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The Relationship between Metacognitive Strategies and Self-Efficacy Beliefs: A Review of the Literature

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Abstract

Self-efficacy has been a topic of interest of many researchers since the last couple of decades. Previous literature has revealed that self-efficacy plays a vital role in the usage of metacognitive strategies in language learning. The fundamental aim of this paper is to review those studies which were conducted on the relationship between self-efficacy and metacognitive strategies. Many writers have written reviews on the relationship of self-efficacy with various educational variables. However, there is scarcity of reviews regarding the relationship between self-efficacy beliefs and metacognitive strategies. This review included 21 studies which were reviewed on the basis of following aspects: context of studies, gender, grade level, ethnicity, metacognitive strategy instruction, metacognitive strategies usage ranking, level of self-efficacy, research approaches and pre-test/post-test research designs. Also, several recommendations were presented at the end of the paper for future researchers.

Keywords: Metacognitive Strategies, Self-efficacy Beliefs, Systematic Literature Review

I. Introduction

A. Metacognitive Strategies

From the beginning of 1970s, learning strategies have been given special attention by L2 researchers (Anderson, 1991, 2003; Cohen, 1990, 1998; Hosenfeld, 1979; Macaro, 2001; O'Malley and Chamot, 1990; Oxford, 1990, 1993, 2002; Rubin, 1975; Stern, 1975; Wenden, 1991, 2002). Up till now language learning strategies have been classified into many taxonomies. Numerous researchers support the taxonomy of language learning strategies presented by Oxford (1990). He had classified strategies into six types namely, metacognitive

strategies, cognitive strategies, social strategies, memory strategies, affective strategies, and compensatory strategies in his inventory, i.e. Strategy Inventory for Language Learning (SILL). Similarly, another taxonomy was presented by Anderson (2003), which consisted of seven types of strategies including, metacognitive strategies, cognitive strategies, social strategies, mnemonic or memory associated strategies, self-motivating strategies, affective strategies, and compensatory strategies. On the other hand, there were some researchers whose taxonomies consisted of small amount of strategy types (O'Malley & Chamot, 1990; Chamot, Barnhardt, El-Dinary, & Robbins, 1999; Cohen, 1996). For example, O'Malley and Chamot (1990) had classified the strategies into two main kinds, i.e. cognitive and metacognitive strategies. As it is evident from the review of various taxonomies that metacognitive strategies are considered as a vital part of all taxonomies.

Oxford (1990) defined metacognitive strategies as actions done by learners to plan, organize, and assess their learning process. Anderson (2003) believed that metacognitive strategies play a substantial role in the learning process as compared to other strategies for the reason that as soon as the learner knows how to control his/her learning by employing strategies, the process of language learning would take place at a faster rate. Strategic language learners possess metacognitive knowledge regarding their thinking and methods being applied for learning, a sound perception of the requirements of the task at hand, and the capability to plan out the strategies that are according to the task needs and their learning potencies.

B. Self-efficacy Beliefs

Self-efficacy, which is deemed as the confidence in one's capability to successfully accomplish a task, plays an essential part in the life of a learner (Bandura, 1986). To put it another way, those learners whose level of self-efficacy is high are possibly more productive in their educational career. The idea of self-efficacy was initially offered by Bandura (1997). The definition of self-efficacy as described by Bandura (1997) is as follows: the beliefs of the learners in their abilities to arrange and perform sequences of actions needed to accomplish specific achievements. Furthermore, he was of the view that either a task will be accomplished or not, depends on the individual's self-efficacy level. Those individuals who have higher level of self-efficacy are inspired to put more effort and are determined in accomplishing a task. The concept of self-efficacy is applied to all the four major skills of language, i.e. listening, speaking, reading, and writing.

It is evident from the research that self-efficacy beliefs of the learners are correlated with the metacognitive learning strategies they use (National Capital Language Resource Center, 2000; Siew & Wong, 2005; Li & Wang, 2010; ; Rahimi & Abedi, 2014; Yailagh, Birgani, Boostani & Hajiyakhchali, 2013; Javanmard, Hoshmandja & Ahmadzade, 2012; Nosratinia, Saveiy & Zaker, 2014; Kargar & Zamanian, 2014). Those learners whose level of self-efficacy is high employ language learning strategies to perform tasks more often as compared to those students who have moderate or low level of self-efficacy, enthusiastically take part in the process of learning, and therefore accomplish better results (Heidari, Izadi, & Ahmadian, 2012). However, there is scarcity of the systematic literature reviews regarding self-efficacy and metacognitive strategies. Thus, it is hoped that the current literature review paper fills this literature gap. It is believed that future researchers would be able to get great benefits to identify the extent of work done on the relationship of these two variables.

The basic objective of the current research paper is to summarize the key findings of the past studies on the relationship between self-efficacy and metacognitive strategies. Four main objectives are as follows:

1. To identify the role of certain factors (context/ location of studies, gender, grade level, ethnicity, metacognitive strategy instruction) in determining the relationship between metacognitive strategies and self-efficacy beliefs in the past studies.
2. To identify the ranking of the usage of different metacognitive strategies in the past studies.
3. To identify the level of self-efficacy of participants in the past studies.
4. To identify the research approaches (quantitative, qualitative, mixed-methods, pre-test/ post-test design, longitudinal design) employed by past research studies.

C. Significance of Study

The current systematic literature review paper would be highly significant for those future researchers who are interested in self-efficacy beliefs and metacognitive strategies due to the reason that this review contains all the relevant studies on the relationship between self-efficacy and metacognitive strategies. Furthermore, it would save a lot of their time in terms of searching for articles as according to researcher's good knowledge it contains all the relevant articles up to current date.

II. Methods

A. Eligibility Criteria and Selection

A fixed eligibility criteria has been set in this literature review paper. Only those research studies were included which were published in refereed journals. Refereed journal articles were considered due to the fact that they are considered trustworthy as compared to non-refereed journal articles. Initially 31 studies were selected to be included in the current literature review paper. After further inquiry, it was found that 10 studies were non-refereed journal articles. Thus, 21 studies were included in the current paper. ULRICHSWEB was utilized to know whether the research articles are refereed or non-refereed. A comprehensive list of rejected research studies along with journals' names were presented in a Supplementary File 1.

As far as the methodology of the studies is concerned, no restrictions were applied. The present review incorporated all the studies without taking into account the employed in those studies, i.e. Quantitative, Qualitative or mixed-methods research. Similarly, in terms of sample, no particular limitations were applied. Thus, numerous kinds of sample were achieved including, primary, middle, high school, university level students as well as pre-service teachers. Also, the authors haven't omitted any studies on the basis of certain factors including, socio-economic status, age, gender etc.

B. Search Strategy

An organized search of the databases was carried out in order to look for the relevant studies. The particular words or phrases employed while searching include, 'metacognitive strategies', 'metacognitive strategies for learning', 'self-efficacy', 'self-efficacy beliefs', 'learning self-efficacy beliefs', 'relationship between metacognitive strategies and self-efficacy beliefs'. These particular search terms were typed in major databases, i.e. ERIC, Science Direct, Web of Science and Scopus. The final search was done on May 15, 2018. The full search strategy deployed while exploring studies is shown in Figure 1.

Figure 1: Research Approaches

Databases:
ERIC, ScienceDirect, Web of Science and Scopus.
Search terms:
"metacognitive strategies" OR "metacognitive strategies for learning"
AND "self-efficacy" OR "self-efficacy beliefs" OR "learning self-efficacy beliefs
AND "relationship between metacognitive strategies and self-efficacy beliefs" OR "relationship between metacognitive strategies for learning and reading self-efficacy beliefs"
Limiters: All in English.

C. Data Abstraction

Numerous literature review studies had made use of data abstraction table in order to recapitulate the major essentials of research studies (Honicke & Broadbent, 2016; Klassen & Tze, 2014; Van Dinther, Dochy & Segers, 2011). Thus, after reviewing the aforementioned studies, it was resolved to employ data abstraction table for this article. The main reason behind creating this table was to demonstrate the relevant information in an organized and concise manner. The data gathered after reviewing relevant studies were arranged and incorporated manually. To fill up the data abstraction table, subsequent factors were considered: Location where study was conducted, sample characteristics (number of participants, sex, and average age), names of instruments used to gather data, and major results.

III. Studies on the Relationship of Metacognitive strategies and Self-efficacy beliefs

This review includes 21 studies regarding the relationship between self-efficacy and metacognitive strategies. These studies are reviewed based on several factors, including location of studies, gender, grade level, ethnicity, studies involving metacognitive strategy instruction, ranking of metacognitive strategies, level of self-efficacy, research approaches. The researchers reviewed the above mentioned factors because these were the most common factors found in the previous studies involving relationship between self-efficacy and metacognitive strategies. All of these factors are explained in following paragraphs.

A. Context of Studies

In the current literature review paper, out of 21 studies, 13 were conducted in Iran, five in Turkey, three in Taiwan, two in each, Malaysia and USA, and one in each of the following countries: China, Indonesia, Italy, Egypt and Australia.

Out of 10 studies conducted in Iran, 9 studies have shown that there was a positive significant relationship between self-efficacy beliefs and metacognitive strategies (Zarei & Gilanian, 2015; Taghinezhad, Dehbozorgi & Esmaili, 2015; Rahimi & Abedi, 2014; Yailagh, Birgani, Boostani & Hajiyakhchali, 2013; Javanmard, Hoshmandja & Ahmadzade, 2012; Nosratinia, Saveiy & Zaker, 2014; Zare & Mobarakeh, 2011; Ahmadian & Pasand, 2017; Ghavamnia, Kassaian & Dabaghi, 2011). Conversely, one study indicated that there was no significant relationship between self-efficacy and metacognitive strategies (Bonyadi, Nikou & Shahbaz, 2012).

Likewise, two studies were conducted in Taiwan. Both of them have shown that there was a positive and significant relationship between self-efficacy and metacognitive strategies (Shang, 2010; Yang, 1999). Similarly, two studies were conducted in USA. One of them indicated a positive significant relationship between two variables (Jee, 2015). Whereas, the other study (McCrudden, Perkins & Putney, 2005) didn't check the correlation as it followed pre-test and post-test design. It was found that after metacognitive strategy instruction, self-efficacy of the students had increased.

One study was conducted in each of the following countries: China, Indonesia, Botswana, Italy, Egypt, Turkey and Australia. All of them indicated that there was a positive and significant relationship between self-efficacy and metacognitive strategies (Li & Wang, 2010; Stracke, 2016; Magogwe & Oliver, 2007; Cera, Mancini & Antoniette, 2013; Kassem, 2015; Yilmaz, 2010; Purdie & Oliver, 1999).

It is evident from the above mentioned studies that majority of the research was conducted in Iran with 10 studies. Whereas, Taiwan and USA stand at second place with two studies in each country. Therefore, there is a need to conduct research in other countries to know the outcome between these two variables.

B. Gender

There were few studies which highlighted the role of gender regarding the relationship between self-efficacy and metacognitive strategies. For instance, Yilmaz (2010) found that both male and female students had used the metacognitive strategies equally. Taghinezhad, Dehbozorgi and Esmaili (2015) also found the similar results, i.e. both male and female students had used the metacognitive strategies on almost equal basis.

However, Bonyadi, Nikou and Shahbaz (2012) had found a different finding as compared to the above mentioned studies. They found that gender had no significant relationship regarding self-efficacy and use of metacognitive strategies.

Ahmadian and Pasand (2017) had revealed that regarding metacognitive strategies, females used more global online reading strategies, while in terms of self-efficacy, males perceived themselves as more self-efficacious in reading online texts.

After reviewing the above mentioned studies, mixed findings were obtained regarding relationship between self-efficacy and metacognitive strategies and also regarding the frequency of usage of metacognitive strategies. Thus, there is a need to conduct more studies on the relationship between self-efficacy and metacognitive strategies by considering the role of gender.

C. Grade Level

Only two studies considered the impact of grade level on self-efficacy and metacognitive strategies. For instance, Magogwe and Oliver (2007) found that out of six strategies, metacognitive strategies were employed most frequently by secondary and tertiary level students. However, primary level students rated them as second most employed strategies.

Javanmard et al. (2012) found that there was no difference regarding general self-efficacy in both Junior and senior high school students. Conversely, in terms of metacognitive strategies, there was difference regarding the usage of metacognitive strategies between junior and senior high school students.

Only two studies have considered the role of grade level in predicting self-efficacy and metacognitive strategies. Thus, future researchers need to consider role of grade level.

D. Ethnicity

Out of 21 studies, only two studies considered the role of ethnicity regarding metacognitive strategies and self-efficacy. For instance, Purdie and Oliver (1999) considered three cultural groups in the sample including, Asian, Arabic and European students. It was found that none of the three cultural groups made any difference in the frequency of usage of metacognitive strategies.

On the other hand, Jee (2015) divided his sample into two groups, i.e. heritage and non-heritage students. Heritage students were considered as those whose parents were from Korea and non-heritage were those whose parents did not belong to Korea. With regard to metacognitive strategies, it was revealed that non-heritage students employed metacognitive strategies more frequently as compared to heritage students. Whereas, in terms of self-efficacy level of self-efficacy of heritage students ($M = 3.35$) was higher as compared to non-heritage students ($M = 2.83$).

It is clear that there is scarcity of ethnic element in the studies on the relationship of self-efficacy and metacognitive strategies. Therefore, future research needs to focus on ethnic element.

E. Metacognitive Strategy Instruction

Out of 21 studies that were reviewed in this paper, only one of them involved metacognitive strategy instruction. For instance, Taghinezhad et al. (2015) conducted a study in Iran on 90 Iranian EFL students studying in English learning institute. It was an experimental study in which they tried to determine the impact metacognitive strategy

instruction on the self-efficacy beliefs of the students. The sample was divided into experimental and control group. Experimental group were taught metacognitive reading strategies. Results revealed that experimental group had outperformed the control group.

There is scarcity of research regarding metacognitive strategy instruction. Thus, it is recommended to future researchers to consider metacognitive strategy instruction in the studies on the relationship between self-efficacy and metacognitive strategies.

F. Ranking of Metacognitive Strategies Usage

Out of several strategies, 12 studies indicated the ranking of metacognitive strategies usage. 9 studies had revealed that metacognitive strategies were employed most frequently out of several strategies (Li & Wang, 2010; Zare & Mobarakeh, 2011; Shang, 2010; Bonyadi et al. 2012; Ahmadian & Pasand, 2017; Purdie & Oliver, 1999; Jee, 2015; Stracke, 2016; Magogwe & Oliver, 2007). However, three studies indicated that metacognitive strategies were reported as second most frequent employed strategies (Yilmaz, 2010; Kassem, 2015; Ghavamnia, Kassaian & Dabaghi, 2011).

G. Level of Self-efficacy

Nine studies had determined the level of self-efficacy of the students. Li and Wang (2010) indicated that the level of reading self-efficacy was above average with the mean of 4.71 out of 7. Rahimi and Abedi (2014) found that the level of self-efficacy was found to be average. Zare and Mobarakeh (2011) found that students had appropriate level of self-efficacy with mean score of 47 out of 70.

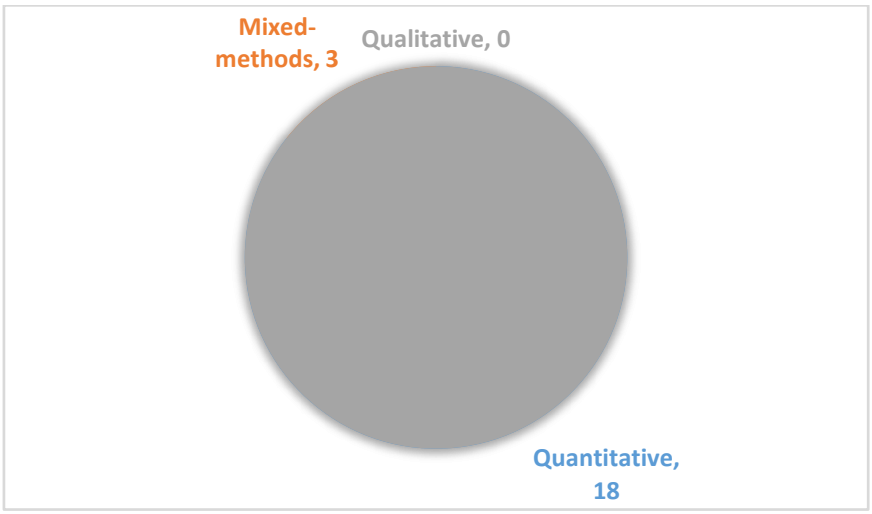
Taghinezhad et al., (2015) found the similar findings regarding level of self-efficacy. The results revealed that after metacognitive strategy instruction, the level of self-efficacy of the experimental group elevated as compared to the control group.

Jee (2015) found the level of two separate groups, i.e. heritage and non-heritage students. It was found that level of self-efficacy of heritage students ($M = 3.35$) was higher as compared to non-heritage students ($M = 2.83$). Also, Yang (1999) in his study found that the level of English self-efficacy of the students was high.

H. Research Approaches

After reviewing 21 studies, it was revealed that 18 studies employed quantitative research approach. Whereas, three studies employed Mixed-methods research approach. Interestingly, it was found that not even a single study employed purely qualitative research approach as shown in Figure 1.

Figure 2: Research Approaches



J. Pre-test and Post-test Research Designs

After reviewing 21 studies, it was revealed that pre-test and post-test research design was employed by only two studies. Taghinezhad et al. (2015) conducted a study to know the impact of metacognitive strategy instruction on self-efficacy beliefs and reading attainment. The sample consisted of 90 Iranian EFL students in English learning institute. The results indicated that the group which was exposed to metacognitive strategy instruction, i.e. experimental group had outclassed control group. Both the aforementioned studies are quite similar in many aspects including, sample size, country, and research design.

Also, McCrudden et al. (2005) used pre-test and post-test design in their study. The sample comprised of 23 4th grade students in USA. Reading strategy instruction was exposed to all the 23 students. This study is different from aforementioned studies in respect that it hasn't divided its sample into experimental and control groups. The findings revealed that self-efficacy increased from pre-instruction (M = 18 .87, SD = 2 .03) to post-instruction (M = 20 .78, SD = 2 .83).

IV. Conclusion

This review of the literature involving two variables, i.e. self-efficacy and metacognitive strategies contained 21 empirical studies. Important findings were gathered. Regarding the location of research done on the aforementioned variables, most of the research was conducted in Iran with 10 studies followed by Taiwan and USA with 2 studies in each

country. However, in other countries, scarce amount of research was done regarding self-efficacy and metacognitive reading strategies. Therefore, there is a need to conduct more research in other countries as well.

Also, role of gender was neglected. Only four studies considered the role played by gender in determining self-efficacy and metacognitive strategies usage. Similarly, role of ethnicity was neglected. It was found that only two studies had taken ethnicity into account. Regarding the sample of reviewed studies, it was found that only one study, i.e. (Wong, 2005) was conducted involving teachers as a sample. Otherwise, 20 studies were conducted on students. Thus, clearly, there is a need to conduct more studies on teachers. A crucial finding regarding metacognitive strategies was revealed. Majority of the studies indicated that out of several strategies, metacognitive strategies were employed most frequently by the students.
Regarding research methodology of reviewed studies, it was found that majority of the studies were quantitative in nature, i.e. 18, whereas, only three studies had employed mixed-methods research design. Interestingly, not even a single study was conducted by employing qualitative research design. Thus, there is a sheer need to conduct more qualitative studies. Similarly, two studies had employed pre-test/post-test design. Thus, more research needs to be done by using this research design. Furthermore, an interesting finding was revealed that not only a single study was longitudinal in nature.

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Table 1: Summarized Table of Studies Related to the Relationship between Self-efficacy and Metacognitive Strategies

Author	Title of Article	Participants and Location of Study	Study design, Predictor measure and Outcome measure	Findings	Significant / Insignificant
Li and Wang (2010)	An Empirical Study of Reading Self-efficacy and the Use of Reading Strategies in the Chinese EFL Context	139 (87% F & 13% M) Chinese first semester University students majoring in English. *Age: 18 to 22 (Avg. age= 20.34) *Location: China	***QUAN** **S.E measure:** The reading self-efficacy questionnaire (Wang, 2007). **Metacognitive strategy measure:** The use of reading strategies questionnaire (O'Malley & Chamot, 1990).	1. There is a positive significant relationship between self-efficacy beliefs and the use of reading strategies including metacognitive reading strategies. 2. More reading strategies have been used by the students whose self-efficacy level is high as compared to low self-efficacious students. 3. Metacognitive reading strategies were used most frequently out of three strategies. 4. The level of self-efficacy was above average with the mean of 4.71 out of 7.	
Yılmaz (2010)	The relationship between language learning strategies, gender, proficiency and self-efficacy beliefs: a study of ELT learners in Turkey	140 (117 F & 23 M) university students majoring in English *Location: Turkey	***QUAN** **S.E measure:** Unknown **Metacognitive strategy measure:** Strategy Inventory for Language Learning (SILL) (Oxford, 1990).	1. Metacognitive strategies were second most frequently used strategies out of six strategies. 2. More proficient students have used more metacognitive strategies and vice versa. 3. Both male and female students have used the metacognitive strategies equally. 4. Significant positive relationship between the use of metacognitive strategies and self-efficacy beliefs.	✓
Zarei and Gilanian (2015)	Self-efficacy as a Function of Language Learning Strategy Use	147 male and female Iranian university students majoring in English *Location: Iran	***QUAN** **S.E measure:** 1. Sherer's general self-efficacy (SGSES). 2. Academic self-efficacy scale (Chemers, Hu & Garcia, 2001). 3. Bandura's self-efficacy for self-regulated learning scale. **Metacognitive strategy measure:** a Strategy	Metacognitive strategies were positively correlated with academic self-efficacy. However, metacognitive strategies were not correlated with general self-efficacy and self-regulated self-efficacy.	✓

			Inventory for Language Learning (Oxford, 1990).		
Taghinezhad, Dehbozorgi and Esmaili (2015)	The influence of teaching metacognitive reading strategies on the reading self-efficacy beliefs of Iranian EFL learners: an experimental study	90 (49 F & 40 M) Iranian EFL students studying in English learning institute. The students were divided into experimental and control groups. *Age: 18 to 30. *Location: Iran	***QUAN** (*pre & post-test design) **S.E measure:** Reading Self-efficacy Beliefs Questionnaire (RSEQ) (developed by researcher). **Metacognitive strategy measure:** Metacognitive strategy instruction.	1. Self-efficacy beliefs are positively correlated with the teaching of metacognitive reading strategies. 2. Experimental group had outperformed the control group both in reading achievement and self-efficacy. 3. Both male and female students have used the metacognitive strategies on almost equal basis.	✓
Rahimi and Abedi (2014)	The Relationship between Listening Self-efficacy and Metacognitive Awareness of Listening Strategies	371 High-school students *Location: Iran	***QUAN** **S.E measure:** English Listening Self-efficacy Questionnaire (ELSEQ) (developed by researcher). **Metacognitive strategy measure:** Metacognitive Awareness Listening Questionnaire (MALQ) (Vandergrift et al., 2006).	1. The level of listening self-efficacy was found to be average. 2. The level of metacognitive awareness of listening strategies was average. 3. Listening self-efficacy is positively and significantly related with metacognitive awareness of listening strategies.	✓
Yailagh, Birgani, Boostani and Hajiyakhchali (2013)	The Relationship Of Self-efficacy And Achievement Goals With Metacognition In Female High School Students In Iran	230 female high school students *Location: Iran	***QUAN** **S.E measure:** MSLQ (Pintrich & colleagues, 1993). **Metacognitive strategy measure**: Metacognition Awareness Inventory (Schraw & Dennison, 1994).	Self-efficacy beliefs and metacognition are positively correlated to each other.	✓
Javanmard, Hoshmandja and Ahmadzade (2012)	Investigating the Relationship between Self-Efficacy, Cognitive and Metacognitive Strategies, and Academic Self-Handicapping with Academic Achievement in Male High School Students in the Tribes of Fars Province	322 male high school students *Location: Iran	***QUAN** **S.E measure:** Generalized Self-efficacy Scale (Schwarzer & Jerusalem, 1995). **Metacognitive strategy measure**: Cognitive and metacognitive strategies scale.	1. Metacognitive strategies and self-efficacy have a significant relationship with academic achievement. 2. There was no difference regarding general self-efficacy in both Junior and senior high school students. 3. There was difference regarding the usage of metacognitive strategies between junior and senior high school students.	✓
Nosratinia, Saveiy and Zaker (2014)	EFL Learners' Self-efficacy, Metacognitive Awareness, and Use of Language Learning Strategies: How Are They Associated?	143 (109 F & 34 M) EFL university students majoring in English literature. *Location: Iran	***QUAN** **S.E measure:** General Self-Efficacy Scale (Schwarzer & Jerusalem, 1996). **Metacognitive strategy measure**: The Metacognitive Awareness Inventory (Schraw & Dennison, 1994).	1. Positive significant relationship between metacognitive awareness and self-efficacy, 2. Positive significant relationship between self-efficacy and metacognitive language strategies usage 3. Positive significant relationship between metacognitive awareness and metacognitive strategies usage.	✓

Zare and Mobarakeh (2011)	The Relationship Between Self-Efficacy and Use of Reading Strategies: The Case of Iranian Senior High School Students	45 grade 3 students. *Age: 17 to 19. *Location: Iran	***QUAN** **S.E measure:** Reading Self-Efficacy Questionnaire (Wang, 2007; Li & Wang, 2010). **Metacognitive strategy measure**: The use of reading strategies questionnaire (Li & Wang, 2010).	1. Students had appropriate level of self-efficacy with mean score of 47 out of 70. 2. Metacognitive reading strategies were the most frequently used strategies out of three strategies. 3. Self-efficacy beliefs are positively and significantly correlated to the use of reading strategies including metacognitive strategies.	✓
Cera, Mancini and Antoniette (2013)	Relationships between metacognition, self-efficacy and self-regulation in learning	130 high school students *Age: 17 to 20. *Location: Italy	***QUAN** **S.E measure:** Adaptive Self-efficacy Scale (Sibilia, Schwarzer, & Jerusalem, 1995). **Metacognitive strategy measure**: Metacognitive Awareness Inventory (Schraw & Dennis, 1994).	Positive correlation between metacognition and self-efficacy beliefs.	✓
Shang (2010)	Reading Strategy Use, Self-Efficacy and EFL Reading Comprehension	53 (36 F & 17 M) university students majoring in English. *Age: 18 to 23 (*avg. age=18.6). *Location: Taiwan	***Mixed-methods** (Questionnaires & interviews) **S.E measure:** Self-efficacy questionnaire was developed by author based on questionnaires of Wong (2005) and Pintrich et al. (1991). **Metacognitive strategy measure**: SILL (Oxford, 1990).	**1.** Out of three strategies, metacognitive strategies have been used most frequently. **2.** Positive significant relationship between self-efficacy and metacognitive reading strategies use. **3.** Metacognitive strategies were not significantly correlated to reading comprehension. **4.** Interviews' results have found the particular conditions the students use specific strategies.	✓
Bonyadi, Nikou and Shahbaz (2012)	The Relationship between EFL Learners' Self-efficacy Beliefs and Their Language Learning Strategy Use	210 university students selected from 3 universities. *Age: 19 to 22. *Location: Iran	***QUAN** **S.E measure:** General Self-efficacy Scale (Nezami, Schwarzer, & Jerusalem, 1996). **Metacognitive strategy measure**: SILL (Oxford, 1990).	**1.** Out of six strategies, metacognitive strategies were used most frequently. **2.** Gender had made no significant influence in predicting self-efficacy and use of metacognitive strategies. **3.** No significant relationship between self-efficacy beliefs and metacognitive strategies. **4.** Those students who had studied English for more than 3 years had higher level of self-efficacy than those who studied English for less than 3 years.	×
Ahmadian and Pasand (2017)	EFL Learners' Use of Online Metacognitive Reading Strategies and its Relation to their Self-Efficacy in Reading	63 (40 F & 23 M) university students majoring in English. *Age 19 to 23 *Location: Iran	***QUAN** **S.E measure:** Reading Self-efficacy questionnaire (Zare & Mobarakeh, 2011). **Metacognitive strategy measure**: Online Survey of Reading Strategies (Anderson, 2003).	**1.** Problem-solving online metacognitive reading strategies are most frequently used by the learners. **2.** Significant positive relationship between the learners' perceived use of metacognitive online reading strategies and their self-efficacy in reading comprehension. **3.** Females use more global online reading strategies, while males perceive themselves as more self-efficacious in reading online texts. **4.** Learners also used some other metacognitive strategies while reading online.	
Kassem (2015)	The Relationship between Listening Strategies Used by Egyptian EFL College Sophomores and Their Listening Comprehension	84 male and female EFL college sophomores majoring in English. *Avg. age= 20. *Location: Egypt	***QUAN** **S.E measure:** Listening Self-efficacy Questionnaire (developed by researcher). **Metacognitive strategy measure:** Listening Strategy Questionnaire,	**1.** Cognitive strategies were used more often by participants, followed by metacognitive and socio-affective strategies. **2.** Listening strategies correlated significantly with both listening comprehension and self-efficacy. **3.** Participants with high frequent overall strategy use, cognitive strategies and metacognitive strategies outperformed their	

	and Self-Efficacy		developed by researcher based on several questionnaires.	counterparts with low frequency strategy use in both listening comprehension and self-efficacy.	
Ghavamnia, Kassaian and Dabaghi (2011)	The Relationship between Language Learning Strategies, Language Learning Beliefs, Motivation, and Proficiency: A Study of EFL Learners in Iran	80 university undergraduate female students majoring in Applied Linguistics (F) *Age: Early twenties *Location: Iran	***QUAN** **S.E measure:** The Beliefs about Language Learning Inventory (BALLI) (Horwitz, 1988). **Metacognitive strategies measure:** SILL (Oxford, 1990).	1. Out of six strategies, metacognitive strategies were reported to be second most frequently used strategies. 2. Positive significant relationship between strategy use and language learning beliefs.	
Purdie and Oliver (1999)	Language learning strategies used by bilingual school-aged children	58 bilingual school children Age: 9 to 12 *Location: Australia	***Mixed-methods** (Structured interviews and questionnaires) **S.E measure:** Language efficacy questionnaire (developed by researcher) **Metacognitive strategies measure:** Language learning strategies questionnaire (Oliver and McKay, 1996).	1. Metacognitive strategies were used most frequently. 2. Cultural group, i.e. Asian, Arabic and European didn't make any difference in employing metacognitive strategies. 3. Metacognitive strategies are significantly and positively correlated to language efficacy beliefs.	
Jee (2015)	Language learners' strategy use and self-efficacy: Korean heritage learners versus non-heritage learners.	92 Korean as a foreign language (KFL) university students (47M & 45 F) *Age: 18 to 35 (*Avg. age= 20.8) *Location: USA	***QUAN** **S.E measure:** Self-efficacy scale (Gahungu 2010). **Metacognitive strategies measure:** SILL (Oxford, 1990).	**1.** Non-heritage students employed metacognitive strategies more frequently as compared to heritage students. **2.** Level of self-efficacy of heritage students (M = 3.35) was higher as compared to non-heritage students (M = 2.83). **3.** Regarding the correlations, there was statistically significant positive relationship between self-efficacy and strategy usage.	✓
McCrudden, Perkins and Putney (2005)	Self-efficacy and interest in the use of reading strategies	23 4th grade students (12M & 11F) *Location: USA	***QUAN** (pre/post-test design) **S.E measure:** Self-efficacy scale (developed by the researcher) **Metacognitive strategies measure:** Metacognitive reading strategies were taught to the students.	Self- efficacy increased from pre-instruction (M = 18 .87, SD = 2 .03) to post-instruction (M = 20 .78, SD = 2 .83).	
Yang (1999)	The relationship between EFL learners' beliefs and learning strategy use	505 EFL university students (311F & 194M) *Location: Taiwan	***Mixed-methods** **S.E measure:** Beliefs About Language Learning Inventory (BALLI) (Horwitz's, 1987). **Metacognitive strategies measure:** SILL (Oxford, 1990).	1. Level of English self-efficacy was high. 2. Significant relationship between learner's beliefs metacognitive strategies.	
Stracke (2016)	Language learning strategies of Indonesian primary school students: In relation to self-efficacy beliefs	522 grade 6 students (62% F % 38% M) *Avg. age: 11 years *Location: Indonesia	**QUAN** **S.E measure:** The Children's Self-efficacy in Learning English Questionnaire (C-SELEQ) (Developed by researcher). **Metacognitive strategies measure:** The Indonesian	**1.** Metacognitive strategies were used most frequently. **2.** High self-efficacious learners employed more metacognitive strategies than low self-efficacious students. **3.** Positive significant relationship between self-efficacy and metacognitive strategies.	

			Children's SILL (Gunning's, 1997).		
Magogwe and Oliver (2007)	The relationship between language learning strategies, proficiency, age and self-efficacy beliefs: A study of language learners in Botswana.	480 primary, secondary and tertiary level students. *Location: Botswana.	**QUAN** **S.E measure:** The Morgan-Jinks Student Efficacy Scale (MJSES) Jinks and Morgan (1999). **Metacognitive strategies measure:** SILL (Oxford. 1989).	**1.** Out of six strategies, metacognitive strategies were employed most frequently by secondary and tertiary level students. However, primary level students rated them as second most employed strategies. **2.** Those students who had high proficiency level were high self-efficacious and vice versa. **3.** Positive significant relationship between self-efficacy beliefs and language learning strategies including metacognitive strategies.	

Table 2: List of included and excluded studies along with the reasons for exclusion of some studies

Sr. no.	Studies	Journal	Category	Selected/Rejected studies	Reason of exclusion of studies
1	Zarei and Gilanian (2015)	British Journal of Education, Society & Behavioural Science	Refereed	✓	
2	Tavakoli and Koosha (2016)	Porta Linguarum	Non-refereed	×	Journal was non-refereed
3	Taghinezhad, Dehbozorgi and Esmaili (2015)	Modern Journal of Language teaching Methods	Refereed	✓	
4	Rahimi and Abedi (2014)	Procedia-Social and Behavioral Sciences	Refereed	✓	
5	Yailagh, Birgani, Boostani and Hajiyakhchali (2013)	Procedia-Social and Behavioral Sciences	Refereed	✓	
6	Javanmard, Hoshmandja and Ahmadzade (2012)	Journal of Life Science and Biomedicine	Refereed	✓	
7	Nosratinia, Saveiy and Zaker (2014)	Theory and Practice in Language Studies	Refereed	✓	
8	Kargar and Zamanian (2014)	International Journal of Language Learning and Applied Linguistics World	Non-refereed	×	Journal was non-refereed
9	Naseri and Zaferanieh (2012)	World Journal of Education	Non-refereed	×	Journal was non-refereed
10	Zare and Mobarakeh (2011)	Studies in Literature and Language	Refereed	✓	
11	Ahmadian and Pasand (2017)	The Reading Matrix	Refereed	✓	
12	Ghavamnia, Kassaian and Dabaghi (2011)	Journal of Language Teaching and Research	Refereed	✓	
13	Bonyadi, Nikou and Shahbaz (2012)	English language teaching	Refereed	✓	
14	Uçar (2016)	Curr Res Educ	Non-refereed	×	Journal was non-refereed
15	Yılmaz (2010)	Procedia-Social and Behavioral Sciences	Refereed	✓	
16	Keskin (2014)	International Journal of Social Sciences & Education	Non-refereed	×	Journal was non-refereed
17	Sönmez and Durmaz (2017)	Turkish Online Journal of English Language Teaching	Non-refereed	×	Journal was non-refereed
18	Tuncer and Dogan (2016)	International Journal of Learning and Development	Non-refereed	×	Journal was non-refereed
19	Yang and Wang (2015)	Taiwan Journal of TESOL	Non-refereed	×	Journal was non-refereed
20	Shang (2010)	Asian EFL Journal	Refereed	✓	
21	Yang (1999)	System	Refereed	✓	
22	Jee (2015)	Language Research	Refereed	✓	
23	McCrudden, Perkins & Putney (2005)	Journal of Research in Childhood Education	Refereed	✓	
24	Wong (2005)	RELC Journal	Non-refereed	×	Journal was non-refereed
25	Mokhtar (2015)	PEOPLE: International Journal of Social Sciences	Non-refereed	×	Journal was non-refereed
26	Li & Wang (2010)	Asian EFL Journal	Refereed	✓	
27	Stracke (2016)	System	Refereed	✓	
28	Magogwe and Oliver (2007)	System	Refereed	✓	
29	Cera, Mancini and Antoniette (2013)	Journal of Educational, Cultural and Psychological Studies	Refereed	✓	
30	Kassem (2015)	English Language Teaching	Refereed	✓	
31	Purdie and Oliver (1999)	System	Refereed	✓	