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Evaluating the Effect of Metacognitive Strategy Training on Reading Comprehension of Female Students at KAU

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Abstract

Successful reading requires the application of different reading strategies. Reading strategies related to metacognition, which is "thinking about thinking", have been investigated extensively and have proven to be effective in improving reading comprehension in EFL and ESL contexts. This study aimed to explore the level of metacognitive awareness of EFL learners at King Abdulaziz University (KAU). Additionally, it aimed to examine how metacognitive strategy training can raise learners' metacognitive strategy awareness and as a result enhance their reading comprehension. Two instruments were used to find answers to these questions: the MARSI survey, which was used to measure the participants' metacognitive awareness; and reading comprehension tests, which were used to examine their comprehension level. Both instruments were used on two occasions: once before the training sessions and once after them. The training sessions focused on three metacognitive reading strategies: planning, monitoring and evaluating. The results indicated that systematic and direct instruction had a positive effect in improving the participants' metacognitive reading strategy awareness as well as their reading comprehension, even when they had a moderate level of metacognitive awareness prior to the training sessions. The findings of the study are significant in guiding EFL instructors at KAU as well as other tertiary institutors in similar contexts to assist learners in improving their reading comprehension.

Keywords: metacognitive reading strategies, metacognitive awareness, reading comprehension

1. Introduction

1.1 Statement of the Problem

The Ministry of Education in the Kingdom of Saudi Arabia (KSA) obliges all students to take general English language courses for seven years (primary, intermediate and secondary school) before they reach tertiary education. However, a large number of foundation year students enrolled at King Abdul Aziz University (KAU), who are considered EFL learners, are not proficient English language users. More specifically, they are unable to read for understanding or for meaning, and thus the strategies they utilize to answer reading comprehension questions are far from actual "comprehension". As one of the basic language skills, reading is, as defined by Karbalaei (2010), an interactive and dynamic process. If understanding the text is the main objective of reading, then reading is "a meaning-construction process" (Al-Rubaye, 2012, p. 11) and an essential skill for all language learners that is fundamental to their academic success. Furthermore, reading is of paramount importance to EFL learners more so than other learners as their exposure to the English language is limited. Therefore, reading constitutes the greatest source of English language exposure to them (Wang, 2009).

Recent research in reading strategies has focused on metacognitive strategies of reading. Metacognition is an expression that broadly means "cognition about cognition or thinking about thinking" (Carrell, 1998, p. 1). It includes the knowledge, awareness and control of one's learning processes (Baird, 1990; O'Malley & Chamot, 1990). The use of metacognitive strategies may provide an opportunity for KAU students to improve their reading skills, as was shown by the many studies conducted in different English as a Foreign Language (EFL), English as a Second Language (ESL) and native English speaking contexts.

1.2 Significance of the Study

Numerous empirical studies have demonstrated the positive influence metacognitive reading strategy training has on raising ESL and EFL students' awareness of metacognitive strategies, in turn enhanced their reading comprehension. However, few studies have been conducted in the Saudi context in particular, and none in the context of the English Language Institute (ELI) at KAU specifically. This study aims at exploring the level of metacognitive awareness students have as they begin their tertiary education as well as improving their reading comprehension ability through

metacognitive reading strategy training. This training includes training them to plan for, monitor and evaluate their own comprehension while reading general English language texts. For this reason, the Metacognition theory will be adopted as the theoretical framework of this study.

1.3 Research Questions

1) To what extent are students of the foundation year at KAU aware of the metacognitive reading strategies?

2) To what extent can metacognitive strategy training raise the awareness of metacognitive reading strategies among the foundation year students at KAU?

3) To what extent can metacognitive strategy training improve the reading comprehension of foundation year students at KAU?

2. Literature Review

2.1 Reading Strategies

In an attempt to define reading strategies, numerous definitions have been developed by researchers in the field (Carrell, 1998; Duffy, 1993; Philip, Hua, Samarahan, Meranek, & Kuching, 2006; Shanahan et al., 2010). All of these definitions summarize reading strategies as a a wide range of problem-oriented plans or techniques that individual readers employ intentionally when reading a text in order to construct meaning.

Pervious research studies have used a variety of classification systems to classify reading strategies (Alsamadani, 2008). One of these classifications differentiates between cognitive and metacognitive strategies. This distinction focuses on the difference between mastering an array of reading strategies (cognition), and being aware of their use including monitoring and regulating these strategies as they take place during reading (metacognition). The distinction between these two concepts is crucial to understanding the importance of metacognition. Many researchers (Flavell, 1987; Gunstone & Northfield, 1994; Paris & Winograd, 1990) have related metacognition to important features of learning, recommending that it be included in educational systems and school curricula (Noushad, 2008).

2.2 Metacognition

The term metacognition was coined by John Flavell (1976). He defined metacognition as "one's knowledge concerning one's own cognitive processes and products or anything related to them" (p. 232). In other words, metacognition is an expression that is often defined as "cognition about cognition or thinking about thinking" (Carrell, 1998, p. 1). Li and Munby (1996) characterized metacognition as the capability of an individual to consciously observe him/herself. Moreover, as the previous definitions refer to the knowledge and awareness of one's own mental processes, Flavell (2004) adds another layer to the concept, which is the notion of control. He describes metacognition as "any knowledge or cognitive activity that takes as its object, or regulates, any aspect of any cognitive activity" (p. 275). Therefore, metacognition consists of two dimensions, the knowledge and awareness of one's own mental processes in addition to the ability to direct those processes towards a specific target (Baird, 1990; Harris & Hodges, 1995; O'Malley & Chamot, 1990).

2.2.1 Metacognitive Knowledge

Metacognitive knowledge refers to the knowledge and awareness of one's own learning processes (Wenden, 1998). It represents what individuals are aware of and know about themselves regarding cognitive processors, different learning and problem-solving techniques, as well as being aware of the requirements of a certain task (TEAL, 2012). Metacognitive knowledge is divided into three components (Paris, Lipson, & Wixson, 1983):

A) Conditional Knowledge: refers to knowing "why" to use a specific strategy in a specific situation. It includes the learner's evaluation for the use of a certain strategy at a certain time.

B) Declarative Knowledge: refers to knowing "what" a certain strategy such as skimming or scanning is.

C) Procedural knowledge: refers to knowing "how" to apply a particular strategy, for example, how to summarize or how to scan a text.

2.2.2 Metacognitive Regulation

On the other hand, the second dimension of metacognition - metacognitive regulation - has an "executive or regulatory function" (Carrell, 1998, p. 5) as it involves control and adjustment factors. It refers to the planning, monitoring, testing, revising, and evaluating of the strategies employed during reading (Baker & Brown, 1984). As the individuals make adjustments to their mental processes, they are actually controlling their learning. Monitoring comprehension, and assessing progress and goals are examples of metacognitive regulation (TEAL, 2012). Metacognitive regulation is of a great significance, as it is one of the techniques learners or readers use to observe and control their own comprehension, which therefore leads to better understanding and enhanced comprehension.

According to Fogarty (1994), metacognition with its two dimensions is a process that consists of three stages or phases: planning, monitoring and evaluating. These three stages represent the metacognitive reading strategies focused on in the current study.

2.3 Metacognitive Reading Strategies

2.3.1 Planning

Planning takes place at the pre-reading phase. The ability to plan plays a tremendous role in learning (Palinscar & Brown, 1984; Zimmerman & Pons, 1986). It involves mastering strategies such as: previewing a reading text, activating prior knowledge, predicting, goal setting and creating an agenda or a plan for the reading process.

2.3.2 Monitoring

After the planning stage, readers start to apply their plan while reading. At the monitoring phase, the reading strategies selected in the planning phase are used. However, the application of this strategy may lose its efficiency as reading takes place. For this reason, monitoring is essential in order to maintain the effectiveness of the strategy use and the quality of comprehension. Schraw (1998) defines monitoring as "one's on-line awareness of comprehension and task performance" (p. 115). To be able to monitor their reading, readers should engage in critical thinking. This involves criticizing the progress of their comprehension towards previously set goals and scrutinizing their decisions about the use of strategies, allocation of time, and mental effort (Magno, 2010). As a metacognitive reading strategy, monitoring can be reinforced through strategies like self-questioning and self-regulating.

2.3.3 Evaluating

Facione (1990) claims that examining one's cognitive processes is included in the evaluating stage. Schraw (1998) defines evaluating as "appraising the products and efficiency of one's learning" (p. 115). This explains that evaluating, as the last metacognitive phase of reading, involves assessing the overall quality of reading. In other words, thinking about the overall performance of the reader during the two previous phases.

2.4 Metacognitive Reading Strategy Training

Many studies on metacognitive reading strategy training have been conducted around the world and have proven to be effective in improving the readers' ability to comprehend texts. Examples of relevant studies that have been carried out recently in different contexts are mentioned below.

A study by Mahadi and Subramaniam (2013) about the role of metacognitive strategies in enhancing language performance referred to two studies (Kosnin, 2007; Saad, Tek, & Baharom, 2009) carried out in the Malaysian context where English is taught as a foreign language. The studies investigated the impact of using metacognitive strategies on academic achievement. Both studies utilized the Motivated Strategies for Learning Questionnaire (*MSLQ)* to test the participants' metacognitive strategy use and awareness. The first study (Kosnin, 2007) focused on the relationship between high academic achievement and the use of metacognitive strategies, while the second (Saad et al., 2009) focused on gender differences in using metacognitive learning strategies in relation to academic achievement. The results of the two studies found that the use of metacognitive strategies have a positive effect on low achievers' academic performance as the strategies helped learners' develop the mastery of planning, monitoring and evaluating their own performance. The studies also found that the use of metacognitive strategies helped successful learners maintain high levels of motivation as well. Regarding gender influence, the second study found that gender had no significant effect on motivation or on learning strategy use.

ElMekawy (2014) conducted a study at the British University in Dubai that examined first-year university students' level of metacognitive strategy awareness in academic reading. For this purpose, she used the Metacognitive Awareness of Reading Strategy Inventory (*MARSI)* to collect data from the participants, who although were not all native speakers, had a native level of English language proficiency in reading and communication skills. ElMekawy compared the participants responses to the survey with their actual use of metacognitive strategies when they were asked to read and summarize a part of their textbook. Although the results of the inventory showed the participants to have a medium to high level of metacognitive awareness of reading strategies, these results had no impact on their actual use of the strategies while reading. The reason for the inconsistency between how the participants perceived themselves as readers and how they actually acted while reading is due partly to the fact that they did not receive any metacognitive strategy instruction - instruction that would train them on planning, monitoring, and evaluating their own metacognitive strategies while reading. This finding emphasizes the positive role of metacognitive reading strategy training, even for learners with high language proficiency.

In the Romanian context, where English is considered a foreign language, a study was carried out by Ramona Henter (2012) that investigated the benefits of metacognitive strategy training on EFL learners' reading comprehension skills. The study involved the participation of only one student with lower-intermediate English language proficiency. The researcher used the *MARSI* survey to measure the student's level of metacognitive awareness before and after the training period, which took place in separate sessions during an academic semester. The study indicated three significant results. It showed a great improvement in the participant's level of awareness of metacognitive reading strategies and in her overall English language proficiency level. It also showed that metacognitive strategies can be successfully taught in classes that are separate from regular language classes. Finally, it demonstrated that the use of these metacognitive strategies can be generalized to use in other academic subjects, as reported by the participant.

3. Methodology

In order to answer the previously stated research questions, the study consists of three main stages that utilize multiple methods for data collection. The first stage aims to discover the level of metacognitive awareness students already had at the time of the research study, before receiving any training, as well as their reading comprehension skill at the time. The second stage of the study involves the training sessions and the instruction given to the participants aimed at raising the level of their metacognitive awareness and therefore their reading comprehension. The third and last stage took place after the training sessions were completed and aimed to examine the effects of the metacognitive training sessions on the students' metacognitive awareness and reading comprehension skill.

3.1 Participants

This research study was carried out at King Abdul Aziz University (KAU). It involved the participation of 14 foundation year students who were selected from a randomly chosen class. All of the participants were Saudi nationals.

Their ages ranged between eighteen and nineteen years old. The class was selected from the female campus of the university. Thus, the study is limited to female students only.

During the foundation year all freshman students at KAU study general subjects from a variety of fields in addition to four levels of a general English language course distributed over four modules. Students are enrolled into the English courses at the beginning of the academic year according to their scores in a placement test prepared by Oxford Online and administered by the English Language Institute (ELI) of KAU. Students who are directly placed into the fourth level English course based on the results of the placement test usually accurately represent the proficiency level they are placed in. However, students who are assigned to level one and must subsequently complete all four levels of the program are generally weaker students who will then reach the fourth level of the program with weaker proficiency than expected. The participating class was from the fourth level and the students had lower language proficiency level than presupposed in level four.

Formal approval from the ELI was obtained to conduct the study as well as consent from the students in the participating class. Participation in the study was voluntary. The researcher clarified that the students' participation in the study would not affect their grades in any way.

3.2 Instruments

3.2.1 Metacognitive Awareness of Reading Strategy Inventory (MARSI):

The Metacognitive Awareness of Reading Strategy Inventory *(MARSI)* designed by Mokhtari and Reichard (2002) is one of the few instruments that is specially designed to measure metacognitive awareness and use of strategies related to reading academic materials for adolescent and adult readers (Bentahar, 2012). It is a self-report survey that allows learners to assess their own cognitive and metacognitive activities using a Likert scale that ranges from 1 (I never do this) to 5 (I always do this). The scores the readers obtain by answering the survey fall into three categories. A mean of 3.5 or higher indicates high use of strategy, 2.5 to 3.4 indicates moderate strategy use, and a mean of 2.4 or lower indicates low use of strategy. The structure of the survey consists of thirty statements distributed into three categories:

- Global reading strategies *(GLOB)* question the readers' cognitive processes concerning the holistic analysis of a text. These strategies take place before reading and aim at preparing the reader for reading (such as goal-setting and predicting).
- Problem-solving strategies *(PROB)* investigate the problem-oriented actions that readers take in order to find solutions for comprehension problems or difficulties. These strategies take place during reading (such as re-reading for better comprehension).
- Support strategies *(SUP)* address employing functional strategies that involve utilizing external reference material such as dictionaries, note-taking and summarizing to assist reaching the specified goals of the reading task.

The researcher translated the survey into Arabic - the first language of the participants - to facilitate their understanding of the survey items, in turn encouraging them to give fairer and more reflective responses. To enhance the credibility of this research study, six native Arabic speaking English language teachers and ten foundation year students piloted the Arabic version of the inventory.

3.2.2 Two Comprehension Tests.

Two comprehension tests were used to evaluate the participants' comprehension skills before and after the intervention. Each test required the participants to read a passage that consisted of around 300 words and answer ten subsequent comprehension questions. The two reading comprehension passages were chosen from two ELT websites: (ESL.lounge, 2015; Pearsonlongman, 2012). Both texts were of a relatively similar level of difficulty and both included vocabulary and grammar structures that the students had studied in previous courses. Each reading test contained two parts. The first part was comprised of five True or False items. The second part was comprised of five information questions. Each correct response was designated a score of one (1) while each incorrect response was designated a score of zero (0). Before using the two comprehension tests in the study, the tests were piloted by six English language teachers and ten foundation year students.

3.3 Procedure

The training period consisted of nine sessions; each one lasting ninety minutes. The first session was used to complete the first MARSI survey and the first comprehension test. Students were given thirty minutes to respond to the survey and one hour to answer the comprehension test. The second session contained an introduction to the training program, including an introduction to the research study and its foreseeable benefits. Starting in this session and continuing until the eighth session, explicit and direct instructions were given to the students to clarify the concept and usage of the three metacognitive reading strategies: planning, monitoring, and evaluating. The researcher modeled the use of each strategy and allowed the students to apply them in class using a "gradual release of responsibility" (Shanahan et al., 2010, p. 68) where the teacher explains the strategy explicitly and models its use then gradually turns the responsibility over to the students to apply it independently. The reading material was taken from the students' textbook, New Headway Plus®. The students were reminded about the strategies that were explained at the beginning of each class. The instruction was presented in the Arabic language to facilitate understanding and to save time as the goal of the training sessions was not to test the students' language proficiency level, but rather to offer thorough and explicit explanation of metacognitive reading strategy awareness and use. The last session was used to collect data by distributing the second MARSI survey and comprehension test. As with the firs test, the students were given half an hour to complete the MARSI survey and an hour to complete the second comprehension test.

4. Results

4.1 Descriptive Statistics

4.1.1 Prior to Training Data

The following tables display the participants' results during the first stage of the study. Table 4.1 describes the participants' responses to the first MARSI survey, and table 4.2 describes their performance in the first reading comprehension test.

Table 4.1 The sample statistics of the first MARSI responses

	Overall Score	GLOB	PROB	SUP
	2.4	2.8	2.5	1.6
	2.8	2.6	2.7	3.2
	3.1	3.1	3.2	3.1
	3.3	3.3	3.6	3.3
	3.3	2.8	3.6	3.7
	3.4	3	4.2	3.4
	3.5	3.4	3.5	3.5
	3.5	3.4	3.8	3.3
	3.5	3.6	4.1	2.7
	3.5	2.9	4.1	3.7
	3.6	3.3	4.1	3.5
	3.6	3.4	3.5	3.8
	3.8	3.4	4.1	4.2
	3.9	3.8	4.3	3.6
Mean	3.37	3.20	3.66	3.32
N	14	14	14	14

Table 4.2 The sample statistics of the first reading comprehension test

	Overall Score out of 10	True/ False out of 5	Wh- Questions out of 5
	2	2	0
	2	1	1
	3	2	1
	3	0	3
	4	2	2
	5	3	2
	5	5	0
	5	4	1
	5	4	1
	5	3	2
	5	3	2
	5	3	2
	6	4	2
	7	4	3
Mean	4.42	2.85	1.57
N	14	14	14

According to Mokhtari and Reichard (2002), the mean score of 3.5 or higher represents high use of metacognitive strategies, a mean scores between 3.4 and 2.5 represents medium use of metacognitive strategies, and the mean score of 2.4 or lower represents low metacognitive strategy use. This reflects the general level of awareness the participants have regarding metacognitive reading strategies. Table 4.1 provides statistics that show the overall score each participant obtained in the first MARSI survey as well as their scores in each subscale separately. The majority of the participants reported high use of metacognitive reading strategies as five of them obtained medium scores and only one participant obtained a low score, while the remained obtained high scores. By considering the mean score calculated, we find that it is medium (3.37), which in turn indicates moderate awareness and use of metacognitive reading strategies among the participants at this stage. The mean scores of the subscale strategies GLOB (3.20) and SUP (3.32) also indicate moderate awareness and use of the strategies under these categories while the mean score of the PROB subscale strategies (3.66) indicates high awareness and use of these strategies.

Table 4.2 describes the overall scores of the participants in the first reading comprehension test, which is calculated out of 10 points. It also displays their grades for each question type in the test and these are out of 5 points. To make it easier to interpret, the grades of the reading comprehension tests used in this study are designated typical letter grades from A to F as follows: 9-10 =A, 8,75-6.75 =B, 6.50-4.50 =C, 4.25-2,25 =D and 2-0 =F.

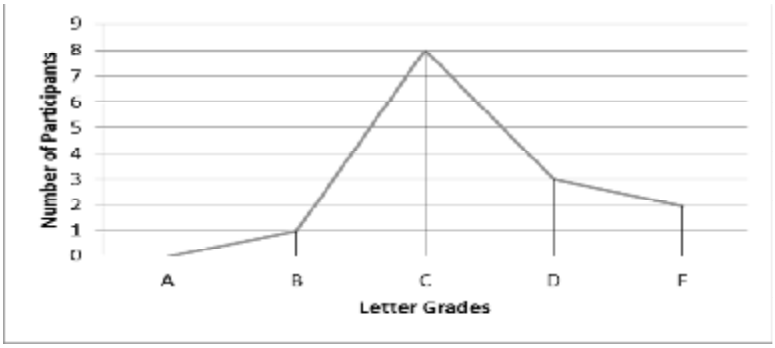

Figure 4.1 First reading comprehension test grades

Figure 4.1 above highlights that the majority of the participants obtained a C grade in the first reading comprehension test. None of them obtained an A grade, while only one participant obtained a B grade, three obtained D grades and two obtained F grades. The mean score of the overall test is 4.42, which is equivalent to a C grade after rounding. The mean scores of each question type also indicate low performance, 2.85 for True or False items and 1.57 for Wh- questions.

4.1.2 After-Training Data

The following tables display the participants' results during the last stage of the study. Table 4.3 illustrates the participants' responses in the second MARSI survey, while table 4.4 shows their performance in the second comprehension test.

Table 4.3 The sample statistics of the second MARSI responses

	Overall Score	GLOB	PROB	SUP
	3.5	3.8	3.1	3.3
	3.7	4.4	3.1	3.3
	3.8	3.9	4.5	3.2
	3.8	3.3	3.8	4.3
	3.8	3.9	4	3.4
	3.9	4.2	4.3	3.2
	4.1	4	4.3	4.2
	4.1	4	4.8	3.6
	4.2	4.4	4.3	3.7
	4.3	4	4.3	4.7
	4.3	4.9	4.3	3.5
	4.5	4.1	5	4.5
	4.6	5.5	3.8	4
	5.7	7.1	4.6	4.7
Mean	4.16	4.39	4.15	3.82
N	14	14	14	14

Table 4.4 The sample statistics of the second reading comprehension test

	Overall Score out of 10	True/ False out of 5	Wh- Questions out of 5
	4	2	2
	3	2	1
	4	2	2
	4	1	3
	4	2	2
	6	3	3
	5	3	2
	6	2	4
	5	2	3
	5	2	3
	5	3	2
	6	3	3
	7	3	4
	7	5	2
Mean	5.07	2.50	2.57
N	14	14	14

As shown in table 4.3, all of the scores obtained at this stage indicate a high usage of metacognitive reading strategies for all of participants. This is also indicated by the mean score of the sample (4.16). Likewise, all of the scores indicate high use of GLOB strategies, which is reflected in the mean score of the sample (4.39). Although, PROB and SUP scores indicate high to medium use of these two types of strategies, their mean scores still indicate high use as PROB strategies' mean score is 4.15 and SUP strategies' mean score is 3.82.

Table 4.4 provides the descriptive statistics of the scores the participants obtained in the second reading comprehension test. It includes the overall test scores as well as the scores categorized by question type (True or False and Wh-questions). The mean score of the overall test is 5.07; whereas the mean scores for the True or False question is 2.50 and 2.57 for the Wh- question.

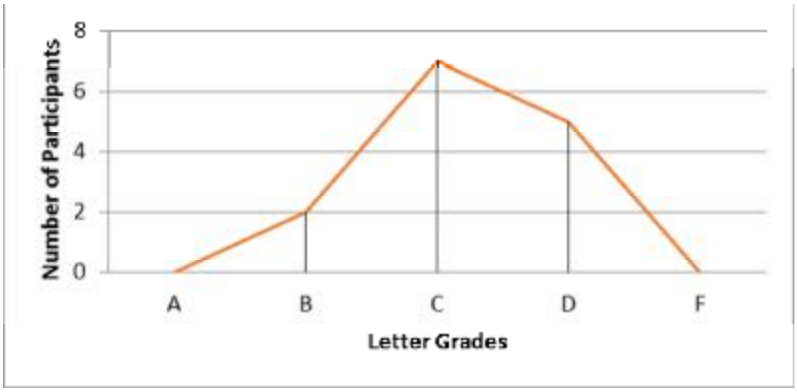

Figure 4.2 Second reading comprehension test grades

When classifying the grades according to the typical letter grades from A to F, we find that none of the participants obtained either A nor F grades. All of the grades fell into B, C and D grade categories. The majority of the grades were C while five of them were D and only two were B, as is shown in figure 4.2.

4.2 Inferential Statistics

In order to carry out a comparison between the data collected prior to the intervention and the data after the intervention, a dependent-samples t-test (also known as paired-sample t-test) was applied. The aim was to examine the effectiveness of the metacognitive reading strategy training in enhancing the participants' awareness of the metacognitive reading strategies and in improving the participants' reading comprehension skills. The following tables highlight the inferential statistics for the data collected in the first and the third stages of this study.

4.2.1 MARSI Data

Table 4.5 illustrates the figures obtained from carrying out the dependent-sample t-test. The results indicate that there is a statistically significant difference between the scores of the overall MARSI survey before and after the metacognitive training sessions, t(13)=-8.765 with p value that is less than 0.05 (p≈0.000). With regards to the subscale strategies, it is evident that the difference between the scores obtained before and after the training sessions is statistically significant in each one of them with p<0.05: GLOB: t(13)= -5.510, p≈0.000, PROB: t(13)= -3.712, p=0.003 and SUP: t(13)= -3.060, p=0.009.

Table 4.5 Dependent-samples statistics for MARSI

	Mean	Std. Deviation	Std. Error Mean	T	Df	Sig. (2-tailed)
Overall Score	-0.79	0.33	0.09	-8.765	13	0.000
GLOB	-1.19	0.81	0.21	-5.510	13	0.000
PROB	-0.49	0.49	0.13	-3.712	13	0.003
SUP	-0.50	0.63	0.16	-3.060	13	0.009

4.2.2 Comprehension Tests Data

Similarly, table 4.6 shows that there is a statistically significant difference between the scores of the overall reading comprehension tests before and after the metacognitive training sessions, t(13)= -3.798, p= 0.002. In addition, the Wh-questions' score difference appears to be statistically significant: t(13)= -3.373, p= 0.005. However, the difference between the scores of the True or False questions appear to be statistically insignificant t(13)= 1.235, p= 0.239.

Table 4.6 1Dependent-samples statistics for the reading comprehension tests

	Mean	Std. Deviation	Std. Error Mean	T	Df	Sig. (2-tailed)
Overall Score	-0.64	0.63	0.16	-3.798	13	0.002
True/ False	0.35	1.08	0.28	1.235	13	0.239
Wh-Questions	-1.00	1.10	0.29	-3.373	13	0.005

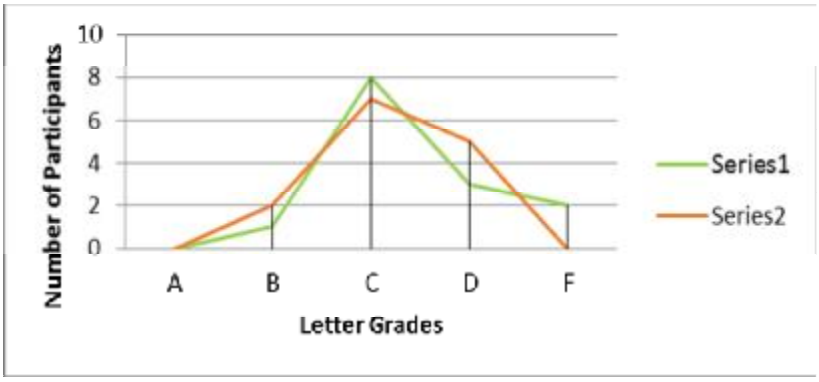

Figure 4.3 Grades of the two reading comprehension tests

Additionally, the previous figure provides a visual comparison between the letter grades students obtained in both tests. (Series 1) represents the results of the first reading comprehension test, while (Series 2) represents the results of the second comprehension test. The second test results form a line that is closer in shape to a bell curve. It shows an increase in values in the B and D grade results, a decrease in values in the C grade results, and most importantly, a decrease in values in the F grade results.

5. Discussion

5.1 First Research Question

The first research question of this study examines the extent to which students of the foundation year at KAU are aware of metacognitive reading strategies prior to the training sessions. Based on the descriptive statistics of the prior-to-

training data, the mean score of the overall MARSI survey indicates a moderate level of awareness and use of metacognitive reading strategies among the participants. The mean scores of the subscale strategies also indicate moderate awareness and use of the strategies under each category except for the second subscale PROB, which indicated a high level of awareness and use of these strategies. It seems that the students already have a considerable level of metacognitive reading strategy awareness, even before they received the metacognitive strategy training.

Despite this fact, the results of the first reading comprehension test indicate the participants' proficiency level at the time they answered the first MARSI survey, which is considerably lower than initially presumed. Figure 4.1 reports that none of the 14 participants obtained an A grade, only one participant obtained a B grade, three obtained D grades, and two obtained F grades, while the rest obtained C grades. This indicates that the students' responses to the first MARSI survey do not correspond with their grades in the first reading comprehension test. This lack of correspondence between the responses of the first survey and the results of the first comprehension test can be explained by the following possible interpretation. According to Brown (1987), adult readers find it difficult to report the strategies they actually employ while reading as some of these strategies occur automatically and covertly making the reader unaware of their existence. In other words, the participants may have used certain strategies that they did not report because they were unaware of them. This is understandable at this stage since the participants were unfamiliar with the concept of metacognition and were introduced to it, formally, for the first time during the introductory session at the beginning of the module. In addition, it is possible that the participants may have also reported strategies that they believed they knew and used during reading, while in actual fact they only knew what the strategies were, but they did not know how, when or why to use them properly (ElMekawy, 2014). This means that it is possible that they had the knowledge of the reading strategies, yet did not have regulation or control over these strategies. As mentioned previously, metacognition involves two main dimensions: *metacognitive knowledge,* which refers to the knowledge about the strategies: declarative knowledge (knowing what), conditional knowledge (knowing why) and procedural knowledge (knowing how), as well as *metacognitive regulation,* which refers to the control and adjustment of these strategies. The participants at this stage clearly lacked procedural and conditional knowledge and instead only had the declarative knowledge that allowed them to know what a strategy is without knowing why or how to apply it. Additionally, they lacked *metacognitive regulation,* which would have provided them with the ability to control the strategies they employed while reading. If the readers lack control over the strategies they use, they are then classified as "unskilled readers" according to Paris and Jacobs (1984). This, in turn explains the participants' low performance in the first reading comprehension test, which caused the inconsistency between what they reported in the first MARSI survey and what strategies they actually used in the first reading comprehension test. Many previous studies have had similar results such as (ElMekawy, 2014; Perry & Winne, 2006; Phifer and Glover 1982). In her study that investigated the metacognitive awareness of reading strategies among freshmen students at the British University in Dubai, ElMekawy (2014) concluded that the participants of her study, just like the participants of the current study, perceived themselves as having a considerably higher level of metacognitive reading strategy awareness than the actual cognitive and metacognitive strategies they applied while reading.

5.2 Second Research Question

The second research question investigates the extent to which metacognitive reading strategy training sessions can raise participants' awareness of metacognitive reading strategies. The inferential statistics reveal that a statistically significant difference was found between the scores of the MARSI survey before and after the metacognitive training sessions with regards to the overall scores as well as the scores of each one of the subscale strategies where the calculated p value was less than 0.05. This indicates that the metacognitive strategy training sessions had a positive effect on raising the participants' awareness of metacognitive reading strategies.

Although the participants reported a moderate level of metacognitive awareness even before they received the metacognitive strategy training, we found that their level of awareness had increased after the training. This finding supports the idea that the metacognitive strategy training sessions helped the participants to understand not only what a reading strategy is, but also when, why and how to use it. Therefore, the training sessions raised both the metacognitive regulation and the metacognitive knowledge of the participants. In a similar study that examined the effect of metacognitive strategy training on enhancing vocabulary development and reading comprehension, Cubukcu (2008) found that the explicit systematic instruction of metacognitive strategies helped participants think metacognitively about different strategies. In the case of the present study, metacognitive strategy training also resulted in better awareness of metacognitive reading strategies, as reported by the participants in the second MARSI survey that followed the training sessions.

The three metacognitive reading strategies selected in this study: planning, monitoring, and evaluating involved training the participants on the use of strategies that are in line with strategies measured in the MARSI survey itself. First, the global reading strategies (GLOB) mentioned in the survey include statements that question many of the strategies related to the three metacognitive strategies analyzed in this study. For instance, strategies about goal setting, previewing the text, activating and connecting information to prior knowledge, predicting and creating a plan or an agenda for the reading task are all, among others, related to *planning* as a metacognitive reading strategy. In addition, GLOB strategies involve analyzing, constantly evaluating the text's information and continuously checking understanding, which are related to *monitoring* as a metacognitive reading strategy. GLOB subscale strategies also include a statement that investigates if the predictions made about the text in the planning phase match the information actually mentioned in the text, which is a strategy related to *evaluating* as a metacognitive reading strategy. Likewise,

the problem-solving subscale strategies (PROB) comprise statements about self-questioning and self-regulating, which are the core of the *monitoring* metacognitive strategy. Finally, the support reading strategies (SUP) contain statements that are related to both the *monitoring* and the *evaluating* metacognitive strategies. In relation to *monitoring*, its statement question note-taking and restating to understand main ideas, whereas checking if the answers to the text's questions are found in the text itself or not is related to *evaluating*. Thus, teaching students to use these strategies during the training sessions raised their awareness and understanding of these strategies, which in turn resulted in better awareness levels reported in the second MARSI survey.

Finally, according to Mokhtari & Reichard (2002), the MARSI survey as a tool to measure the awareness of metacognitive reading strategies is beneficial in increasing students' awareness as well as their use of strategies while reading. This increased level of awareness means their reading is more thoughtful and responsive. In addition, increased awareness makes students more responsible readers by enabling them to take on the responsibility of monitoring their own learning and understanding. These changes should then affect their level of comprehension when reading texts, which in this study was examined through the use of two reading comprehension tests administered before and after the training sessions. The results of these tests are discussed in detail in the following section.

5.3 Third Research Question and Hypotheses

The third and last research question examines the extent to which metacognitive reading strategy training sessions can improve participants' reading comprehension. The inferential statistics reveal that a statistically significant difference exists between the scores of the overall reading comprehension tests before and after the metacognitive training sessions with p value equaling less than 0.05. With regards to the score for the Wh- questions, the difference appears to be statistically significant as well, with a p value that is less than 0.05. With these results, we can reject the null hypothesis and accept the alternate hypothesis. The metacognitive reading strategy training sessions have positively affected the reading comprehension of the participating foundation year students at KAU.

These findings can be explained by looking once more at the metacognitive strategies selected in this study: planning, monitoring and evaluating. These three metacognitive reading strategies are in line with the three stages of reading: pre-reading, reading and post-reading. Because reading requires critical thinking before, during, and after the process is completed, the alignment of the three metacognitive strategies with these three logical stages of reading served the goal of this study which was to enhance the participants' reading comprehension levels. This enhancement was demonstrated in their performance in the second reading comprehension test after the metacognitive training sessions were completed. Similarly, a study done by Saricoban (2002) investigated the strategies used by successful and less successful readers in an EFL context. The study revealed that strategy training plays an important role in improving the reading skills in an EFL context, especially through the three-phase approach which refers to the pre-reading, reading and post-reading stages. The alignment and similarity between these three reading phases and the three metacognitive reading strategies used in the training sessions of the current study led to similar positive effects on the participants' comprehension skills.

Furthermore, the three metacognitive reading strategies examined in this study themselves work on developing reading comprehension. For instance, the fundamental role of the readers' background knowledge as emphasized in the *planning* strategy, is supported by the schema theory. The schema theory suggests that the background knowledge of the reader interacts with the reading text and that is when comprehension occurs (Saricoban, 2002). According to Bentahar (2012), skilled readers are aware of their metacognition, and they usually revisit their background knowledge while planning, unlike unskilled readers who are less proficient in this regard. Moreover, according to Marchant (2001), metacognition focuses on the process of problem-solving. The participants of this study were trained to deal with problems that appear while reading by regulating their cognition within the *monitoring* metacognitive strategy. Finally, according to Noushad (2008), metacognition involves critical reviewing of the reading process. After the task is completed, readers critically evaluate the strategies they used and the problems they encountered during the reading process. This also includes evaluating the conclusions drawn at the end of the reading process and their connections with the predictions made and the goals set at the beginning of the task. The participants of the current study were trained how to do this when looking at the last metacognitive strategy, *evaluating*. All of these aspects of the metacognitive strategies work together to enhance the readers' ability to comprehend reading texts.

Another explanation of the positive results of the training sessions can be attributed to the reduced level of anxiety in the participants. According to Krashen's affective filter hypothesis, learners with low anxiety have high motivation and self-confidence and are more likely to succeed in second language acquisition. On the contrary, learners with high anxiety have low motivation and self-confidence and are less likely to succeed in second language acquisition. In the case of the current study, two factors aided in the reduction of the participants' anxiety levels and the augmentation of their motivation and self-confidence. Both of these factors are related to the metacognitive training sessions. The first factor is the metacognitive awareness the participants had after the training in relation to the strategies they use while reading which allowed them to strengthen their cognitive processes and in turn feel more confident and less anxious. The second factor is the fact that the instruction of the training sessions was direct and was conducted in the participants' L1 (Arabic). Using the participants' first language during instruction facilitated their understanding, allowing them to grasp the concept of metacognition as well as the strategies involved. This made understanding the strategy itself their primary concern rather than decoding new words in L2 (English).

Nevertheless, when looking at the participants' scores to the True or False questions, it was found that the difference between the scores in the first test and the second one appear to be statistically insignificant with a p value that is more than 0.05, which means that the metacognitive reading strategy training had no positive effect on developing the

participants' performance regarding this question type. There are two explanations for this negative outcome. The first is related to the comprehension tests themselves. Although the two tests were taken from well-known ELT websites (ESL.lounge, 2015; Pearsonlongman, 2012), they were not examined in terms of their validity and reliability. The tests were only piloted by a small number of students and instructors. This lack of evidence on the tests' validity and reliability hinders the results. The MARSI survey, on the other hand, has been examined for validity and reliability, which made the results drawn from the participants' responses lead to more significant findings. The second possible explanation for such an insignificant value is the duration of the intervention period. The participants were given only nine training sessions due to the limitations of time. This indicates that the students' quite possibly did not have sufficient practice with the metacognitive reading strategies to allow them to master applying these strategies during reading tasks.

As EFL instructors, our students' grades are of great importance to us as well as to the students themselves; as they are seen as an indicator of student development and success. When looking at the bell-curve in figure 4.3, we notice that there is an improvement in the students' grades in the second comprehension test. However, this improvement is insufficient. Although none of the participants received an F grade, the majority of their grades ranged between C and the D grades, as only two out of fourteen participants obtained a B grade. None of the students obtained an A grade even after the training sessions. Once more, the limited number of the training sessions explains the limited improvement in the grades. Many similar studies such as Bentahar (2010), Henter (2012), ElMekawy (2014) and others were conducted using a lengthier timeline, such as an entire academic year or an entire semester. These studies obtained more significant results. Despite this however, Pressley et al. (1992) contend that training on the use of metacognitive strategies such as: planning, monitoring and evaluating has a positive effect on reading comprehension in spite of the length of the training period. This explains the slight improvement in the reading comprehension grades in the second test, where the increase appears to be marginal.

6. Implications for EFL teachers

This study is significant for EFL teachers as it introduces a different type of reading strategies training for students that deals with a higher level of thinking and facilitates reading comprehension. The positive results of this study highlight the flexibility of the metacognitive strategy training and shows that it can be easily applied in EFL classrooms. EFL teachers can introduce metacognitive reading strategies to their students either in separate sessions specified for strategy instruction or within their regular reading classes. Sufficient time for training should be encouraged in order to enhance students' understanding of how to apply metacognitive strategies effectively. Moreover, teachers can use the learners' first language when teaching metacognitive strategies, especially if the learners have a low language proficiency level. Finally, teachers can also encourage their students to apply these strategies on other types of texts in their various fields of study.

7. Recommendations for Further Research

The following recommendations are suggested for further research: Considering gender differences would add significant breadth to the results regarding the metacognitive strategy awareness and use. For this reason, duplicating this study in the male campus of KAU should be considered for future research. Moreover, it is recommended to apply the study on a larger sample in order to better generalize the findings to the whole population and to other contexts. In addition, increasing the duration of the intervention is essential to providing students with the practice they need to master the use of metacognitive strategies when they read a text, therefore enhancing their comprehension and reflecting more significantly on their grades. Furthermore, including a control group in future research studies would provide context and would enrich the findings of the study. Finally, we recommend investigating the reading strategies that foundation year students at KAU depend on most while reading, for it will lead to significant insight into their strengths and weaknesses, helping to guide strategy instruction in the future.

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