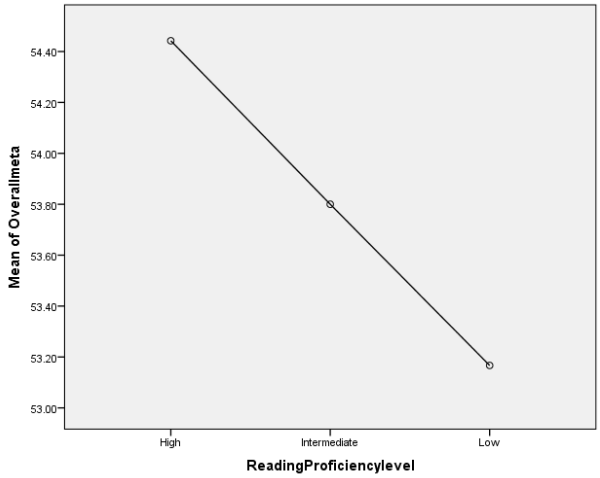

Figure 2. The use of metacognitive reading strategies across three reading proficiency levels

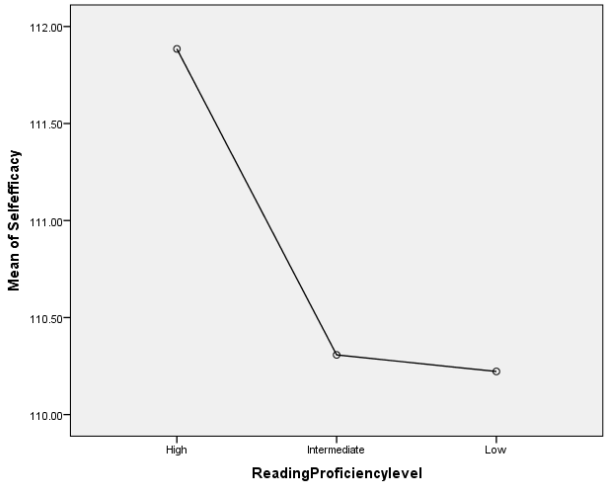

Figure 3. The perception of self-efficacy beliefs across three reading proficiency levels

The two figures show the slight difference between the learners at different proficiency groups in the employment of metacognitive strategies and academic self-efficacy beliefs. To investigate which variable (self-efficacy or metacognitive strategies) can better predict language learners' reading achievement, a multiple regression analyses was used, the results of which are shown in Table 12.

Table 12. Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.017[a]	.000	.020	2.763

a. Predictors: (Constant), Self-efficacy, Overall Metacognitive Strategies

b. Dependent Variable: Reading Achievement

As presented in Table 12, the adjusted R_2 value was found to be .020 with $R^2 = 000.$, showing that the regression analysis explains 20 % of the variance in the data. That is, nearly 20 percent of the learners' reading scores or reading

achievement can be predicted by their academic self-efficacy as well as their utilization of overall metacognitive strategies. Due to the fact that the F value (F= .013, p = .987, >.05) is not significant at p < 0.5, it is concluded that the model explains the variance in the learners' reading achievement to some way in a non-significant way.

Table 13. ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.204	2	.102	.013	.987[b]
	Residual	740.546	97	7.634		
	Total	740.750	99			

a. Dependent Variable: Reading Achievement

b. Predictors: (Constant), Self-efficacy, Overall Metacognitive Strategies

Table 14 shows the standard and unstandardized coefficients between the variables and the degree that each independent variable (self-efficacy and overall metacognitive strategies) can account for the learners' reading scores.

Table 14. Coefficients

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	15.473	4.151		3.727	.000
	Overall Metacognitive Strategies	.010	.088	.014	.117	.907
	Self-efficacy	.001	.032	.004	.034	.973

a. Dependent Variable: Reading Achievement

Based on the finding in Table 14, the learners' utilization of overall metacognitive strategies (*Beta* = .014, p = 907) can better account for their reading achievement than self-efficacy (*Beta* =.004, p =.973) in a non-significant way.

To check the degree that the EFL learners' academic self-efficacy can predict their utilization of overall metacognitive strategies, a linear regression analysis was used. The results are shown in Table 15.

Table 15. Model summary of the linear regression between metacognitive strategies and self-efficacy

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.532[a]	.283	.276	3.16749

a. Predictors: (Constant), Academic Self –efficacy
b. Dependent Variable : Overall Metacognitive Strategies

As presented in Table 15, the adjusted R_2 value was found to be .276 with R^2 = .283, showing that the linear regression explains 28 % of the variance in the data. That is, nearly 28 percent of the learners' use of metacognitive strategies can be predicted by self-efficacy. Table 16 shows the result of ANOVA test.

Table 16. ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	388.458	1	388.458	38.718	.000[b]
	Residual	983.232	98	10.033		
	Total	1371.690	99			

a. Dependent Variable: Overall Metacognitive Strategies

b. Predictors: (Constant), Self-efficacy

Due to the fact that the F-test (F= 38.718, p < .05) is highly significant, it is concluded that the model explains a significant amou In other words, language learners' self-efficacy significantly affects their use of metacognitive strategies. To check the significan the learners' academic self-efficacy for the use of metacognitive strategies, the standardized coefficients are reported in Table 17.

Table 17. Coefficients

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	32.661	3.430		9.523	.000
	Academic Self-efficacy	.192	.031	.532	6.222	.000

Dependent variable: Metacognitive Reading Strategies

As the findings indicate, the learners' self-efficacy beliefs can significantly account for the use of metacognitive strategies since *Beta* = 0.532, p = .000, which is significant.

5. Discussion

The result of the data analysis proved a significant relation between the students' overall utilization of metacognitive reading strategies and reading comprehension. Through using reading strategies, the students are motivated to comprehend reading passages autonomously, leading to maximum learning achievement. Language teachers can focus on improving the learners' use of reading strategies, as facilitating elements, to improve the learners' effective reading comprehension process.

The findings also proved a positive relation between learners' reading achievement and their academic self-efficacy that is, the higher the level of reading achievement, the higher the level of students' self-efficacy. Besides, the results revealed a positive relation between the learners' use of metacognitive reading strategies and their academic self-efficacy, implying the higher the level of metacognitive reading strategies, the higher the level of students' self-efficacy.

The result of this research supports Dreyer and Nel's (2003) findings, indicating that the students who received strategic reading instruction in this environment received significantly higher marks on three reading comprehension measures than did the students in the control group. The result of this research also supports other researchers such as Muijselaar, Swart, Steenbeek-Planting, Droop, Verhoeven, and de Jong, (2017), having focused on the developmental relations between the knowledge of reading strategies and reading comprehension process in a longitudinal study of 312 Dutch children from the beginning of fourth grade to the end of fifth grade. A structural equation model was constructed to estimate the unique mutual relations between reading strategies and reading comprehension while controlling fluency, vocabulary, and working memory. The results showed a significant mutual effect of reading strategies on reading comprehension.

The positive relation between reading strategies and reading ability has been also proved in different academic Iranian contexts by researchers (Ghafournia, 2014 a, b; Ghafournia & Afghari, 2013 a, bs). In terms of the relation between metacognitive reading strategies and self-efficacy, the findings of the present study are in line with Naseri (2012), having explored the relation between reading self-efficacy beliefs, reading strategy use, and reading comprehension level of Iranian EFL learners.

The findings of present study are also in accordance with Shang (2010), having investigated EFL learners' utilization of three reading strategies (cognitive, metacognitive, compensation strategies), their perceived impact on self-efficacy, and the relation between reading strategy use and perceived self-efficacy. The results showed that the most frequent use of reading strategy was found to be metacognitive strategies, followed by compensation strategy, and then followed by cognitive strategy. In addition, there was a significant positive relation between the use of reading strategies and perceptions of self-efficacy. Reading strategies, however, were unrelated to reading achievement, which found to be in contrast with the findings of the present study.

Additionally, the results support findings in the literature (Baker & Brown, 1984; Shang, 2007, 2010) suggesting that it is more effective for students to improve their reading comprehension if they have a higher frequency of employing metacognitive strategies in their reading process. As maintained by Lehtonen (2000), only having the strategic knowledge is not sufficient if learners are not taught how to put strategic knowledge into its active roles in EFL learning and reading contexts.

The bidirectional positive relation between self-efficacy beliefs and employment of metacognitive reading strategies, found in this study, has been previously confirmed by other researchers (Bandura, 1997; Cai & Zhao, 2023. Gentner & Seufert, 2020; Kyo, 2022; Zimmerman, 2013), claiming that metacognitive strategies are effectively employed by learners with regard to their self-efficacy judgments, which frequently fluctuate based on metacognitive strategies, utilized by them.

6. Conclusion

The purpose of this study was scrutinizing the probable significant relation among Iranian language learners' self-efficacy, metacognitive reading strategies, and reading achievement. The results of the present study demonstrated that students with more frequent use of metacognitive strategies had better reading comprehension performance, assisting them in more effective learning management and overcoming crucial deficiencies in English reading comprehension process. The positive significant relation was also reported between the learners' academic self-efficacy and use of overall as well as the three strategy subcategories consistently. More specifically, the more frequently metacognitive strategies are used in reading comprehension process, the more academic confidence and self-perceptions of learning outcome are gained by language learners.

The findings of the present study revealed the high positive significant relation between L2 English learners' metacognitive awareness in reading comprehension process and their academic self-efficacy, highlighting the significance of putting strategic-based language instruction at the core of pedagogical programs to boost linguistic and strategic competences of language learners simultaneously. In other words, to train highly competent language learners, both linguistic and nonlinguistic factors should be focused with particular attention to strategic and affective factors, namely metacognitive strategies and self-efficacy, both of which were investigated in this study. Through enhancing L2 learners' metacognitive awareness of reading comprehension passages, their cognitive strategies are automatically activated, leading to better analysis of the reading passages. Through proper use of metacognitive strategies, language learners are able to compensate for insufficient knowledge of unknown vocabularies and lexical items, which are often problematic in nature.

Actually, all learning strategies are interwoven and integrated, and separating them is not possible. When language teachers begin teaching metacognitive strategies, they are inevitably forced to teach cognitive, memory, and compensation strategies, all of which would consistently lead to effective comprehension process. Therefore, the great need of inserting strategic syllabus in language teaching curriculums is strongly felt. Through designing an effective strategic language teaching syllabus, including the repertoire of strategies along with variety of interesting reading materials and learning activities, L2 learners' extrinsic and intrinsic motivation would be greatly increased, leading to high language achievement.

With regard to the implications of the study, the findings support the academic theories on the contribution of reading strategies to the enhancement of reading comprehension process concerning the significant role of academic self-efficacy of language learners. Hence, language teachers should pay equal attention to both linguistic and psychological cognitive elements to accelerate reading comprehension process. Material developers might also take benefit from the significant role of reading strategies in improving the process of reading comprehension.

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