Metacognitive Awareness of Reading Strategies among English as a Foreign Language (EFL) Preservice Teachers: An Exploration of Gender and Developmental Differences

Meagan Caridad Arrastia[1], Amal M. Zayed[2] & Hosny Z. Elnagar[2]

[1] Department of Psychology, Counseling, and Family Therapy, Valdosta State University, Valdosta, Georgia, USA

[2] Department of Educational Psychology, Kafrelsheikh University, Kafr El Sheikh Governorate, Egypt

Correspondence: Meagan Caridad Arrastia, Department of Psychology, Counseling, and Family Therapy, Valdosta State University, Valdosta, Georgia, USA. 229-249-2777.

Received: April 25, 2016 Accepted: May 6, 2016 Online Published: June 17, 2016

doi:10.5430/irhe.v1n2p46 URL: http://dx.doi.org/10.5430/irhe.v1n2p46

Abstract

The aim of this study is to investigate the metacognitive awareness of reading strategies among 160 undergraduate students from the first and fourth year at the College of Education at a university in Egypt. The undergraduate students in this sample were enrolled in the English major to be teachers of English as a foreign language (EFL) after graduation. The Arabic and English versions of the Metacognitive Awareness of Reading Strategies Inventory (MARSI) Version 1.0, were collected from the students (Mokhtari & Reichard, 2002). Reading strategies reported among the students when reading in their native language, Arabic, were compared to those reported when reading English. The metacognitive awareness of reading strategies among the female and male students were also compared. In addition, the strategies reported among the first year students were compared to those of the fourth year students. Significant differences were found across the subgroups in the sample in regards to strategies reported when reading in both English and Arabic. Future research ideas with other native Arabic-speaking preservice EFL teachers and implications for instruction are discussed.

Keywords: metacognitive awareness, reading strategies, English as a foreign language, second language learning, college students, preservice teachers

1. Introduction

Reading skills play a crucial role in our lives as reading is required for academic tasks in schools and on the job. Increasingly, being a proficient reader and speaker in more than one language is imperative to navigate this global economy. Research has found that readers with varying reading skills use different reading strategies (Tierney & Readence, 2000). These strategies tend to be similar when reading in one's native (L1) and foreign languages (L2), but preliminary research has found that one's awareness of using these strategies may differ across languages (Carrell, 1989; Rajoo & Selvaraj, 2010; Sheorey & Mokhtari, 2001). This type of awareness is often referred to as metacognition, the thinking of one's thinking throughout the reading process (Flavell, 1979), and is a documented aspect of reading success among bilingual students (Jiménez, García, & Pearson, 1996).

In order for English as a Foreign Language (EFL) students of all ages to develop this type of metacognitive awareness, their teachers should possess such an awareness and be able to instruct students on how to use reading strategies. In the past, Applegate and Applegate (2004) have argued that teachers should enjoy reading in order to instill the appreciation of reading in their students. The phenomenon of teacher disliking to read has been likened to the Peter Effect, which states that "one cannot give what one does not possess." Similarly, EFL teachers (and preservice teachers) without metacognitive awareness of their own reading strategies may not be able to effectively facilitate the development of such strategies among their prospective students.

Given the differences between the written and spoken forms of Arabic compared to English (Ryan & Meara, 1991), reading strategies may be essential when learning English. Not only is English read in a different order on the page (left to right) as compared to Arabic (right to left), there are also major differences in the grammar, syntax, and even morphology of the languages. Although English is relatively an opaque language with many exceptions to letter-sound correspondences, Arabic is even less transparent and context-dependent. Awareness of which reading strategy to use

may depend on the context, including the language being read. EFL teachers of Arabic-speaking students may need to be aware of these differences. To explore these differences, reading strategies reported among Arabic-speaking EFL preservice teachers when reading in their native language were compared to those reported when reading English. The metacognitive awareness of reading strategies among the female and male preservice teachers were also compared, as well as differences between first-year and fourth-year preservice teachers.

1.1 Metacognition and Reading

The construct of metacognition has been a topic of much study for educational psychologists since the 1970s (e.g., Barzilai & Zohar, 2014; Flavell, 1979; Garner & Alexander, 1989; Quintana, Zhang, & Krajcik, 2005; Zimmerman, 1995). Definitions vary from context to context (Georghiades, 2004). What is known about metacognition, broadly speaking, is that it develops over time (Weil et al., 2013). Strategies can be taught and adopted, but transfer of these strategies across contexts does not always occur (Garner & Alexander, 1989). Research has also shown that both children and adults tend to fail at monitoring their thoughts in many situations, especially when performing routine tasks (Garner, 1990).

Although there are many different ways to measure the construct of metacognition (Cromley & Azvedo, 2004), within the EFL context metacognitive awareness has been measured with the Metacognitive Awareness Reading Strategies Inventory (MARSI), a self-report instrument designed to measure the metacognitive awareness and reading strategies for the adolescent and adult readers in the context of academic reading (Mokhtari & Reichard, 2002). The purpose of this study is to investigate metacognitive awareness of reading strategies in Arabic-speaking Egyptian EFL preservice teachers. Furthermore, gender differences and differences based on year-in-college in metacognitive awareness are also explored. Although these strategies are well understood in the literature regarding English-speakers (Carrell, 1989; Goh, 1997; Sheorey & Mokhtari, 2001; Singhal, 2001; Karbalaei, 2011), very few studies in the Arabic literature examine reading strategies (Abu Shmais, 2002; Alsheikh & Mokhtari, 2011; Malcolm, 2009). Reading strategies have been studied in the context of learning Arabic as a second language in a sample of English speaking students living in an Arab country (Alhaqbani & Riazi, 2012), but to date there are insufficient empirical studies of Arabic reading skills among EFL preservice teachers, those responsible for teaching Arabic speakers English, within the metacognitive awareness literature.

1.2 Metacognitive Awareness

As previously mentioned, metacognition has been defined in many different ways depending on the context. Based on the taxonomy provided by Tarricone (2011), we concentrate the rest of our discussion on declarative metacognitive knowledge of strategy use, or metacognitive awareness. While many students use metacognitive strategies during reading, not all students are aware of them or how and why to use them. Strategy use is developmental which suggests that there may be a difference based on academic year (Alexander, Graham, & Harris, 1998). The awareness and monitoring are very important processes of skilled reading (Alexander & Jetton, 2000; Pressley, 2000; Schraw, 1998).

Metacognitive awareness includes knowing what strategies to use when appropriate and what strategies are not appropriate for the task at hand (Tarricone, 2011). In addition, when reading, a learner has to first acknowledge whether or not they have made sense of the text. Once this problem is identified, the learner must then recognize an appropriate strategy to solve the problem, like rereading the text or looking up unfamiliar words. Being aware of this process defines metacognitive awareness of reading strategies. This type of metacognition in the context of English-language learning has been found to be related to better student outcomes (Anderson, 2002). Other important strategies include reading with a purpose, or having expectations from a text. In other words, students should know what to pay attention to in a text depending on the genre, context, and task. Of course, knowing what strategy to use and when to use it requires prerequisite awareness of the strategy.

1.3 Reading Strategies

A separate but closely related body of research has examined reading strategies among readers of various levels. Reading strategies can be defined as "how readers interact with the written texts and how these strategies help to enhance text comprehension which includes mental plans" (Rajoo & Selvaraj, 2010, p. 1301). Reading strategies indicate how readers identify the purpose for reading, what parts of the text they attend to, how they deal with making sense of the text, and how they overcome not understanding certain parts or words in text (Block, 1986). These strategies can involve a range of techniques. Rereading is a simple strategy used to correct a situation in which one does not understand a passage or simply zones out. Questioning oneself periodically to monitor comprehension is yet another strategy. Using context clues to predict the meaning of an unknown word and summarizing material at the end of a passage are both considered reading strategies (Carrell, 1989).

Many studies show that metacognitive learners who understand what they are doing during the reading process tend to be the most successful students (e.g., Veenman, Van Hout-Wolters, & Afflerbach, 2006; Vrugt, & Oort, 2008). As the perfect use of metacognitive strategies is uncommon among students (Pintrich, 2002; Vandergrift, Goh, Mareschal, & Tafaghodtari, 2006), further research in this area is imperative. In particular, important factors for instruction need to be considered so that students can learn to identify reading strategies and the appropriate scenarios in which to apply the identified strategies. Such research could result in metacognitive awareness training for college students to enhance their learning across content areas (Schraw, 1998; Song, 1998; Wade & Reynolds, 1989).

1.4 Metacognitive Awareness of Reading Strategies in EFL Populations

Reading strategies and their relationship to second-language acquisition has been of much interest to researchers in the past several decades (Carrell, 1989; Rahimi & Katal, 2012; Wenden, 1998). In fact, Block (1989) found that even though EFL college students were not as proficient readers of English as their native counterparts, they were more aware of the strategies employed during reading. Some survey research has revealed patterns in the type of strategies that EFL students use while reading English (Alsheikh & Mokhtari, 2011; Hong-Nam & Page, 2014; Malcolm, 2009; Sheorey & Mokhtari, 2001). For example, differences among males and females, as well as across years in college were explored among Korean EFL university students (Hong-Nam & Page, 2014). Overall, problem-solving strategies (e.g., "When text becomes difficult, I pay closer attention to what I am reading.") were the most prevalent in this sample with strategy use positively related to reading proficiency. Additionally, there existed a curvilinear relationship between English proficiency and reported strategy use. This means that those with the highest and lowest levels of proficiency both reported lower levels of strategy use compared to those with an average level of English proficiency. No significant gender differences were found, but juniors and seniors reported significantly more strategy use when reading English; strategy use in English was not compared to strategy use in the college students' native language in this study.

Arabic speakers' metacognitive awareness has also been studied (Abbott, 2006; Malcolm, 2009). Only one study has examined the metacognitive strategies of Arabic-speaking EFL teacher candidates. Alsheikh and Mokhtari (2011) gave the Survey of Reading Strategies (SORS; Mokhtari & Sheorey, 2002) to a sample of 90 Arabic-speaking U. S. college students. This survey asked how frequently the reading strategies were used. The students in this sample reported using the strategies very frequently when reading both English and Arabic, but significantly more frequently when reading English. In particular, the students reported using problem solving (e.g., re-reading passages to improve understanding) and support reading strategies (e.g., using reference materials and translating from English to Arabic) more frequently when reading English than when reading Arabic. There was no significant difference in frequency of global strategy use between English and Arabic (e.g., using context clues).

Using the same survey instrument (Mokhtari & Sheorey, 2002), Malcolm (2009) examined developmental differences in the reading strategy use of 160 native-Arabic medical students studying English. Overall, the students in the fourth year of medical school reported using global reading strategies significantly more than students in the first year. When the strategies were ranked in order of use frequency, problem-solving strategies (e.g., trying to stay focused and paying close attention) were reportedly used more frequently by the first-year students. The fourth year students reported most frequently using text features, a global strategy. When English proficiency was taken into account, significant differences were found in the reported use of problem-solving and supplemental strategies. For example, problem-solving strategies were more frequently reported among those with higher proficiency among both the first (e.g., adjusting reading rate) and fourth-year students (e.g., visualizing information). Conversely, supplemental strategies (e.g., translating into Arabic) were reported significantly more frequently by students with lower proficiency across the two groups. No gender differences were found in this sample in regards to reported reading strategy use.

1.5 Gender Differences

When native-English speakers have been compared to EFL students, in general, similar patterns of reported strategy use have been found with problem-solving strategies being the most frequently used and supplemental strategies being the least frequent (Sheorey & Mokhtari, 2001). EFL students reported using reading strategies in general and supplemental strategies specifically significantly more frequently than native-English speakers. Gender differences were examined in a sample of 302 college students using the same survey instrument. Interestingly, significant differences in the reported reading strategy of the students were only found among the native-English speaking students which made up about half the sample. Females in this sub-sample reported using reading strategies more frequently than males, overall, and in the case of supplemental strategies. Native-English speakers with high

proficiency also reported significantly more strategy use than those with low proficiency. The opposite relationship was observed among the EFL students.

1.6 Preservice Teacher Metacognitive Awareness of Reading Strategies

The strategy use of preservice teachers have been studied before with close attention given to differences between high and low achieving (successful and unsuccessful) readers (Alderman, Klein, Seeley, & Sanders, 1992; Spray, Scevak, & Cantwell, 2013). Alderman et al. (1992) conducted a content analysis of preservice teachers' journals (learning logs) and found differences in "strategy use, goal setting, self–monitoring and attributions" (p. 38). Even though some preservice teachers were successful readers and others improved over time, Alderman et al. (1992) suggest that all students can benefit from instruction on strategy use. Despite the research on preservice teachers, the Arabic-speaking EFL subpopulation of preservice teachers have not been studied as of yet.

1.7 Current Study

Given the current research in this area among Arabic-speaking English-language learners (ELLs), it is of interest to investigate the metacognitive awareness of EFL preservice teachers. Furthermore, to fully consider the language differences between Arabic and English these reported strategy use should be compared between the two languages (Alsheikh & Mokhtari, 2011). In addition, previous studies also indicate possible gender differences in similar populations (Sheorey & Mokhtari, 2001), as well as differences among students across years as they gain proficiency in English (Malcolm, 2009). This study, therefore, asks the following research questions:

1. Are there any significant differences in the metacognitive awareness of reading strategies in Arabic versus English languages for this population?
2. Are there any significant gender (females vs. males) differences in the metacognitive awareness of reading strategies?
3. Are there any significant status (first- and fourth-year) differences in the metacognitive awareness of reading strategies?

2. Method

2.1 Participants

Written consent in Arabic was received from a total of 160 participants who volunteered to take this anonymous survey. The participants were recruited from the College of Education at a university in Egypt. All the participants were undergraduate students enrolled in the English major to become teachers of English as a Foreign Language (EFL). The sample included 73 males and 87 females, as reported in the demographic survey. A total of 75 participants reported being in their first year in the EFL program and 85 reported being in their fourth year in the EFL program. Ages of the participants ranged from 18 to 24 years of age. During a class period, the second author collected the data from each student using hard copies of the *MARSI*, along with a consent form and demographic questionnaire.

2.2 Measures and Procedures

2.2.1 MARSI

The *Metacognitive Awareness Reading Strategies Inventory* (*MARSI*) is a self-report survey designed to measure the frequency and the metacognitive awareness of reading strategies among adult readers in academic contexts (Mokhtari & Reichard, 2002). This inventory measures metacognitive awareness with Likert-type items. The student responds to each statement by circling responses one to five; one meaning that "I never or almost never do this" and five meaning that "I always or almost always do this." The inventory includes three subscales: Global Reading Strategies (13 items; α = .92), Problem-Solving Strategies (8 items, α =.79), and Supplemental Reading Strategies (9 items, α = .87).

The first subscale includes statements describing Global Reading Strategies (GLOB). These include understanding the purpose of reading, comprehension monitoring, and attentional strategies among others. The second subscale includes statements describing Problem Solving Reading Strategies (PROB), which are employed when a reader encounters text that he or she does not understand (e.g. rereading text). The third subscale includes statements describing Support Reading Strategies (SUP), which include methods of approaching a text that involve more than just reading it silently. For example, a reader may read aloud or take notes while reading to keep track of information (Mokhtari & Reichard, 2002).

The *MARSI* was completed by each participant twice; first, for metacognitive awareness reading strategies used when reading texts in English as a foreign language and the second for measurement of these strategies when reading

texts in Arabic as a native language. The average time to complete the questionnaire was 20 minutes. Responses to each statement were entered into SPSS. Responses to statements in each subscale were included in a composite score that reflected the average response for the items in each subscale ranging from 1 to 5. An overall average was also calculated using all the responses to the *MARSI*. The authors of the instrument suggest that averages of 2.4 or lower indicate a low level of awareness for a type of strategy. Averages between 2.5 and 3.4 indicate a medium level of awareness for a type of strategy. A higher level of awareness is indicated by averages of 3.5 or greater (Mokhtari & Reichard, 2002).

2.3 Data Analysis

After the data was entered and checked for errors, descriptive statistics were conducted on all the variables. Descriptive statistics included frequencies, averages, standard deviations, and ranges for each variable. Based on each student's answers to the demographic portion of the survey, they were categorized as either male or female, and as a first or fourth-year student. Reliability estimates were calculated for each subscale. Although previous research validated the measure with 147 ESL students at a US college and found overall reliability to be adequate ($\alpha = .89$; Mokhtari & Reichard, 2002; Mokhtari & Sheorey, 2008; Sheorey & Mokhtari, 2001), specific reliabilities for each subscale have not been reported in this population. Reliability estimates in this sample were adequate for the subscales in reference to reading in English (L2), but not for Arabic (L1). To examine any significant differences between groups based on language, gender, or year, we conducted t-tests using SPSS. A one-way ANOVA was also conducted to compare the four discrete groups (first-year females and males and fourth-year females and males) on the three subscales of the *MARSI* for both English and Arabic. P-values of .05 or smaller were considered significant on all inferential statistics for the purpose of this study. The results of the data analyses to answer each corresponding research question are reported below.

3. Results

3.1 Are there any significant differences in the metacognitive awareness of reading strategies in Arabic versus English languages for this population?

To answer this question, we conducted pairwise t-tests on the average scores for each of the three subscales: global, problem solving, and support reading strategies. Thirteen items made up the global reading strategy subscale. Nine items made up the support reading strategy subscale. The remaining eight items made up the problem-solving subscale. As expected, the participants reported using metacognitive strategies significantly more often when reading Arabic as compared to when reading English. Overall, the average scores for the global reading strategy subscale were 3.53 in English and 4.29 for Arabic ($t(159) = -14.21$, $p < .001$). Both averages are considered to indicate high levels of awareness. The average scores for the problem-solving reading strategy subscale were 3.45 for English and 4.23 for Arabic ($t(159) = -13.59$, $p < .001$). The English average is considered to indicate a medium level of awareness, whereas the Arabic average indicates a high level of awareness. For the support reading strategy subscale, the average scores for all participants were 3.50 for English and 4.30 for Arabic ($t(159) = -14.11$, $p < .001$). Both of these averages are considered to indicate a high level of awareness. See Table 1 for the means and standard deviations of each of the subscales across languages.

Table 1. Comparison of MARSI subscale between languages ($n = 160$)

	Arabic ($n = 160$)		English ($n = 160$)			
	M(SD)	*α*	*M(SD)*	*α*	*t*	*df*
Global	4.29 (.18)	.22	3.53 (.71)	.86	-14.21***	159
Problem Solving	4.23 (.28)	.45	3.45 (.73)	.88	-13.59***	159
Support	4.30 (.20)	.60	3.50 (.75)	.90	-14.11***	159

Note. * =$p < .05$, **=$p < .01$, ***$p < .001$.

3.2 Are there any significant gender (females vs. males) differences in the metacognitive awareness of reading strategies?

To answer this question, we conducted a series of t-tests comparing the mean scores of each gender on each of the three subscales. When comparing the responses of each item in the English context, female responses were

significantly higher on average as compared to the males for over two-thirds of the items, including items 1, 4, 5, 8-24, 28, and 30 ($p < .05$). For a list of items in this order, please see Mokhtari & Reichard (2002). When comparing each item in the Arabic context, the responses of the male participants were significantly higher on average for items 16 and 19, two problem-solving reading strategy items ($p = .05$), whereas the responses of the females were significantly higher on average for item 20, an item describing a support reading strategy ($p < .05$). When comparing overall reading strategy scores, the females reported using strategies significantly more than males in English context on average, but no significant difference was found in the Arabic context. In other words, there were no significant differences in responses between genders concerning Arabic when looking at the subscales overall.

3.2.1 Global Reading Strategies

In the English reading context, the average response for the global reading strategy subscale was 3.34 for male participants. This average is considered to indicate a medium level of awareness for global reading strategies. The average subscore on the global reading strategy subscale for female participants was 3.69 ($t(158) = -3.23$, $p < .01$), which indicates a high level of awareness. In the Arabic reading context, the average response for the global reading strategy subscale was 4.30 for male students. The average subscore on the global reading strategy subscale for female participants was 4.28 ($t(158) = .78$, $p > .05$). Both the male and female averages indicate high levels of awareness of global reading strategies in the Arabic reading context.

3.2.2 Problem-Solving Strategies

In the English reading context, the average response for males on the problem-solving reading strategy subscale was 3.24, indicating a medium level of awareness. The average subscore on the problem-solving reading strategy subscale for female participants was 3.64 ($t(158) = -3.61$, $p < .001$), indicating a high level of awareness. In the Arabic reading context, the average response for males on the problem-solving reading strategy subscale was 4.25 and 4.22 for females ($t(158) = .574$, $p > .05$). Both the male and female averages indicate high levels of awareness of problem-solving reading strategies in the Arabic reading context.

3.2.3 Support Strategies

In English reading context, the average response for males on the support reading strategy subscale was 3.26, indicating a medium level of awareness. The average subscore on the support reading strategy subscale for female participants was 3.70 ($t(158) = -3.94$, $p < .001$), indicating a high level of awareness. In the Arabic reading context, the average response for males on the support reading strategy subscale was 4.31 and 4.30 for female students ($t(158) = .353$, $p > .05$). Both the male and female averages indicate high levels of awareness of support reading strategies in the Arabic reading context. See Table 2 for the t-test results, as well as means and standard deviations for each subsample.

Table 2. Comparison of MARSI subscales means between genders ($n = 160$)

	Gender			
	Male ($n = 73$)	Female ($n = 87$)	*t*	*df*
Global				
Arabic	4.30 (.16)	4.28 (.20)	.78	158
English	3.34 (.76)	3.69 (.63)	-3.23**	158
Problem Solving				
Arabic	4.25 (.28)	4.22 (.29)	.57	158
English	3.24 (.76)	3.64 (.65)	-3.61***	158
Support				
Arabic	4.31 (.20)	4.30 (.20)	.353	158
English	3.26 (.79)	3.71 (.64)	-3.94***	158

Note. * =$p < .05$, **=$p < .01$, ***$p < .001$. Standard Deviations appear in parentheses next to means.

3.3 Are there any significant status (first- and fourth-year) differences in the metacognitive awareness of reading strategies?

To answer this question, we conducted a series of t-tests comparing the mean scores of first year and fourth year students for each subscale. Fourth-year students reported using strategies significantly more often as compared to first-year students in the context of reading English ($p < .05$). When reading Arabic, the first-year students actually reported using strategies more frequently than the fourth-year students on a third of the items overall. The first-year students only significantly reported using the strategy of item 20 more frequently than the fourth-year students ($p < .05$). The item, a support reading strategy, reads, "I paraphrase (restate ideas in my own words) to better understand what I read." The average responses of fourth-year students were significantly higher than first-year students for items 4, 5, 15, 16, 19, 21, 26, 28, and 30 ($p < .05$).

3.3.1 Global Reading Strategies

In the English reading context, the average response for the global reading strategy subscale was 2.89 for first-year students. This average is considered to indicate a medium level of awareness for global reading strategies. The average subscore on the global reading strategy subscale for fourth-year students was 4.09 ($t(158) = -19.86$, $p < .001$), which indicates a high level of awareness. In the Arabic reading context, the average response for the global reading strategy subscale for first-year students was 4.24. The average subscore on the global reading strategy subscale for fourth-year students was 4.33 ($t(134.92) = -3.34$, $p < .01$). Both the first- and fourth-year student averages indicate high levels of awareness of global reading strategies in the Arabic reading context.

3.3.2 Problem-Solving Strategies

In the English reading context, the average response for the problem-solving reading strategy subscale was 2.79 for first-year students. This average is considered to indicate a medium level of awareness for problem-solving reading strategies. The average subscore on the problem-solving reading strategy subscale for fourth-year students was 4.04 ($t(158) = -20.59$, $p < .001$), which indicates a high level of awareness. In the Arabic reading context, the average response for the problem-solving reading strategy subscale for first-year students was 4.17. The average subscore on the problem-solving reading strategy subscale for fourth-year students was 4.28 ($t(134.92) = 2.54$, $p < .01$). Both the first- and fourth-year student averages indicate high levels of awareness of problem-solving reading strategies in the Arabic reading context.

3.3.3 Support Strategies

In the English reading context, the average response for the support reading strategy subscale was 2.82 for first-year students. This average is considered to indicate a medium level of awareness for support reading strategies. The average subscore on the support reading strategy subscale for fourth-year students was 4.09 ($t(146.09) = -20.52$, $p < .001$), which indicates a high level of awareness. In the Arabic reading context, the average response for the support reading strategy subscale for first-year students was 4.26. The average subscore on the support reading strategy subscale for fourth-year students was 4.34 ($t(158) = -2.63$, $p < .01$). Both the first- and fourth-year student averages indicate high levels of awareness of support reading strategies in the Arabic reading context. See Table 3 for the t-test results, as well as means and standard deviations for each subsample.

Table 3. Comparison of MARSI subscales means between years ($n = 160$)

	Year			
	First ($n = 75$)	Fourth ($n = 85$)	*t*	*df*
Global				
Arabic	4.24 (.20)	4.34 (.15)	-3.34**	134.92
English	2.89 (.44)	4.09 (.32)	-19.86***	158
Problem Solving				
Arabic	4.17 (.31)	4.28 (.25)	-2.54*	158
English	2.79 (.41)	4.04 (.36)	-20.59***	158
Support				
Arabic	4.26 (.21)	4.34 (.19)	-2.63**	158
English	2.82 (.42)	4.09 (.36)	-20.52***	146.09

Note. * =$p < .05$, **=$p < .01$, ***$p < .001$. Standard Deviations appear in parentheses next to means.

Because significant differences were found between males and females, as well as first-year and fourth-year students in this sample, a one-way ANOVA was conducted to compare the four discrete groups in this sample (first-year females and males and fourth-year females and males) on the three dimensions of the *MARSI* for both English and Arabic. This test revealed significant differences between the four groups ($p < .05$) on all six outcomes. A Tukey's post-hoc test revealed that the groups were all significantly different from each other on the three subscales in the English reading context ($p < .001$). The same ranking pattern was found for all three English subscales: fourth-year females reported the highest strategy use, followed by fourth-year males and first-year females, with first-year males reporting significantly less than all other groups. When examining the subscales in the Arabic reading context, first-year students did not differ significantly by gender ($p = .78$) on global reading strategies. Only a significant difference between first- and fourth-year females was found in terms of problem-solving reading strategies ($p = .03$) and support reading strategies ($p = .04$) used in the Arabic reading context. See Table 4 for the ANOVA results, as well as means and standard deviations for each subsample.

Table 4. Subgroup analysis of MARSI subscales means (n = 160)

	Female		Male			
	First (n = 42)	Fourth (n = 43)	First (n = 33)	Fourth (n = 42)	F	df
Global						
Arabic	4.23 (.22)	4.34 (.16)	4.26 (.18)	4.34 (.14)	4.11**	3
English	3.08 (.15)	4.29 (.17)	2.64 (.56)	3.89 (.31)	209.31***	3
Problem Solving						
Arabic	4.13 (.33)	4.30 (.23)	4.22 (.31)	4.26 (.27)	2.85*	3
English	3.05 (.29)	4.22 (.24)	2.47 (.29)	3.84 (.35)	266.20***	3
Support						
Arabic	4.23 (.22)	4.35 (.18)	4.28 (.21)	4.33 (.20)	2.72*	3
English	3.09 (.19)	4.30 (.18)	2.47 (.38)	3.88 (.37)	305.83***	3

Note. * =$p < .05$, **=$p < .01$, ***$p < .001$. Standard deviations appear in parentheses next to means.

4. Discussion

In discussing these results, we hope that this study moves research in higher education forward in terms of understanding the metacognitive skills of a special group of ELLs, Arabic-speaking EFL teachers-in-training. Overall, the Arabic-speaking EFL preservice teachers in this sample reported high metacognitive awareness levels (means ≥ 3.5) of global, problem solving, and support reading strategies in their native language, but medium to high levels (2.5 – 3.4) of awareness of reading strategies in English as first-year students. This finding supports the notion that more reading strategies are required when reading in a second language, especially when first learning a new language (Carrell, 1989). The creators of the *MARSI*, Mokhtari and Reichard (2002), point out that

> …the best possible use of these strategies depends on your reading ability in English, the type of material read, and your purpose for reading it. A low score on any of the subscales or parts of the inventory indicates that there may be some strategies in these parts that you might want to learn about and consider using when reading. (259)

However, the results of our study differ from previous findings because the Arabic-speaking preservice teachers in our sample reported as high levels of awareness as the native English speakers in past research (Sheorey & Mokhtari, 2001), regardless of year in school. In fact, the participants in our study reported more similar metacognitive strategy usage to the U.S. Arabic-speaking populations previously studied (Alsheikh & Mokhtari, 2011). Future studies in these populations should consider English-language proficiency, as well as motivation for learning English. It is possible that the intention of teaching English could account for the high levels of metacognitive strategy usage in our sample and the study conducted in the United States (Alsheikh & Mokhtari, 2011).

In the case of gender differences, our results in the context of reading English were comparable to previous studies in similar populations. Overall, Arabic-speaking females in our study reported using reading strategies more often when

reading English as compared to their male counterparts. Similar gender differences have been observed in previous studies in the English reading context, but only among English-speaking EFL preservice teacher populations (Sheorey & Mokhtari, 2001). No gender differences have been observed in the Arabic-speaking population before (Malcolm, 2009). Furthermore, our study is the first to examine Arabic speakers in both languages.

4.1 Development of Metacognitive Awareness

Interestingly, metacognitive awareness seemed higher for fourth-year students when reading in *both* English and Arabic suggesting growth in awareness throughout the education program. This finding departs from existing results in Arabic populations. Specifically, more experienced medical students have reported using *only* global reading strategies more frequently than new students on average (Malcolm, 2009), not all three types of reading strategies as in this sample. When comparing our finding to similar studies in other populations, upper-class EFL students have reported greater metacognitive awareness when reading English compared to their younger counterparts (Hong-Nam & Page, 2014). Longitudinal research could shed light on the developmental trajectory and mechanism for developing awareness among Arabic-speaking EFL teachers. Additionally, it is unknown whether the groups actually differed in the frequency of strategy use or the awareness of the strategy use due to the self-report nature of the *MARSI.* Future research should include multiple indicators to clarify this construct further (Cooper, Sandi-Urena, & Stevens, 2008).

4.2 Gender as a Possible Moderator

The significant differences in reported strategy use across languages, gender, and year in the program led us to conduct a subsample analysis. Although no gender differences were found when examining first-year students' Arabic global strategies, females seemed to report more frequent strategy use in English during the first year. This finding indicates that gender should be considered as a moderator in future research in order to accurately compare the development of strategy use across the two groups. This cross-sectional study does not reveal the causes for the differences between males and females in terms of strategy use or if the difference was pre-existing. However, it does identify it as a factor that should not be ignored in future studies.

4.3 Metacognitive Awareness Instruction

Possible differences in strategy use could be explained by the differences in the two languages. According to Hayes-Harb (2006), "…native Arabic speakers are less aware of vowel letters in English texts… This differential awareness of vowel letters may contribute to native Arabic speakers' EFL reading comprehension difficulties (p. 321)." As Garner and Alexander (1989) argued over 20 years ago, the effectiveness of metacognitive strategy instruction needs to be evaluated in a meaningful way. What does that look like for Arabic-speaking EFL preservice teachers? The results of this study may indicate some of the elements that effective instruction may need to target, but performance on reading measures should determine the effectiveness. Formative assessments need to be included in any instruction emphasizing metacognition and reading strategies in order to provide a model for students to monitor their comprehension.

4.4 Limitations

In addition, multiple methods should be employed to measure metacognition in a given context (e.g. Cooper, et al., 2008). This is especially important because it is still unknown what type of reading strategies are most effective for this population and for the population that these preservice EFL teachers will be teaching in the future (native Arabic-speaking EFL students). As previously mentioned, causal relationships cannot be extracted from this cross-sectional survey research. Further psychometric work needs to be conducted to examine the validity of the *MARSI* in terms of predictive validity, as well as reliability across languages. This would involve reading tests across multiple time periods and the collection of other personal factors to control for existing differences (e.g., English language proficiency). Some scholars are even suggesting that metacognition in the context of reading strategies used in English language learning as significantly related to personality and should possibly be dismissed before further research on metacognitive awareness of reading strategies is conducted (Fazeli, 2012). Similarly, it is imperative to include authentic reading tasks (both narrative and informational) in further research, as well as include think-aloud protocols in conjunction with these tasks to better understand strategy use and metacognitive awareness during the act of reading (Hosenfeld, 1977).

4.5 International Applications in EFL Instruction

Given the limitations of this study, causal relationships cannot be concluded. Instead, correlational associations in one time and place can be made because this is a cross-sectional design. In sum, the current findings indicate that the participants reported using metacognitive strategies significantly more often when reading English as compared to

when reading in Arabic, the native language of the preservice EFL teachers in this sample. The females in the sample reported using strategies significantly more often than males in the English reading context, but not in Arabic overall. In addition, fourth-year students reported using strategies significantly more often than the first-year students across items when reading in both English and Arabic.

These findings further strengthen current conclusions about how EFL populations learn to read English and can help direct instruction for Arabic-speaking students. These findings can be applied more broadly to ELLs in similar Arabic-speaking contexts. Given that Arabic is the official language in over 27 countries and the native language of over 300 million people in Africa and the Middle East (CIA, 2014), it is likely that English-language instructors worldwide will encounter an Arabic-speaking ELL. As an international effort to improve English instruction, metacognitive reading strategies may help students when first learning to read English until they become proficient, learn more vocabulary, and can automate some reading processes.

References

Abbott, M. L. (2006). ESL reading strategies: Differences in Arabic and Mandarin speaker test performance. *Language Learning, 56*, 633–670. http://dx.doi.org/10.1111/j.1467-9922.2006.00391.x

Abu Shmais, W. A. (2002). Identifying the metacognitive reading strategies of Arab university students: A case study. *An-Najah University Journal for Research, 16*, 633-661. Retrieved from http://journals.najah.edu/media/journals/full_texts/identifying-metacognitive-reading-strategies-arab-university-students-case-study.pdf

Alderman, M. K., Klein, R., Seeley, S. K., & Sanders, M. (1992). Metacognitive self−portraits: Preservice teachers as learners. *Reading Research and Instruction, 32*, 38-54. http://dx.doi.org/10.1080/19388079309558115

Alexander, P. A., Graham, S., & Harris, K. R. (1998). A perspective on strategy research: Progress and prospects. *Educational Psychology Review, 10*, 129-154. http://dx.doi.org/10.1023/A:1022185502996

Alexander, P. A., & Jetton, T.L. (2000). Learning from text: A multidimensional and developmental perspective. In M. Kamil, P. Mosenthal, P. Pearson, & R. Barr (Eds.), *Handbook of reading research* (pp. 285-310), Mahwah, NJ: Lawrence Erlbaum Associates Inc.

Alhaqbani, A., & Riazi, M. (2012). Metacognitive awareness of reading strategy use in Arabic as a second language. *Reading in a Foreign Language*, *24*, 231-255. Retrieved from http://www.nflrc.hawaii.edu/rfl/October2012/articles/alhaqbani.pdf

Alsheikh, N. O., & Mokhtari, K. (2011). An examination of the metacognitive reading strategies used by native speakers of Arabic when reading in English and Arabic. *English Language Teaching*, *4*, 151-160. http://dx.doi.org/10.5539/elt.v4n2p151

Anderson, N. J. (2002). The role of metacognition in second language teaching and learning. Washington, DC: *ERIC Clearinghouse on Languages and Linguistics*, Center for Applied Linguistics. Retrieved from http://www.gpo.gov/fdsys/pkg/ERIC-ED463659/pdf/ERIC-ED463659.pdf

Applegate, A. J., & Applegate, M. D. (2004). The Peter effect: Reading habits and attitudes of preservice teachers. *Reading Teacher, 57*, 554-565. Retrieved from http://www.thoughtfulliteracy.com/Applegate%20and%20Applegate,%202004%20The%20Peter%20Effect.pdf

Barzilai, S., & Zohar, A. (2014). Reconsidering personal epistemology as metacognition: A multifaceted approach to the analysis of epistemic thinking. *Educational Psychologist*, *49*, 13-35. http://dx.doi.org/10.1080/00461520.2013.863265

Block, E. (1986). The comprehension strategies of second language readers. *TESOL Quarterly*, *20*, 163-494. http://dx.doi.org/10.2307/3586295

Carrell, P. L. (1989). Metacognitive awareness and second language reading. *The Modern Language Journal, 73*, 121-134. http://dx.doi.org/10.1111/j.1540-4781.1989.tb02534.x

Central Intelligence Agency. (2014). Languages. In *The World Factbook*. Retrieved from https://www.cia.gov/library/publications/the-world-factbook/fields/2098.html

Cooper, M. M., Sandi–Urena, S., & Stevens, R. (2008). Reliable multi method assessment of metacognition use in chemistry problem solving. *Chemistry Education Research and Practice, 9*, 18-24. http://dx.doi.org/10.1039/B801287N

Cromley, J. G., & Azevedo, R. (2006). Self-report of reading comprehension strategies: What are we measuring? *Metacognition Learning, 1*, 229-247. http://dx.doi.org/10.1007/s11409-006-9002-5

Fazeli, S. H. (2012). Use of the metacognitive English language learning strategies based on personality traits. *Theory and Practice in Language Studies*, *2*, 531-539. http://dx.doi.org/10.4304/tpls.2.3.531-539

Flavell, J. H. (1979). Metacognition and cognitive monitoring: A new area of cognitive-developmental inquiry. *American Psychologist, 34*, 906-911. http://dx.doi.org/10.1037/0003-066X.34.10.906

Garner, R. (1990). When children and adults do not use learning strategies: Toward a theory of settings. *Review of Educational Research*, *60*, 517-529. http://dx.doi.org/10.3102/00346543060004517

Garner, R., & Alexander, P. A. (1989). Metacognition: Answered and unanswered questions. *Educational Psychologist*, *24*, 143-158. http://dx.doi.org/10.1207/s15326985ep2402_2

Georghiades, P. (2004). From the general to the situated: Three decades of metacognition. *International Journal of Science Education*, *26*, 365-383. http://dx.doi.org/10.1080/0950069032000119401

Goh, C. (1997). Metacognitive awareness and second language listeners. *ELT Journal*, *51*, 361-369. http://dx.doi.org/10.1093/elt/51.4.361

Hayes-Harb, R. (2006). Native speakers of Arabic and ESL texts: Evidence for the transfer of written word identification processes. *TESOL Quarterly, 40*, 321–339. http://dx.doi.org/10.2307/40264525

Hong-Nam, K., & Page, L. (2014). Investigating metacognitive awareness and reading strategy use of EFL Korean university students. *Reading Psychology, 35,* 1-26. http://dx.doi.org/ 10.1080/02702711.2012.675418

Hosenfeld, C. (1977). A preliminary investigation of the reading strategies of successful and nonsuccessful second language learners. *System, 5*, 110-123. http://dx.doi.org/10.1016/0346-251X(77)90087-2

Jiménez, R. T., García, G. E., & Pearson, P. D. (1996). The reading strategies of bilingual Latina/o students who are successful English readers: Opportunities and obstacles. *Reading Research Quarterly*, *31*, 90-112. http://dx.doi.org/10.1598/rrq.31.1.5

Karbalaei, A. (2011). Metacognition and reading comprehension. *Íkala, Revista de Lenguaje y Cultura*, *16*, 5-14. Retrieved from http://ref.scielo.org/wwvsgj

Malcolm, D. (2009). Reading strategy awareness of Arabic-speaking medical students studying in English. *System, 37*, 640-651. http://dx.doi.org/10.1016/j.system.2009.09.008

Mokhatri, K., & Sheorey, R. (2002). Measuring ESL students' awareness of reading strategies. *Journal of Developmental Education, 25*, 2-9. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=a9h&AN=6482286&site=ehost-live

Mokhtari, K., & Reichard, C. A. (2002). Assessing students' metacognitive awareness of reading strategies. *Journal of Educational Psychology, 94*, 249-259. http://dx.doi.org/10.1037/0022-0663.94.2.249

Pintrich, P. R. (2002). The role of metacognitive knowledge in learning, teaching, and assessing. *Theory into Practice*, *41*, 219-225. http://dx.doi.org/10.1207/s15430421tip4104_3

Pressley, M. (2000). What should comprehension instruction be the instruction of? In M. Kamil, P. Mosenthal, P. Pearson, & R. Barr (Eds.), *Handbook of Reading Research* (pp. 285-310), Mahwah, NJ: Lawrence Erlbaum Associates Inc.

Quintana, C., Zhang, M., & Krajcik, J. (2005). A framework for supporting metacognitive aspects of online inquiry through software-based scaffolding. *Educational Psychologist*, *40*, 235-244. http://dx.doi.org/10.1207/s15326985ep4004_5

Rahimi, M., & Katal, M. (2012). Metacognitive strategies awareness and success in learning English as a foreign language: An overview. *Procedia-Social and Behavioral Sciences*, *31*, 73-81. http://dx.doi.org/10.1016/j.sbspro.2011.12.019

Rajoo, F. X. A., & Selvaraj, B. (2010, December). *Metacognitive awareness of reading strategies*. Proceedings from the *2010 International Conference on Science and Social Research* (pp. 1301-1304). Retrieved from http://xplorebcpaz.ieee.org/stamp/stamp.jsp?tp=&arnumber=5773739

Ryan, A., & Meara, P. (1992). The case of the invisible vowels: Arabic speakers reading English words. *Reading in a Foreign Language, 7*, 531-531. Retrieved from http://www.nflrc.hawaii.edu/rfl/PastIssues/rfl72ryan.pdf

Schraw, G. (1998). Promoting general metacognitive awareness. *Instructional Science*, *26*, 113-125. http://dx.doi.org/10.1023/A:1003044231033

Sheorey, R., & Mokhtari, K. (2001). Differences in the metacognitive awareness of reading strategies among native and non-native readers. *System, 29*, 431-449. http://dx.doi.org/10.1016/S0346-251X(01)00039-2

Singhal, M. (2001). Reading proficiency, reading strategies, metacognitive awareness and L2 readers. *The Reading Matrix*, *1*. Retrieved from http://www.readingmatrix.com/articles/singhal/index.html

Song, M. J. (1998). Teaching reading strategies in an ongoing EFL university reading classroom. *Asian Journal of English Language Teaching*, *8*, 41-54. Retrieved from http://www.cuhk.edu.hk/ajelt/vol8/art3.htm

Spray, E., Scevak, J., & Cantwell, R. (2013). Personal epistemological and metacognitive awareness in first year preservice education students. *Australian Journal of Educational & Developmental Psychology, 13*, 44-57. Retrieved from http://www.newcastle.edu.au/__data/assets/pdf_file/0010/100243/V13_Spray_Scevak_Cantwell.pdf

Tarricone, P. (2011). *The taxonomy of metacognition*. New York: Psychology Press.

Tierney, R. J., & Readence, J. E. (2000). *Reading strategies and practices: A compendium*. Needham Heights, MA: Allyn and Bacon.

Vandergrift, L., Goh, C., Mareschal, C. J., & Tafaghodtari, M. H. (2006). The metacognitive awareness listening questionnaire: Development and validation. *Language Learning*, *56*, 431-462. http://dx.doi.org/10.1111/j.1467-9922.2006.00373.x

Veenman, M. V., Van Hout-Wolters, B. H., & Afflerbach, P. (2006). Metacognition and learning: Conceptual and methodological considerations. *Metacognition and Learning*, *1*, 3-14. http://dx.doi.org/10.1007/s11409-006-6893-0

Vrugt, A., & Oort, F. J. (2008). Metacognition, achievement goals, study strategies and academic achievement: pathways to achievement. *Metacognition and Learning*, *3*, 123-146. http://dx.doi.org/10.1007/s11409-008-9022-4

Wade, S. E., & Reynolds, R. E. (1989). Developing metacognitive awareness. *Journal of Reading, 33*, 6-14. Retrieved from http://search.proquest.com/docview/63034924?accountid=4840

Weil, L. G., Fleming, S. M., Dumontheil, I., Kilford, E. J., Weil, R. S., Rees, G., Dolan, R. J., & Blakemore, S. J. (2013). The development of metacognitive ability in adolescence. *Consciousness and Cognition, 22*, 264-271. http://dx.doi.org/10.1016/j.concog.2013.01.004

Wenden, A. L. (1998). Metacognitive knowledge and language learning. *Applied Linguistics, 19*, 515-537. http://dx.doi.org/10.1093/applin/19.4.515

Zimmerman, B. J. (1995). Self-regulation involves more than metacognition: A social cognitive perspective. *Educational Psychologist, 30*, 217-221. http://dx.doi.org/10.1207/s15326985ep3004_8