The Effect of Using Metacognition Reading Strategies on the Reading Comprehension of Arabic Texts

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Abstract: The purpose of this study was to investigate the effect of using metacognition reading strategies on the reading comprehension of Arabic texts of ninth grade female students. A random sample of (57) of ninth grade female students at Ma'an secondary school for girls in Ma'an Directorate of Education during the academic year 2009/2010, was distributed randomly into two groups: experimental and control groups. Two reading passages were taught to the experimental and control groups, the experimental group was taught the reading passages by metacognition reading strategies, whereas the control group was taught the reading passages by traditional method. To achieve the purpose of the study, a reading comprehension test was used before and after the treatment to measure the equivalence of the two groups with regard to their level of reading comprehension. T-test was used to find out if there was any statistically significant differences at ($\alpha = 0.05$) in the students' reading comprehension. The results of the study showed that there were statistically significant differences at ($\alpha = 0.05$) in the total reading comprehension, the literal reading comprehension, the analytic reading comprehension, and the evaluative reading comprehension. Those differences were attributed to the teaching method in favor of students in the experimental group who taught by metacognition reading strategies. Based on these results, the researcher recommended that there should be more emphasis on using metacognition reading strategies in teaching reading passages in order to improve the students' reading comprehension.

Introduction

Reading is a kind of process in which one needs not only to understand its' direct meaning, but also to comprehend its implied ideas. According to Grabe (1991), reading is an essential skill and probably the most important skill for learners to master in academic contexts. Learners have difficulty achieving academically without comprehending much of what is written in the reading material (Yuko, 2009). In addition, educators assume that reading comprehension leads students' academic success (Jennifer, Lindsey, and Ulana, 2010). Reading comprehension is specifically, the basic goal for students to gain an understanding of the world and of themselves, enabling them to think about and react to what they read (Tierney, 2005). At the beginning of reading instruction, students need to understand that comprehension is the goal and that this process will occur over time (Blachowicz and Ogle, 2001; Reutzal and Cooter, 1999). Reading comprehension is the thinking process used to make meaning of what a person read (Block, Gambrell and Pressley, 2002). Giving the importance of reading comprehension, a vital question is: what kind of instruction best promotes the development of comprehension?

Teachers can help improve students' comprehension through instructional
reading strategies that include modeling, thinking aloud, inferring, summarizing, making connections, questioning, predicting….etc. (Block and Israel, 2005). Research has suggested that comprehension strategies can be taught, and when taught, can develop better processing systems that increase comprehension (Center, Freeman, Robertson and Outhred, 1999; Gambrell and Jawitz, 1993).

The National Reading Panel (2000) pointed out that comprehension strategies are critically important to build strong readers. So, helping students construct meaning from text is an essential and often difficult task especially when many learners lack effective reading strategies that will guide them in the process. Research has shown that teachers who model and explain effective comprehension strategies help students become strategic readers (Almasi, 2003; Pressley, 2002). Accordingly, to engage in reading comprehension effectively, students need to be equipped with effective strategies to help them improvement their reading competency. In addition, Carrell (1998) pointed out that effective comprehension strategies give the students opportunity to elaborate, organize, and evaluate text information. Previous research in the field of reading has demonstrated that reading strategies are major influences on reading comprehension (Jennifer, Lindsey and Ulana, 2010). Some teachers of reading do realize the need of strategic reading, especially when they require their students to go beyond the explicit information in the text. Nevertheless, it appears that the improvement of the ability to develop these strategies cannot be left to chance. Hence, effective comprehension strategies should encourage student and teacher inquiring, connecting the text to the experiences readers bring to the reading process, originating a purpose for reading, and activating complex thinking skills. According to Sarah (2009), the implicit premise is that student who actively engages in particular cognitive and metacognitive strategies (e.g. summarizing, questioning, mental image, text structure, and predicting) are expected to comprehend and recall more of what they read because these strategies enable students to monitor and evaluate their reading process. In addition, there is strong evidence that students can be taught reading comprehension strategies and that such training is effective at progressing their understanding of the text they read (Duke and Pearson, 2005). Research has shown that teachers spend limited time in teaching comprehension strategies and mainly focus on low order questioning, workbook pages, and giving directions (Block and Israel, 2005). Those activities checked for comprehension of the story, but didn't emphasize the processes that good readers used to make meaning from the text. Unfortunately, there is also evidence that comprehension instruction does not occur in many classrooms (Pressley, 2002).

Besides all the evidences presented above, many teachers in Jordan have always complained that many of their students exhibit poor comprehension and are bad readers. The same impression can be obtained by simply looking at students' achievement records. In addition, some students feel that they cannot understand some written text due to their comprehension inadequacy. The comparative lack of studies in this field had led the researcher to investigate the effect of reading strategies on improving the students' reading comprehension skills, and to the best of his knowledge, this study may fill this gap.

**Statement of the Problem**

Since the 1970s, there has been a variety of reading strategies advocated by language learning theorists to teach
students to read well (Carrell, 1989). These strategies include skimming, scanning, contextual guessing, skipping unknown or ambiguous words, critical reading… etc.; all of which recognized as traditional reading skills (Carrell, 1989). In recent years, reading research has shed light on metacognitive reading strategies to improve reading comprehension (Anderson, 1992; Block, 1993; Greenleaf and Schoenbach, 2004). Examples of these strategies that were found to be effective include summarization, prediction, question generating, and visualization (Gambrell and Jawitz, 1993; Rosenshine, Meister and Chapman, 1996). In fact, the researcher has noticed the lack of interest among Arab research in this field. Therefore, this study was an attempt to investigate the effectiveness of using metacognition reading strategies on ninth grade female students' reading comprehension in Ma'an.

**Purpose and Questions of the Study**

The main purpose of this study was to investigate the effect of using metacognition reading strategies on improving the students' reading comprehension skills. More specifically, the study aimed at answering the following main question: Are there any statistically significant differences ($\alpha = 0.05$) in the total reading comprehension of ninth grade female students in Ma'an that can be attributed to using metacognition reading strategies?

Three sub-questions were also derived from the main question:

1- Are there any statistically significant differences ($\alpha = 0.05$) in the literal reading comprehension of ninth grade female students that can be attributed to using metacognition reading strategies?

2- Are there any statistically significant differences ($\alpha = 0.05$) in the analytical reading comprehension of ninth grade female students that can be attributed to using metacognition reading strategies?

3- Are there any statistically significant differences ($\alpha = 0.05$) in the evaluating reading comprehension of ninth grade female students that can be attributed to using metacognition reading strategies?

**Significance of the Study**

The present study emerged from the importance of metacognition reading strategies in reading comprehension. The effectiveness of metacognitive reading strategies is well-researched and well-documented among English readers. In fact, all commercial basal reading series published in English focus extensively on the development of metacognitive reading strategies during instruction. However, no research has been done on Arabic readers and Arabic text structures. So, exploring the use of reading strategies among Jordanian learners will provide data that help in suggesting implications for effective reading instruction. This study aims at providing information needed to enhance teaching pedagogy and to improve learning conditions in Jordan. In order to improve teaching of reading in Jordan, research is needed to evaluating the learners' reading comprehension. Also, the results of this study will generate baseline information and provide insights to decision markers in the Ministry of Education. This study will also work as a baseline and foundation for more research in Jordan. It will provide empirical data that might help in comparing the level of reading comprehension of Jordanian students' with other students from different countries.

Another significance of this study is
that it will show that reading strategies will not only help students succeed in their language learning but will also help them succeed in their academic and professional futures.

In summary, after analyzing the data, it is hoped that the results of this study might provide the following:

1- Provide Jordanian educators with new understandings and insights concerning the factors that affect reading comprehension so that educators can make their instructional decisions based on sound judgments rather than intuitions.

2- Help Jordanian students in their academic study by developing effective reading story.

3- Provide recommendations to improve the current state of teaching reading in Jordanian schools and provides some suggestions for further research.

**Definition of Terms:** The main terms used in this study are operationally defined as follows:

**Reading Comprehension:** is the ability of readers to understand the surface and the hidden meanings of the text using metacognition reading strategies. It is measured by three sub-scales: literal comprehension, analytic comprehension, and evaluative comprehension. The total reading comprehension includes:

a- **Literal Comprehension:** This is referred to as reading the lines. It involves surface meaning and aims at finding information or ideas explicitly stated in the text. Literal comprehension consists of (11) items that focus on the fact of recalling and addresses wh-questions.

b- **Analytic Comprehension:** The reader is expected to analyze what he reads and connects it to his own personal experience. It consists of (11) items that focus on the ability of reader to analyze and connects the ideas in the text.

c- **Evaluative Comprehension:** The reader performs a high level of thinking where he gives judgments and evaluations over the reading material based on his understanding of the text. It consists of (10) items.

Metacognitive reading strategies: are those approaches involved in planning before reading, monitoring during reading, and evaluating one's reading performance after reading.

**Limitations**

The current study is limited to its sample, which consisted of ninth grade female students from Ma'an Directorate of Education during the academic year 2009 / 2010. The findings of the study will be generalizable only for similar populations. Also, the findings of the present study can be generalized only to the use of metacognitive reading strategies, such as: summarizing, visual image, prediction, and text-structure.

**Literature review**

Reading comprehension was found to be improved by using a combination of strategies such as: summarization, predicting, question generation, question answering, making connections, visualization, activating prior knowledge, and inferring (Harvey and Goudvis, 2007). The National Reading panel (2000) also cited these strategies as having a positive impact on comprehension: summarization, representational imagery, story grammar, question generation, question answering, and prior knowledge activation which includes the use of prediction, inferring and making connections to one's life. Reading research has claimed that reading is not a
passive, mechanistic process of deciphering word, but an active process of bringing meaning into what is read. According to Conely (1995), reading comprehension has two levels: text comprehension and comprehension beyond the text. In the former, the reader understands the meanings of new words, selects important information and comes up with deductions based on the text. This is usually referred to as literal comprehension. The second level of comprehension, which is higher and more advanced, is called comprehension beyond the text. At this level the reader matches the information he gets from the text with what he already knows to come up with a new understanding of the topic. This is usually referred to as analytic and evaluative comprehension. More specifically, the second level of comprehension can be developed effectively through metacognitive reading strategies because metacognitive reading strategies allows a reader to more effectively control his or her cognitive processes. So, it is important for the teacher to encourage students to take active control of their own reading process. This conscious control of the process is called "meatcognition" (Irwin and Baker, 1989). Strategy use and strategy instruction are largely based on the meatcognition awareness of the reader and the teacher. Research suggests that teaching students specific strategy, improve reading comprehension and strategy use, increase students awareness of their own performance as they read (Bamford and Day, 1998). Students' success in school has been linked to their ability to understand what they read. If students are to be successful in reading comprehension, a variety of methods must be used to educate the students them, including instruction in metacognition skills, or thinking skills. Metacognitive strategies in a reading context played an important role in successful learning. Individual learners with a high level of metacognitive knowledge and skills are aware of their own strength and weaknesses, and they can ensure their academic attainment (Hobson, 2008). In addition, students who display a wide range of metacognitive skills perform well and complete schoolwork more effectively. According to Flavell (1979), metacognition referred to one's knowledge concerning, one's own cognitive processes and products and anything related to them. Flavell (1981), indicated that increasing attention in learning is able to improve metacognitive knowledge and ability in the domain of comprehension. According to Vygotsky (1986), the student eventually internalizes the cognitive and metacognitive activities of the expert teachers and advanced peers and uses them to solve problems independently. For example, when comprehension breaks down during reading, the student may solve the problem by employing a strategy previously modeled under teacher guidance during the scaffolding process. Livingston (1997) observed that the concept of metacognition has been enthusiastically accepted, especially with regard to reading, for three reasons. First, it stresses the active participation of the reader in strategic reading. Second, it emphasizes of cognition of reading process. A third reason meatcognition has become an important and popular term in research on reading is because it highlights how readers plan, monitor, and repair their own comprehension. As specifically related to reading, metacognition refers to (a) awareness of one's purpose for reading (b) how to proceed to achieve those purposes, and (c) how to regulate progress through self-checking of comprehension (Hobson, 2008). Readers apply metacognition to reading when they are aware of their behaviors during reading and use appropriate reading strategies to facilitate
understanding or remedy comprehension failure.

Researchers identified knowledge of cognition as the main dimension of metacognition (Baker and Brown, 1984). Knowledge of cognition involves declarative knowledge, procedural knowledge, and conditional knowledge (Jacobs and Paris, 1987). Declarative knowledge in reading means simply knowing strategies, such as skimming, summarizing, and inferring…etc (Carrell, Gajdusek and Wise, 1998). Procedural knowledge refers to knowing or reflecting on how to actually perform the reading strategies (Winograd and Hare, 1988). Conditional knowledge is learners' abilities to select and employ specific reading strategies appropriately in various contexts and to evaluate the effectiveness of the strategies (Carrell, Gajdusek and wise, 1998; Jacobs and Paris, 1987). In order to have conditional knowledge, learners need to know when and where to apply declarative and procedural knowledge (Schreiber, 2005).

Reading strategies can be classified in three classes of metacognition: planning, monitoring, and evaluating strategies (Anderson, 2008; Israel, 2007). Planning strategies are those approaches used before reading. For example, Predicting, examining a title, headings (Almasi, 2003). Monitoring strategies occur during reading, they help readers with reading comprehension, some example of monitories strategies are understanding meaning of vocabulary, visualization, text-structure , and inferring the main idea of each paragraph as they are reading (Israel, 2007; Pressley, 2002 ). Evaluating strategies are to be employed after reading; there are a variety of strategies readers may apply. For example, after reading, learners may think about how to use the information they have just read for other situation and summarize what they are read. All three groups metacognitive reading strategies presented (Planning / Pre-reading, monitoring / during read / evaluating / after reading) require metacognitive processing. Although many researchers differentiate metacognitive strategies by time (e.g., before, during, and after reading). Anderson (2003) pointed out that different metacognitive reading strategies sometimes work simultaneously rather than separately. According to Anderson (2008), learners need to effectively manipulate a variety of reading strategies in order to become expert readers. The following information will briefly describe each strategy which used in this study.

Summarization

The process of summarization requires the reader to determine what is important when reading and to condense the information in the readers' own words (Adler, 2001). Teacher modeling and student's practice of the summarization process have proven effective for improving students' ability to summarize text and to improve text comprehension. Students can be taught to identity main ideas, connect the main ideas, eliminate redundant and unnecessary information, and remember what they read with the summarization strategy. Fountas and Pinnell (2006) explained that a summary is reconstruction of the important information in a text. The reader remembers the text by selecting and sometimes organizing ideas and information.

Chang, Sung and Chen (2002) employed concept-mapping and summarization strategy to test the learning effects with (126) fifth grade students in Taiwan. The results indicated that the concept-mapping method enhanced text comprehension, and summarization facilitated students comprehension abilities.

Jitendra and Hoppes (2000) examined whether a summarization strategy can
enhance students' main idea comprehension and whether a self-monitoring instructional program can improve students' textual comprehension. A total of 33 sixth, seventh, and eighth grade students were randomly assigned to experimental and control group. The experimental group students were trained for 6-weeks to point out the main idea using summarization and self-monitoring. The results indicated that the instructional procedures increased students' comprehension in the experimental group. The experimental group statistically outperformed students in the control group.

In another study, Rinehart, Stahl and Erickson (1986) instructed sixth – grade teachers in how to teach summarization directly and compared the results of student's performance in note–taking. The researchers demonstrated how to present summarization using the following direct instruction principles: (a) explicit explanation, (b) modeling, (c) practice with feedback, (d) breaking down complex skills, and (e) using scripted lessons. After training the teachers taught five summarization lessons in five consecutive days for a period of between 45 and 50 minutes per lesson. On the fifth day, students were asked to write a summary of each section of the chapter they had read as a part of their five day lesson. The students were told to write the summaries as if they were taking notes. The researchers compared the summaries of the students with trained teachers to summaries of students in classrooms where teachers had not participated in the professional development. Results indicated that the students that had direct instruction on the use of summarization were able to recall significantly more major information in their written summaries compared to non – instructed students. There was no effect found on the amount of minor information that was shared.

**Visualizing**

This strategy sometimes called representational or visual-image, occurs when readers generate mental images of the story as they read the text to help them remember and understand what is read. It requires the reader to construct an image of what is read. This image is stored in the reader's memory as a representation of the reader's interpretation of the text. When students are taught to make their own mental constructions of what is read and / or attend to illustrations in text, they will recall text better ( Center et al., 1999; Gambrell and Jawitz, 1993 ). Students can practice the visualization strategy by writing and drawing or drawing and writing. Teachers have students visualize settings, characters, and actions in a story.

Gamberll and Jawitz (1993) studied the effect of four different types of instructions given to fourth graders to induce mental imagery and attend to text illustrations while reading. Students were randomly assigned to four treatment conditions that directed students to (a) use mental imagery and illustration, (b) use mental imagery only, (c) use text illustrations only, or (d) "read to remember" which was used as the control group. At the conclusion of a brief introduction by the researcher the students were given directions to read two passages and write a story about what they had just read. Specific directions where given to students depending on their treatment group. Scored written recalls were used as data. It was found that students who were asked to induce mental imagery and attend to text illustrations enhanced their ability to recall information about the passage more than other treatment groups. Additionally, the imagery and illustration, the imagery – only, and the illustrations – only were statistically superior to the control group.

**Predicting**

Good readers have a purpose for
reading. One strategy for improving comprehension is predicting, which helps the readers set a purpose for their reading. This strategy also allows for more student interaction, which increases students' interest and improve their understanding of the text (Oczkus, 2003).

An important aspect in the prediction process is comparing the prediction to the outcome in the actual text. Without this aspect of the prediction process, it becomes meaningless to improving the student's comprehension (Duke and Pearson, 2005). Some of the approaches for teaching predicting are teacher modeling, predicting throughout the text, with partners, with a graphic organizer, or using post-it notes throughout the text. Using the title, table of contents, pictures, and keywords is one predicting strategy. Another key predicting strategy is to have students predict at specific points through the text, evaluate the prediction, and revise predictions if necessary (Teele, 2004).

**Text Structure**

The text structure strategy is designed to help students recognize either narrative type or expository text structures to better understand the content of basal reading and literature anthologies, and recall the informational – type texts (Tierney, 2005). It has been viewed as a valuable reading strategy to perceive the organization of text materials. For example, knowing how to form a logical structure in a text can help students get key concepts bound together to understand and remember the material better than just seeing the text as a series of isolated ideas (Tierney, 2005). Also, Kate, Peter and Jane (2004) indicated that acknowledge about text structure positively relates to reading comprehension level. It can help the reader to organize and relate events in a text, which then benefits his/her memory and understanding. A number of research studies have provided empirical evidence that readers' background and experience with textual organization can affect reading comprehension (Carrell, 1985). Students with knowledgeable text structure have an advantage in reading comprehension over readers who are not aware of the text organization. Perfetti (1994) proposed that a possible source of comprehension failure is inadequate knowledge about text structures, which may arise because of insufficient reading experience. Explicit awareness about text structure and the expectations engendered by certain common features of text may be useful aids for readers, helping them to invoke relevant background information and schemas to failure their construction of a meaning-based representation.

There are two types of text structures: (1) narrative, or story-type, (2) Expository, or information – type. The narrative type texts consistently contain structure like setting, initiating event, internal response, attempt, consequence, and reaction. The expository type texts contain a variety of structure. According to Meyer and Freedle (1984), there are five different types of expository text structure: (1) description, (2) Collection, (3) Causation, (4) Problem/Solution and (5) Comparison.

In this study, the researcher introduces three types of expository structures that mostly encountered by students in school: Causation, problem / solution and comparison.

Armbruster, Anderson and Ostertag (1987) taught fifth grade students how to discern the text structure of problem/solution in expository text and taught them guidelines for writing a summary for problem/solution passages. Compared to traditionally trained group, the students in the structure-trained group were able to recall 50% more of the ideas in problem/solution passages. The structure-trained group were also able to include significantly more important facts into their summaries as compared to the
traditionally trained students.

In his study of sixth- graders, Berkowitz (1986) trained four teachers, using four methods of implementing instructional procedures: (a) map-constriction where students created a graphic organizer about the reading, (b) map-study in which students were given completed graphic organization and were led by their teacher in a discussion of the structure and content of the map, (c) question-answering in which students were asked to write out answers to 20 probes about a passage, and (d) rereading were students asked to read silently the section twice and review what was read by rehearsing to oneself all they could remember about what they read. Students were grouped by instructional procedure. The four teachers were taught all four procedures and rotated between classrooms to teach all four procedures for six weeks. By the end of the study, students that used map-constructions scored significantly higher on immediate recall tasks of expository passages than students that used the other study procedures. There were no effects found in favor of the map-study procedure.

**Method**

**Participants**

A school was randomly chosen out of six schools in Ma'an in south Jordan that has two sections of ninth grade students. One section consisted of 26 students was assigned to the experimental group, and the other section consisted of 27 students was assigned to the control group. To ensure the equivalence of both groups (Experimental and Control) in all levels of reading comprehension before teaching the experimental group by metacognitive reading strategies, (t-test) was performed to compare between the mean scores of the two groups in the pre-test. The results are presented in table (1).

**Table 1.**

<table>
<thead>
<tr>
<th>Level of Comprehension</th>
<th>Experimental group</th>
<th>Control group</th>
<th>t.</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>N</td>
<td>Mean</td>
</tr>
<tr>
<td>Total Comprehension</td>
<td>10.50</td>
<td>2.71</td>
<td>26</td>
<td>10.74</td>
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<td>Literal Comprehension</td>
<td>2.11</td>
<td>1.20</td>
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<td>2.17</td>
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<td>Analytic Comprehension</td>
<td>2.75</td>
<td>1.93</td>
<td>26</td>
<td>2.69</td>
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<tr>
<td>Evaluative Comprehension</td>
<td>1.94</td>
<td>1.88</td>
<td>26</td>
<td>1.90</td>
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</tbody>
</table>

Table 1 shows that there is no statistically significant differences between experimental and control group in total comprehension and all levels of reading comprehension before teaching the experimental group by metacognitive reading strategies. That is, both groups were equivalent in level of reading comprehension at the beginning of implementation of the study.

**Study Design**

This is a quasi-experimental study which has one independent variable and one dependent variable. The independent variable was the teaching method (Metacognition Strategies), whereas the dependent variable was the reading comprehension which has four levels: total comprehension, literal comprehension, analytic comprehension,
and evaluative comprehension.

**Research Instruments**

**The Reading Comprehension Test:** The test consisted of two reading passages were selected from the ninth grade Arabic textbook followed by 32 multiple choice items, each item has three alternatives. Each correct answer was given one point, while the incorrect answer was given zero. The 32 items included the literal comprehension, the analytic comprehension, the evaluative comprehension, and the total comprehension levels (see Appendix).

In the first draft, the reading comprehension test contained 40 items, was given to a jury of seven experts in the field of educational psychology and curriculum and instruction. The experts were asked to determine to which level of comprehension each item belongs and to judge its linguistic accuracy and appropriateness for the students. The researcher benefited from the comments made by the jury and made the required modifications, the researcher kept 32 items that constitute the final version of the test.

The items kept were the items that 80% of the experts agreed on. After the test had been validated by the experts, to ensure the reliability of the test, it was applied to 30 ninth grade students who were excluded from the main study sample. The same test was applied to the same sample of students after two weeks later. The reliability of the test was established by using Cronbach's Alpha. The reliability coefficient was 0.84, which was acceptable to achieve the purpose of this study.

**Study Procedures**

The study was conducted in the second semester of the academic year 2009 / 2010. The students of both the experimental and the control groups were told that a test would be applied to them for the purpose of a scientific research. They were asked to respond accurately and honestly. Students were distributed in three halls. The test lasted for thirty minutes. After the study had been conducted, the post-test was administered using the same procedures. To ensure an accurate implementation of the study, the following procedures were applied:

1- Permission was taken from principal of the school to conduct this study.

2- A group of seven experts were selected to validate the researcher instrument.

3- Two reading passages from the ninth Arabic textbook were selected to implement the training program.

4- A thirty – two items test with the model answers were developed by the researcher.

5- To ensure the equivalence of the two groups: experiment and control group. The reading comprehension test was administered as a pre – test by the researcher before teaching the students metacognitive reading strategies.

6- The researcher explained to the teacher, who agreed to teach the two groups, to focus on teaching the metacognitive reading strategies with the reading passages of the experimental group. To ensure that the teacher fully understood what to do with the experimental group, the researcher attended a few classes and answered all the teacher questions.

7- The experimental group was trained for five days (an hour a day), on metacognitive reading strategies. The teacher taught the two passages using metacognitive reading strategies in regular classroom. Simultaneously, the control group studied the same passages in their classroom using
the traditional method of teaching which is the method of teaching that students used to.

8- After studying the content, both groups took the post – test.

9- Data were collected and analyzed, using descriptive statistics such as means and standard deviations. T-test was also used to find out whether differences between groups were statistically significant ($\alpha = 0.05$) or not.

**The Teaching Method:** Two passages were taught to the experimental group through using metacognitive reading strategies by the cooperative teacher, after the researcher explained to the participants the purpose and the importance of their participation in this study. A total of five days classes were held with the experimental group and the average length of each class were 60 minutes. Brief information about each class is presented below.

**First class:** The purpose of this class was briefly explained to the participants about: (1) defining reading comprehension and its importance in successful learning, (2) the goals of comprehension instruction, (3) metacognitive reading strategies that will be used in this study, and presented information about the usefulness of reading comprehension strategies.

**Second class:** In this class the teacher asked the students to make predictions by using the title or subheadings in the passage. For example, "From the title, I predict that this section will talk about....." In this strategy, the teacher stops at each paragraph and asks students to predict what is in the coming passage.

**Third class:** In this class, the teacher taught the students using visualization strategy. He explains the concept of visualization strategy which means certain smells, tastes, sights, and feelings emerge, depending on what you're reading and what life experiences you bring to it. And then, talking about passage, for example, " what did you see when you read those words?" Does having this picture in your head make reading more fun? How "Have your sensory images changed as you read this passage? What words added detail to your mind picture?" Also, the teacher introduces some of activities, such as: chart response, for example:

1- Read a section of passage and note the images that come to mind.

2- As a group, chart responses: (a) note their thinking, (b) note types of words (adjectives, verbs...etc) and think about how they might help make clearer images for the students. Another activity is to draw visual responses. For example, (a) read a passage out loudly having students close their eyes, (b) As a group, discuss their images, explain their thinking.

**Fourth class:** This class aims to evaluate how well intermediate level students can understand and comprehend what they learn within the context of their content area reading. Pre – reading the teacher explains the concepts related to summarization to students, including skimming, scanning, the main idea, the supporting ideas, the topic sentences, and the details in the passage. The teacher writes them on the board or on an overhead in the form of a "card pyramid ". The main idea is the top card. The supporting ideas are placed under the main idea. The details are placed under the supporting ideas. While – reading,
the teacher introduces the rule - governed approaches to students;
1. Delete the unnecessary material,
2. Delete redundant material,
3. Compose a word to replace a list of items,
4. Select a topic sentence. after-reading, in order to ensure that students understand the content area of the text, the teacher needs to ask the students to "look back", "rethink", "check", and "double check", to complete the final summary terms. And then, the teacher asks students to repeat the steps of the rule - governed approach to enhance their strategy use.

**Fifth class:** In this class, the teacher guides students through the strategy of text structure to help students understand the organization of causation, problem / solution, and comparison. The teacher presents this strategy through three steps as following: (a) A causative text structure is a specified relationship between reasons (causes) and results (effects) in a time sequence, (b) A problem / solution structure is similar to a causative structure except that the solution is added to the structure, and (c) A comparative structure organizes elements on the basis of the similarities and difference. To implement this strategy, the teacher follows these steps:
1- Divides the class into five groups,
2- Asks students to practice textual organization by using their background knowledge and experience.
3- Helps students to structure the main ideas with supporting details from the text.
4- Guides students using a text – mapping or flow – charting strategy to help them understand and remember the text information.
5- Guides students to identify the general goal of a text, subtopics, main ideas, and the relationship of main ideas linking to subtopics for reading comprehension.

**Results of the Study**

The main aim of this study was to investigate the effectiveness of metacognitive reading strategies in developing reading comprehension of Arabic texts. This reading comprehension includes the total reading comprehension, literal reading comprehension, analytic reading comprehension, and evaluation reading comprehension. Therefore, the researcher calculated the means and standard deviations of students' performance on the levels of reading comprehension test and presented them in Table 2.

**Table 2.**

<table>
<thead>
<tr>
<th>Levels of Comprehension</th>
<th>Experimental group</th>
<th>Control group</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Sd</td>
</tr>
<tr>
<td>Literal Comprehension</td>
<td>5.02</td>
<td>2.15</td>
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<td>Analytic Comprehension</td>
<td>6.20</td>
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<tr>
<td>Evaluative Comprehension</td>
<td>5.98</td>
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<td>Total Comprehension</td>
<td>17.61</td>
<td>3.95</td>
</tr>
</tbody>
</table>
Table 2 shows that students in the experimental group had higher mean scores than students in the control group on the total reading comprehension, and the all levels of reading comprehension (Literal, Analytic, and Evaluative). Overall, this may indicate that using metacognitive reading strategy improved the reading comprehension of the target (experimental) group. To determine the significance of these differences, t-test was conducted at the 0.05 level of significant (table, 3, 4, 5, and 6).

### Table 3.
*T-Test Relating to the Effect of Metacognitive Reading Strategy for the Total Reading Comprehension of the Two Groups*

<table>
<thead>
<tr>
<th></th>
<th>Means</th>
<th>Standard Deviations</th>
<th>df</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>17.61</td>
<td>3.95</td>
<td>51</td>
<td>3.24</td>
<td>0.00*</td>
</tr>
<tr>
<td>Control group</td>
<td>13.01</td>
<td>4.31</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Significance at ($\alpha = 0.05$)*

Table 3 shows that there is a statistically significant difference in total reading comprehension between experimental and control group in favor of experimental group. This is might be attributed to the metacognitive reading strategies were used. This means that the students in the experimental group who were taught through the use of metacognitive reading strategies comprehend better at the total reading comprehension level. The mean scores of the experimental group was (17.61) with standard deviation (3.95), whereas it was (13.01) with standard deviation (4.31) for the control group.

### Table 4.
*T-Test Relating to the Effect of Metacognitive Reading Strategy for the Literal Comprehension of the Two Groups*

<table>
<thead>
<tr>
<th></th>
<th>Means</th>
<th>Standard Deviations</th>
<th>Df</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>5.02</td>
<td>2.15</td>
<td>51</td>
<td>3.86</td>
<td>0.00*</td>
</tr>
<tr>
<td>Control group</td>
<td>3.41</td>
<td>2.19</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Significance at ($\alpha = 0.05$)*

Table 4 shows that there is a statistically significant difference in literal reading comprehension between experimental group and control group in favor of the experimental group. This might be attributed to the metacognitive reading strategies were used. This means that the students in the experimental group who were taught through the use of metacognitive reading strategies comprehend better at the literal reading comprehension level. The mean scores of the experimental group was (5.02) with standard deviation (2.15), whereas it was (3.41) with standard deviation (2.19) for control group.
Table 5.  
*T-Test Relating to the Effect of Metacognitive Reading Strategy for the Analytic Reading Comprehension of the Two Groups*

<table>
<thead>
<tr>
<th></th>
<th>Means</th>
<th>Standard Deviations</th>
<th>Df</th>
<th>t.</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental group</td>
<td>6.20</td>
<td>2.57</td>
<td>51</td>
<td>3.75</td>
<td>0.00*</td>
</tr>
<tr>
<td>Control group</td>
<td>4.18</td>
<td>3.10</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Significance at ($\alpha = 0.05$)*

Table (5) shows that there is a statistically significant difference in analytic reading comprehension between experimental group and control group in favor of the experimental group. This might be attributed to the metacognitive reading strategies were used. This means that the students in the experimental group who were taught through the use of metacognitive reading strategies were comprehend better at the analytic reading comprehension level. The mean score of the experimental was (6.20) with standard deviation (2.57), whereas it was (4.18) with standard deviation (3.10) for the control group.

Table 6.  
*T-Test Relating to the Effect of Metacognitive Reading Strategy for the Evaluative Reading Comprehension of the Two Groups*

<table>
<thead>
<tr>
<th></th>
<th>Means</th>
<th>Standard Deviations</th>
<th>Df</th>
<th>t.</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental group</td>
<td>5.98</td>
<td>2.78</td>
<td>51</td>
<td>2.99</td>
<td>0.00*</td>
</tr>
<tr>
<td>Control group</td>
<td>3.23</td>
<td>2.45</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Significance at ($\alpha = 0.05$)*

Table (6) shows that there is a statistically significant difference in evaluative reading comprehension between experimental group and control group in favor of the experimental group. This might be attributed to the metacognitive reading strategies were used. This means that the students in the experimental group who were taught through the use of metacognitive reading strategies comprehend better at the evaluative reading comprehension level. The mean score of the experimental was (5.98) with standard deviation (2.78), whereas it was (3.23) with standard deviation (2.45) for the control group.

Discussion of the Results

The results of this study showed that students who were taught reading passages through the use of metacognitive reading strategies scored higher than those who were taught through the use of traditional method at all levels of reading comprehension (i.e. total reading comprehension, literal reading comprehension, analytic reading comprehension, and evaluative reading comprehension). In specific, t-test showed that the treatment was significantly effective at all levels of comprehension. This result suggests that using metacognitive reading strategies in classroom can enhance the levels of reading comprehension. In fact, these results are similar to the results of other studies such as those of Chang, Sung, and Chen (2002); Jitendra and Hoppes (2000); Gamberll and Jawitz (1993); Armbruster, Anderson, and Ostertag (1987); Berkowita (1986); and Rinehart, Stahl, and Erickson (1986) who found that students' reading comprehension improved as a whole because of the use of metacognition reading strategies.

The results can be attributed to many
factors. One of the main factors is the fact that metacognitive reading strategies require students to be mentally involved in the reading passages. This kind of involvement allows students make extra effort more than the effort they make in the traditional learning situation. Metacognitive reading strategies can also provide students with more challenges that entertain and engage the mind differently than the ones provided in the traditional method. These strategies required students to make an analysis and evaluation in order to attain good reading comprehension. The second main factor, metacognitive reading strategies can help the students to organize and relate events in a passage, which then benefits her memory and understanding. The third main factor, metacognition reading strategies that used in this study enable the students to know how to plan and recognize their learning task, monitor and check their comprehension process, the monitor strategy can help students pause and ask questions to themselves to see if they can comprehend and communicate the main ideas with others while they are reading, and evaluating strategy help students how to assess their own performance on a task, aware own their thinking and increase motivation in order to achieve the highest level of comprehension.

In addition, students who received training through using metacognitive reading strategies were exposed to many before –reading, during-reading, and after-reading activities. Being exposed to these activities enhances students ability of predicting, summarize, and visualization. The three phases of metacognition strategy (before, during, and after reading) were effective for better reading comprehension. For example, predicting strategy enables students to activate prior knowledge and motives them to read before reading. This indicated that using metacognitive strategies when teaching reading is helpful in the comprehension of reading text. It appears that students who were taught using this method became aware of the different strategies required in the process of reading. They begin to think of what they are doing when they read a text. This awareness is believed to enhance students' reading comprehension and thinking skills. Metacognition reading strategies provide students with induction and deduction and higher order thinking skills that apply critical role in improvement levels of students comprehension. Metacognition involves self-awareness and conscious monitoring and regulation of comprehension. Also, Metacognition can utilize students effectively to read text critically and reflect upon content and their writers' intention. Active students in metacognitive reading strategies should be able to plan, think about and control his learning process. He should be able to construct meaning from texts; that is, this role very important to facilitate the comprehension. Finally, metacognitive reading strategies require students to go beyond the explicit information in the text; therefore this activity has a critical role in developing of students' abilities in reading comprehension.

In light of the results of the study, the researcher recommends that:

1. Teachers need to emphasize the use of metacognition reading strategies in their classes when teaching reading comprehension.
2. Curricula planners incorporate metacognitive reading strategies in curricula and textbooks.
3. Equipping students with such strategies and providing them with techniques might encourage them to become independent learners.
4. Similar studies should be conducted on other students in other areas of Jordan; and
5. Further studied should be conducted in this field, using other reading comprehension strategies.

References


Appendix

Sample Items for reading comprehension test

Please respond to the following items by circling the appropriate answer

1. When did the University of Jordan establish?
   a. 1960  b. 1961  c. 1962

2. Which is the oldest faculty in the University of Jordan?
   a. Artsb. Education c. Nursing

3. Which university in Jordan called "the mother university"?
   a. Yarmouk  b. Jordan  c. Hashemite

4. Faculty of Education is considered as…………….faculty
   a. Humanistic  b. Scientific c. Naturalistic

5. Which is the oldest university in Jordan?
   a. Mutah University  b. Yarmouk University  c. Jordan University