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EFFECTS OF DELIBERATE INSTRUCTION IN METACOGNITIVE READING STRATEGIES ON THE EFL LEARNERS' COMPREHENSION OF VARIOUS TEXT TYPES ACROSS PROFICIENCY LEVELS

by
DOAA ZAKARIA OBEID

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ABSTRACT

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Title: Effects of Deliberate Instruction in Metacognitive Reading Strategies on the EFL Learners' Comprehension of Various Text Types Across Proficiency Levels

The existing empirical studies on the effects of deliberate metacognitive reading interventions on students' comprehension remain inconclusive. Also, previous studies have barely focused on both the literal and the high-order levels of comprehension with a scarcity in research that investigates the effects of metacognitive strategy instruction on learners' comprehension across text types and proficiency levels. As there is paucity of empirical research and due to the controversy in the literature, the researcher conducts this exploratory study that aims to (a) examine the association between learners' use of support, global, and problem-solving metacognitive reading strategies, and their literal and higher-order reading comprehension globally and as the text type changes; (b) investigate the impact of deliberate instruction in metacognitive strategies in improving the learners' use of metacognitive reading strategies; (c) investigate the effect of deliberate instruction in metacognitive reading strategies in improving the literal and higher-order reading comprehension of students globally and as the text type changes; (d) determine if the deliberate instruction's effect on the reading comprehension of students is more pronounced in high proficient students compared to those with lower proficiency; and (e) determine if metacognitive reading strategies mediate the relationship between deliberate instruction and literal and higher-order reading comprehension. The study follows a quantitative quasi-experimental research design. The participants were seventh grade EFL learners in a private school in Greater Beirut Area. Data were collected using the Test of English as a Foreign Language-Junior Level (TOEFL), the Survey of Reading Strategy Questionnaire (SORS), and 8 reading comprehension tests that measured learners' literal and higher-order comprehension in narrative, descriptive, persuasive, and expository texts. Students were divided randomly into control and experimental groups, where the experimental group was taught using the Optimal Learning Model (OLM) whereas the control group was taught in a regular implicit pattern that focused on teacher questioning and sharing. Correlational analyses indicated a significant relationship between overall, global, problem-solving, and support metacognitive reading strategies and literal and higher-order comprehension on the general level and across the four text types. ANCOVA analyses showed that the OLM intervention has a significant impact on the students' use of overall, global, problem-solving, and support metacognitive reading strategies. Factorial ANCOVA (FANCOVA) proved that the OLM intervention has a statistically significant effect on the learners' post-literal and post-higher-order reading comprehension globally. However, these results change when the text type and the level of comprehension

change. Lastly, Hayes Process Macro Model 4 showed that the OLM intervention has a significant indirect effect on both the literal and higher-order reading comprehension through metacognitive reading strategies, which means that metacognitive reading strategies mediate the relationship between OLM intervention and literal and higher-order reading comprehension of students. The study's findings prove that the use of metacognitive language learning strategies helps learners develop their reading strategies and performance and increase their reading comprehension achievement. It also proved that metacognitive strategy instruction and training sessions have a positive effect on improving the participants' use of metacognitive reading strategies, which implies that students recognize the benefits of employing them in EFL reading and find metacognitive strategies helpful in approaching reading materials. However, the effect of using metacognitive reading strategies changes based on the comprehension level (literal or higher order), text types, and proficiency levels of students. This is due to different reasons that are explored in the body of the research. Lastly, the fact that metacognitive reading strategies mediate the relationship between the metacognitive reading instruction and reading comprehension of students highlights the importance of reconceptualizing reading teaching and improving reading comprehension outcomes through metacognitive reading strategies. Results were discussed in light of the limitations of the study and pedagogical implications and recommendations for future research were made.

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CHAPTER 1

INTRODUCTION

Background

Reading proficiency in English-as-a foreign language (EFL) plays a pivotal role in learning, particularly when used as a medium of instruction (EMI). Additionally, reading is an important form of interpretive communication vital in everyday life and effective functioning in society and the workplace beyond classroom walls. Learning the skill of reading is a necessity for EFL learners to access a wealth of information According to Eskey, (2005), reading is the main source of information and learning and a predictor of students' success in their academic and life endeavors, which is notably reflected in their psychological well-being and perception of social competence (Carnine & Silbert, 1979; Ciborowski, 1992).

Proficient reading involves extraction and interpretation of information from the text as well as critical reflection and problem-solving based on what is read (Roe & Smith, 2012). Researchers also consider that competent reading is strategic (Brown et al., 1995). Strategic readers have a purpose for reading, monitor their comprehension, reflect on their reading, and effectively use reading strategies to understand written text. According to Paris et al. (1996), strategic reading is a central characteristic of any expert reader to succeed in school. This is because it is entwined with the fabric of children's cognitive development and is necessary for school success.

There are six significant reasons for promoting strategic reading. First, strategic reading allows readers to elaborate, organize, and evaluate information derived from text.

Second, the acquisition of reading strategies coincides with the development of numerous cognitive strategies during childhood to enhance memory, attention, learning, and communication. Third, strategies are personal cognitive tools that can be used flexibly and selectively by readers; in other words, they are controllable by readers. Fourth, strategic reading reflects both motivation and metacognition because readers must have the knowledge and disposition to use strategies. Fifth, the teacher can directly teach the strategies that foster reading and thinking. Sixth, strategic reading can improve learning throughout the curriculum (Paris et al., 1996).

For a student to fully understand and learn from the text, the researcher cannot ignore any of the three interrelated factors, the text, the reader's background knowledge, and the reading strategies. This has been a major interest of researchers where metacognitive reading strategy use has been recommended as an efficient way to improve learners' reading comprehension ability (Salataki & Akyel, 2002). However, metacognitive strategy instruction is still limited in the domain of teaching EFL. For instance, the Lebanese national English textbooks lack the inclusion of most of the metacognitive reading strategies. They include very few of these strategies based on Lebanese teachers' experience in using these books.

The focus of the present study is on metacognitive reading strategies because readers need to read and learn to obtain new content knowledge that they do not possess. To obtain this knowledge, readers must acquire metacognitive reading strategies to deal with unfamiliar content, understand it, and learn from it. Fostering comprehension through metacognitive reading strategies allows students to carry out a set of knowledge-extending activities that could be applied on a larger scale and in a wide range of situations other than reading. In both L1 and L2 contexts, instruction in metacognitive

reading strategies has been valued in reading comprehension instruction. Skilled readers have been found to possess better comprehension abilities due to their understanding and implementation of these strategies, according to Van Keer and Verhaeghe (2005), and, conversely, struggling readers have been unable to identify and utilize effective reading strategies on their own (Van Keer, 2004), leading to difficulties in comprehending text. This is why reading strategy instruction is a promising teaching method that can be used to aid struggling readers. It has also been considered useful in developing learners' reading awareness. Teaching reading necessitates the use of various strategies for reading different purposes. When the student is able to use the proper strategies when needed, comprehension will be facilitated. These metacognitive strategies are divided into three categories according to Mokhtari and Sheorey (2002). Global strategies prepare the reader for reading, problem-solving strategies are employed to solve problems that come to surface when the text being read becomes challenging, and support strategies support the reader while reading. However, this requires training from the teacher, who will guide and direct practice in metacognitive strategy use to help students learn the metacognitive strategies necessary for comprehension. The direction and guidance should be gradually faded, and students must independently and automatically realize what strategy is called for and use it (Flavell, 1978).

Purpose of the Study

The following study has five purposes.

1. To examine the association between learners' use of support, global, and problem-solving metacognitive reading strategies, and their literal and higher-order reading comprehension globally and as the text type changes.

2. To investigate the impact of deliberate instruction in metacognitive strategies in improving the learners' use of metacognitive reading strategies.

3. To investigate the effect of deliberate instruction in metacognitive reading strategies in improving the literal and higher-order reading comprehension of students globally and as the text type changes.

4. To determine if the deliberate instruction's effect on the reading comprehension of students is more pronounced in high proficient students compared to those with lower proficiency.

5. To determine if metacognitive reading strategies mediate the relationship between deliberate instruction and literal and higher-order reading comprehension.

Research Questions

The research questions for this study are:

1. What is the relationship between metacognitive reading strategies and literal and higher-order reading comprehension?

2. What is the influence of deliberate instruction in metacognitive reading strategies on improving the use of metacognitive reading strategies?

3. What is the main effect of deliberate instruction in metacognitive reading strategies on literal and higher-order reading comprehension? Does the effect of deliberate instruction on reading comprehension depend on the English Proficiency of students (interaction effect)?

4. Do metacognitive reading strategies mediate the relationship between deliberate instruction and reading comprehension? In other words, does

deliberate instruction in metacognitive reading strategies improve the reading comprehension of students by improving their metacognitive reading strategies?

Rationale

Conflicting evidence

Not all learners spontaneously discover reading strategies and appeal to strategic processes when they confront challenging texts (Hartman, 2001; Pressley & Allington, 1999). Nevertheless, research reveals the effectiveness of deliberate reading strategies instruction even when learners do not apply strategic processes and do not use comprehension strategies on their own (Palinscar & Brown, 1984). Yet, previous research has shown inconclusive results regarding the effect of deliberate instruction in metacognitive reading strategies in improving learners' second language reading comprehension. On the one hand, many researchers have extensively argued in favor of strategy training and offered evidence of its success (e.g., Ajideh et al., 2018; Eilers & Pinkley, 2006; Houtveen & Grift, 2007; Kärbla et al., 2020; Muhid et al., 2020; Tawarik et al., 2021; Urban et al., 2023; Zhang, 2008) and, among many others reported significant positive effects that instruction in metacognitive strategies improves reading comprehension. On the other hand, other researchers such as Diebold (2011) and Pei (2014), concluded that instruction in metacognitive reading strategies doesn't lead to any significant gains in learners' comprehension. Such conflicting evidence raises the need to conduct this study to investigate the impact of deliberate instruction in metacognitive strategies.

Focusing on the Lebanese Context

In the realm of EFL, reading is regarded as one of the key skills in learning. However, the attempts to apply the efficient skills for the English language in national

curricula among non-Anglophone countries seem vulnerable. This is due to a wide range of sociocultural issues (DeWaelsche, 2015; Djamàa, 2016; Shaaban, 2014; Zhao & Zhu, 2012) as well as the important influence of teachers in English classrooms and learning assessment (DeWaelsche, 2015; Djamàa, 2016; Fahim & Sa'eepour, 2011; Zhou et al., 2015). Various studies have examined the relationship between metacognitive reading strategies and reading comprehension and extended our knowledge about the metacognitive perceptions of EFL learners in reading in native contexts. However, no such studies have been conducted in the Lebanese context. There is a scarcity of research on metacognitive perceptions of strategy use and their relation to literal and higher-order reading comprehension among EFL learners in Lebanon.

Furthermore, unfortunately, the instructional practice of teaching reading comprehension in Lebanon is characterized as being direct, placing emphasis on comprehension testing that merely targets retrieval of text content. Notably, teachers in Lebanon are still loyal to the reliance on the drill and practice model of instruction. Students are repeatedly exposed to direct tasks such as answering comprehension questions and doing skill exercises until they achieve mastery.

Multiple studies revealed that most of the learning of a foreign language in Lebanon is grounded in teacher-centered practices where students are treated as passive rather than active learners without providing real learning opportunities (Jabbour, 2013; Saba 'Ayon, 2012). Such an explicit teaching approach further exposes students to traditional tasks such as answering comprehension questions and doing skill exercises until they achieve mastery. Also, based on my own experience as a classroom teacher and based on the discourses I have with my colleagues within and outside the school I teach at, I can say that barely any language art teacher is methodically teaching strategic

reading. Van Keer (2004) notes that the interaction pattern of teacher questions in the traditional classroom, where the student responds, and the teacher evaluates, is inadequate to develop a deep comprehension of the text. Deliberate instruction that aims to make learners astute in selecting and evaluating reading strategies is hardly found in such classes. Hence, conducting this study opposes this dominant deliberate approach in which students in Lebanese educational context were taught metacognitive reading strategies in order to enhance their comprehension and develop self-regulation by gaining conscious control of their cognitive processes (Al Fassi, 2004) and to enable learners to construct meaning thoroughly and actively from any text (Freppon, 1999).

A student must take an active role in comprehending any text to become a self-regulated reader (Van Keer, 2004). When teachers deliberately teach students various metacognitive reading strategies and assist them in using them independently, they help students deliberately use these strategies to meet different reading comprehension tasks (Swanson & De La Paz, 1998). Hence, there's a need to conduct this intervention study to emphasize teaching a set of metacognitive strategies and prove its effectiveness on students' reading comprehension in the Lebanese context.

Focusing on both literal and higher-order types of comprehension

Almost all of the previous studies examined the use of metacognitive reading strategies to improve learners' reading comprehension globally as a general concept. These studies have conceptualized and dealt with reading comprehension as one variable and have not studied reading comprehension as a multifaceted variable that involves the literal, the higher-order, and the critical types of comprehension (Ghaith & El-Sanyoura, 2019). Hence, it is necessary to fill this research gap by investigating not only the interplay between metacognitive reading strategies, on one side, and reading

comprehension, on the other. Rather, there is at present a need to find the relative importance of global, problem-solving, and support categories of metacognitive reading strategies, which use may be impacted based on the type of comprehension (literal and higher order) the students are dealing with as well as the type of the text.

Filling a research gap

Only a few studies studied the effect of instruction in metacognitive reading strategies on EFL learners' comprehension of expository and narrative texts exclusively but excluded studying its effect on descriptive and persuasive texts. Since there is a lack of studies that have examined the relationships between metacognitive reading instruction and EFL learners' comprehension of narrative, descriptive, persuasive, and expository texts, this study is designed to fill this gap.

Furthermore, although various existing research shows that L1 and L2 students' reading comprehension improved after metacognitive reading strategy training, the extent to which this training is helpful to EFL intermediate students is much less known. Many studies of English learning involved only descriptive analysis of English language learning strategies in general, not teaching learners how to use metacognitive reading strategies, in particular, so the study aims to fill this gap. Lastly, the length of the study, which is two months, is longer than most other studies related to implementing metacognitive reading strategy instruction, which were only applied for a shorter period of time.

Proficiency level as an important moderator variable

Little is known about the issue of how deliberate instruction in metacognitive reading strategies may interact with the learners' levels of language proficiency and facilitate their reading comprehension. Some studies have examined the role of language

proficiency in strategy use. However, there is no consensus regarding the order of strategy preference among these studies. Some studies unanimously concluded that university students with a high level of language proficiency utilize a large number of learning strategies, at a higher frequency than low-level students (Lee, 2003; Psaltou-Joycey & Kantaridou, 2009). Similar results were found when younger learners were examined (Lan & Oxford, 2003). Vrettou (2009) reported that EFL learners at the beginner level used strategies less than intermediate and advanced-level students. In accordance with these results, Ikeda and Takeuchi (2003) reported that higher proficiency level students benefited more from strategy instruction than lower proficiency groups. Also, Akkakoson and Setobol (2009) investigated the effects of instruction in metacognitive strategies on Thai students' English reading comprehension, and the findings revealed that all the participants, no matter what their proficiency level is, improved in reading comprehension. However, the high reading proficiency subjects used more metacognitive strategies when reading texts than before.

However, Aliakbari and Mahjub (2016) concluded that there is no significant relationship between the metacognitive reading strategy use and the students' proficiency level. Also, Chularut and DeBacker (2004) did not find any advantage for strategy instruction in more advanced proficiencies.

Hence, considering the importance of this moderator variable because it's conceived to affect the use of reading strategies, and, in an attempt to deal with this conflicting evidence, there's a need to study the interaction between students' metacognitive strategy use and their level of proficiency.

Research design

Given the scarcity of quasi-experimental studies examining the effect of metacognitive reading strategy instruction in EFL contexts, our study aims to use the quasi-experimental research design, which allows us to compare control and experimental groups that are not randomly assigned, as students are already put into different sections, to determine the correlational and the causal relationships between the variables under study to understand the effects of the treatment in real-world settings.

Contribution to Research and Practice

This study represents an extension of previous investigations on metacognitive reading strategies and their effect on learners' reading comprehension. The findings of this study will have pedagogical implications for teachers and curriculum developers. The findings of the study support the fact that new standards emphasizing the importance of teaching metacognitive reading comprehension strategies should be adopted in schools. By teaching learners to use metacognitive strategies and comprehension monitoring, they can develop skills that they need to become proficient readers and critical thinkers. These skills will also benefit them in future reading tasks. The findings may lead curriculum developers to incorporate these strategies in the EFL Lebanese curriculum based on the text type to help students learn more successfully.

Moreover, it will encourage educators to enhance their teaching pedagogies and approaches, which in return will improve EFL learners' comprehension and boost their academic achievement as they gain new reading strategies. These metacognitive reading strategies will permit independent learning and will provide learners with not only individuality during school reading but will produce life-long readers and learners.

Furthermore, teachers can improve their learners' reading proficiency through deliberate instruction using specific metacognitive reading strategies depending on the type of text they're reading. These strategies can be taught to teachers during their professional development programs to assist them in improving their learners' reading comprehension. Using these metacognitive reading strategies will foster learners' self-monitoring whenever they're reading.

Consequently, it would be essential to incorporate these metacognitive strategies in the textbooks and make them part of the official curriculum by curriculum developers. The study can also encourage researchers to investigate further how the use of metacognitive reading strategies after deliberate instruction varies as the EFL learners' proficiency levels grow, and the texts' difficulty level changes. It can also encourage researchers to explore the interplay between instruction in different types of metacognitive strategies (global, problem-solving, support), the types of texts that EFL learners read, and the differential effects of this instruction on struggling, average, and proficient readers. By exploring these fields, researchers can gain a better understanding of the role that different metacognitive strategies play in EFL reading and develop more effective instructional practices that cater to the needs of learners at different proficiency levels while reading different genres.

Hence, the significance of the study is in its potential to contribute to our deeper understanding of metacognitive reading strategy instruction on EFL readers, thus suggesting directions for future research.

Definition of Key Terms

- **EFL:** It stands for "English as a Foreign Language." It is the teaching and learning of the English language in countries where English is not the primary language of communication.
- **TEFL**: It refers to “Teaching English as a Foreign Language.” It is usually taught as a subject in classroom settings, and students may have limited opportunities to use English outside of class.
- **TOEFL Junior:** It is a version of the TOEFL test, which stands for Test of English as a Foreign Language. It is designed specifically for younger students between the ages of 11 and 15 who are non-native speakers of English. The test is designed to assess the students' English language proficiency in the areas of reading, listening, and language form and meaning. It is used by schools and educational institutions to evaluate students' English language skills.
- **Metacognitive reading strategies:** These are thinking practices that readers use to plan, monitor, and regulate their own reading comprehension to make sense of what they read (Mokhtari & Sheorey, 2002). These strategies involve awareness and control of one's own thinking processes and include activities such as planning, evaluating, and revising comprehension. They include three categories, which are global, problem-solving, and support strategies.
- **Reading comprehension:** It is a multidimensional cognitive process that aims to give meaning to, and learn from various texts (Snow, 2002). Depending on how cognitively demanding texts are for the reader, comprehension can occur at the lower literal comprehension and at the higher-order levels (Tennent, 2015).

- **Literal Comprehension:** It refers to the ability to understand and recall explicitly stated information in a written text and making local inferences within the passage (Currie & Cain, 2015). It involves accurately identifying and recalling specific details, facts, and information presented in the text, such as the who, what, when, where, and why. It is considered the basic level of comprehension that precedes and supports the development of higher levels of comprehension.
- **Higher-order Comprehension:** It refers to the inferential level of comprehension that requires readers to make global inferences between passages as well as to incorporate pre-knowledge into the process of text comprehension (Cain & Oakhill, 2014). It involves interpreting, making inferences, drawing conclusions, synthesizing, analyzing text structure, evaluating information, and using prior knowledge and experiences to deepen understanding of the text beyond its literal meaning.
- **SORS:** It stand for the "Survey of Reading Strategies." The questionnaire was designed for use with ESL students; it has been field-tested and has demonstrated reliability and validity (Mokhtari & Sheorey, 2002).
- **Narrative Writing:** is a type of writing that involves story telling. It typically involves characters, a setting, a plot, and a point of view. It can be fiction or nonfiction. Also, it can also occupy the space between these as a semi-autobiographical story, historical fiction, or a dramatized retelling of actual events.
- **Descriptive Writing:** It is a type of writing that focuses on describing something and creating a vivid and detailed picture of it. That can be a person, a place, an object, or an experience in the reader's mind. It is characterized by the use of

sensory language, figurative language, and vivid descriptions to evoke the reader's emotions and senses and make him/ her feel like they're experiencing the subject you're describing firsthand.

- **Persuasive Writing:** It is a written work that aims to convince or persuade the reader to adopt the writer's point of view or take a specific action. It is characterized by the use of persuasive language, such as drawing on personal experience, using logical arguments and rhetorical devices, and appealing to emotions to influence the reader's beliefs, attitudes, or behaviors.
- **Expository Writing:** It is writing that exposes facts. In other words, it explains, informs, or describes a topic or concept in a clear and concise manner. It also educates its readers, rather than entertaining or attempting to persuade them by presenting factual information and providing logical explanations or analysis of a subject. Reading a scholarly article, a textbook page, a news report, or an instructional guide are all examples of expository writing.

CHAPTER 2

LITERATURE REVIEW

Theoretical Framework of Metacognition

This chapter presents the theoretical framework of the study. The chapter reviews the research studies that examine the relationship between explicit instruction in metacognitive reading strategies and learners' reading comprehension across different proficiency levels. Specifically, it expounds the following concepts: Metacognition, Flavell's model of cognitive monitoring and knowledge and regulation in metacognition. In addition, it sheds the light on the importance of reading in language learning, reading models, levels of reading comprehension, metacognitive reading strategies, and the role of instruction in metacognitive strategies in reading comprehension across proficiency levels.

The theoretical framework that undergirds this study is metacognitive theory, the belief that self-monitoring is essential for reading comprehension (Flavell, 1976). Flavell explains that young children are quite limited in their knowledge about cognition and cognitive phenomena, their metacognition (1979). Metacognition plays an important role in various types of self-control, self-instruction, memory, language, and others (Flavell, 1979). Many researchers (e.g., Flavell, 1987; Gunstone & Northfield, 1994; Paris & Winograd, 1990) have related metacognition to important features of learning, recommending that it should be included in educational systems and school curricula (Noushad, 2008).

Metacognition

The concept of metacognition has been used to indicate a variety of epistemological processes. The term metacognition was coined by John Flavell (1976). Since then, "metacognition" became an important concept in cognitive development and educational psychology theories (Jacobs & Paris, 1987), and many researchers have strived to provide more subtle definitions of this complex concept and emphasized its role in learning performance. Flavell defines metacognition as "one's knowledge concerning one's own cognitive processes and products, or anything related to them" (p. 232). Metacognition, in other words, is basically defined as "cognition about cognition or thinking about thinking" (Carrell, 1998, p. 1). As described by Moore (1982), metacognition is perceived as one's knowledge about a number of thinking characteristics. Generally speaking, metacognition in reading refers to the learner-performed actions such as planning, monitoring, or evaluating the success of a particular learning task (Chamot & O'Malley, 1994). Metacognition, as stated by Mokhtari and Reichard (2002) has been described as the mindfulness and observing procedures that comprise the information of the readers' discernment about perusing and the restraint components they practice when monitoring and managing content perception. Li and Munby (1996) present metacognition as the capability of an individual to consciously observe him/herself. The concept was then widened to also include psychological aspects that include cognition about the person's personal emotions or intentions regarding a cognitive initiative (Flavell, 2000). For example, being conscious of one's own worry during the process of solving a problem in an exam paper can be classified as metacognitive (Flavell, 2000).

Respectively, Paris and Winograd (1990) explained that "meta-cognition holds two vital traits: self-appraisal and self-management of cognition" (p. 17). Self-appraisals represent the learners' individual images about their own knowledge conditions and capacities as well as their affective conditions concerning their knowledge, capabilities, motivation, and features as learners. These thoughts are connected to questions related to "what you know, how you think, and when and why to implement knowledge policies" (Paris & Winograd, 1990, p.17). Furthermore, self-management signifies metacognition in action. In other words, it's related to mental procedures involved in "coordinating facets of problem solving" (Paris & Winograd, 1990, p.17). This embraces planning before the task, modifying during the task, and revising after the task (Paris & Winograd, 1990). So, metacognition refers to people's knowledge about their own information-processing skills, the nature of cognitive tasks, and the strategies needed to cope with such tasks. Furthermore, the term also includes monitoring and self-regulation skills related to one's own cognitive activities (Artelt & Schneider, 2015). Most theoreticians agree that most active learners are self - regulating (Butler & Winne, 1995). They also tend to agree that the key to active self-regulation is exact self -assessment of what is known or what is unknown (Schoenfeld, 1987).

In a nutshell, the concept of metacognition has been expanded to include not only "thoughts about thoughts", but also knowledge of one's knowledge, practices, cognitive and affective situations, and the capability to intentionally observe and adjust one's knowledge, practices, and cognitive and affective situations.

Flavell's Model

Flavell's (1979, 2000) model of metacognition has framed the research in the field of metacognition. The model comprises the four categories of (a) metacognitive knowledge, (b) metacognitive experiences, (c) goals/tasks, and (d) actions/strategies.

Metacognitive Knowledge. Metacognitive knowledge indicates one's knowledge about the factors that affect cognitive initiatives. These factors act and interact in ways that affect the course and the outcome of the cognitive enterprise (person, task, strategy). It is the knowledge that one learns about cognitive processes and the varied cognitive tasks, goals, actions, and experiences, and it has three variables: person, task, and strategy.

The first variable in metacognitive knowledge is the person variable. The person variable is related to learners' consciousness about how they learn and process their cognitive actions. The person variable also involves the learners' awareness of their strengths and weaknesses in reading. It is subcategorized into intrapersonal, which comprises beliefs about the person's own cognition, interpersonal, which comprises beliefs about other people's cognition, and universal cognition, where there are various degrees of understanding or misunderstanding by either failing to form a coherent representation or understanding incorrectly.

The second variable in metacognitive knowledge is the task variable. This is related to the nature and requirements of the task. It is about understanding that some cognitive enterprises are more demanding than others and understanding about what variation in quality and quantity of information implies for management of cognitive task and how likely its success. For instance, a learner may be aware of his or her need for more time to understand an expository text than others.

The third variable, which is the strategy variable, includes the strategies required to achieve the objectives. It is the knowledge about what strategies are effective in achieving what goals. For example, a learner might know that the strategy of taking notes is efficient for summarizing a text.

All of these three variables are inter- related when learners are involved in metacognitive activities. In other words, most metacognitive knowledge concerns interactions among the above. This knowledge is the same as any other kind of knowledge stored in long term memory. It may be active intentionally or unintentionally. However, activated, it may remain unconscious or become conscious and give rise to a cognitive experience. It can be inaccurate, fail to be activated when needed, and fail to have a beneficial effect.

Metacognitive Experiences. Metacognitive experiences are any conscious or affective experiences that accompany and pertain to any intellectual enterprise (Flavell, 1979). Metacognitive experiences involve one's use of metacognitive strategies or metacognitive regulation. This includes people's inner reactions of their metacognitive processing. These experiences can be brief or lengthy, simple or complex (Flavell, 1979). They can occur any time before, during or after a cognitive enterprise, and they are more likely to occur in tasks that require conscious thinking like school or work (Flavell, 1979). Metacognitive experiences are specifically expected to occur in conditions that arouse a lot of alertness and provide many possibilities for thoughts and feelings about one's own thoughts (Flavell, 1979). According to Flavell, these metacognitive experiences have different effects (1979). They lead the person to establish new goals and revise or abandon old ones. They also affect the metacognitive knowledge base by adding to it, deleting from it, or revising it; not to mention the fact that metacognitive knowledge can't be

formed without having metacognitive experiences. Lastly, these metacognitive experiences can activate strategies aimed at cognitive or metacognitive goals.

Goals/ Tasks. Goals are the objectives or the aims of the cognitive task (Flavell, 1979). For example, in reading, an objective or a task may be to make an inference about a certain character in the text.

Actions/ Strategies. Strategies are the cognitions or other behaviors employed to achieve them. Learners employ the strategies to reach their cognitive and metacognitive goals as these strategies enable learners to control their cognitive growth and thinking activities and to know whether their cognitive objectives are met or not.

Lastly, it should be pointed out that cognitive practices are detected by people using mechanisms that are defined in these four categories. Furthermore, monitoring of these cognitive enterprises occurs through the actions and interactions among these four categories.

Knowledge And Regulation in Metacognition

As early as 1978, Flavell defined metacognition as "knowledge that takes as its object or regulates any aspect of any cognitive behavior" (p. 8). Afterward, metacognition has more clearly been specified as inclusive of two main dimensions, which are knowledge of cognition and regulation of cognition (Flavell, 1978).

Knowledge of Cognition. Knowledge of cognition involves three components that are labeled “declarative," "procedural," and "conditional" knowledge (Paris et al., 1983).

Declarative Knowledge. Declarative knowledge is propositional knowledge; it refers to “knowing what”. McCormick (2003) describes it as “knowledge that a person may have about his or her abilities and about the salient learning characteristics that affect cognitive processing” (p. 80). Declarative knowledge is recognized when a learner knows

the repertoire of strategies to employ during learning. Declarative knowledge points to a learner's understanding of what reading strategies are, such as knowing what summarizing, inferring, and skimming are.

Procedural Knowledge. On the other hand, procedural knowledge is "knowing how" to perform various actions and the steps necessary to employ the strategies. McCormick (2003) explains it as the "knowledge of how to execute procedures such as learning strategies" (p. 80). This knowledge requires learners' understanding of what reading strategies are and how to use them like "how to study, how to deal with analogies, or how to write summaries" (Winograd & Hare, 1988, p.134).

Conditional Knowledge. Lastly, conditional knowledge refers to "knowing why". It includes the learner's understanding of the rationale for acquiring and using certain strategies, knowing where and when to employ them, and evaluating their efficacy as well. Conditional knowledge is necessary for a reader to select the strategies that are the most appropriate, and whether or not they are working effectively for that learner for a variety of tasks to reach their reading objective.

Regulation of Cognition. The second aspect of metacognition is the regulation of cognition. This regulatory function is referred to as when a "higher order process orchestrates and directs other cognitive skills" (Paris et al., 1984, p. 1241). This notion of an executive skill is basis of an information-processing model of human cognition (Brown et al., 1982). Regulation of cognition incorporates the processes necessary to monitor and control learning as planning, using information management strategies, comprehension monitoring, revising, and evaluating the strategies employed during reading. (Baker & Brown, 1984; Schraw & Dennison, 1994)

As explained by Carrell (1987), these self-regulatory metacognitive skills are used in reading for different purposes, which are:

- to clarify the purposes of reading, which is understanding both the explicit and implicit task demands.
- to identify the important aspects of a message
- to focus attention on the major content rather than trivia
- to monitor ongoing activities to determine whether comprehension is occurring or not
- to engage in self-questioning to determine whether goals are being achieved or not
- to take corrective action when failures in comprehension are detected (p. 239).

Hence, the two key metacognitive factors in reading are knowledge and control. The first is concerned with what readers know about their cognitive resources, whereas the latter is concerned with readers' regulation of these cognitive resources. Furthermore, regulation in reading comprises the awareness of and ability to notice text contradictions, knowledge of different strategies to use with various text types, and the ability to separate appropriate and important information from inappropriate and unimportant ones.

Reading Models

There are three major categories of reading models that were originally proposed from the perspectives of first language reading research and are usually studied and applied to L2 reading theory. Reading research has supported the notion that both L1 and L2 readers tend to go through similar cognitive processes (Alderson, 1984; Grabe, 1991,

2004; Eskey, 2005). These models have been significant in both L1 and L2 reading research and can be recognized from one another.

The Bottom-up Model

The emphasis in the bottom-up model is on the print itself (Gough, 1972). It primarily emphasizes textual decoding. It is the automatic, word-driven process; as readers transfer from lower- level processes to higher-level processes (Phakiti, 2006; Stanovich, 1980). In this model, readers start reading by recognizing the letters, word identification, and then, they gradually progress toward larger linguistic chunks to sentences, and eventually end up understanding the structure and allocating meaning to larger syntactic components. The whole reading process in this model is basically word-based and a reader can construct the meaning of a reading passage by decoding each word in it. This reading model believes that students who master this process quickly become proficient readers, whereas those who do not become struggling readers whose proficiency is obstructed by their inability to decode. For instance, according to the bottom-up model, the reading process is guided by each word in the text and a reader decodes each word in order to obtain a meaning. As Pressley (2000) explains, skilled decoders are able to recognize frequent letter chunks, prefixes, suffixes, and foreign root words rapidly and such an ability can free more memory capacity in the learner's brain for reading comprehension. However, less skilled readers put more effort into the decoding process, which leads to a less processing capacity in the brain for reading comprehension. Breznitz (1997, as cited in Pressley, 2000) also confirms this notion by concluding that fast decoding improves reading comprehension.

However, this model has been criticized because it does not consider the contribution of a reader's active role and background knowledge to reading

comprehension. This is because it follows a mechanical pattern where the reader creates a piece-by-piece mental translation of the text information without or with only little intervention from the reader's background knowledge. Furthermore, critics believe that this model causes slow and arduous reading because the reader's short-term memory is overloaded, and readers will forget easily what they have read when the reading comes to an end (Adams, 1990).

The Top-down Model

The emphasis in the top-down model is on the reading process that is mostly guided by the reader's past knowledge and experience. It is a concept driven model where the readers' background knowledge, experience, and expectations guide them to construct meaning from a reading text. As Eskey (2005) explains, the top-down model emphasizes that the whole reading process is basically "from brain to text" (p.564). Hence, a reader begins with particular expectations about the reading text. These expectations are derived from the reader's background knowledge and then using the vocabulary knowledge the reader possesses in decoding words to confirm and modify previous expectations (Aebersold & Field, 1997). So, the reader in this model is the one who constructs the meaning of the text by fitting it into his or her prior knowledge, whereas the reading text itself does not have any meaning. Smith (2004) claims that a reader plays an active role in translating print into meaning by using knowledge of a relevant language, knowledge of subject matter, and knowledge of how to read to confirm or reject his/ her hypotheses.

Nonetheless, the top-down reading model has been criticized because of its over-reliance on the readers' prior linguistic and conceptual knowledge and its neglect of the importance of the text (Eskey, 1973; Pearson, 1979). Moreover, the model disregards the potential difficulties a reader may have or may encounter with guessing or expecting the

text's topic if the material was uncommon to him/ her (Samuels & Kamil, 1988), which is specifically true for foreign language learners.

Consequently, since the bottom-up theory was criticized for its failure to consider the reader's role in the reading process while the top-down theory was criticized for its over reliance on the reader's prior linguistic and conceptual knowledge while neglecting the importance of the text (Eskey, 1973, 1986; Pearson, 1979), the interactive reading model emerged.

The Interactive Processing Model

The interactive model combines the features of both the bottom-up and the top-down models. The model stresses the interrelationship between the text and the reader. Proposed by Rumelhart (1977), the interactive model advocates that neither bottom-up nor top-down models can by themselves describe the whole reading process. Instead, there is an interaction between the bottom-up and top-down processes (Rumelhart, 1977). Grabe (1991) further explains that the interactive theory of reading as one that takes into consideration the critical contributions of the lower-level processing skill (word identification), on one side, and the higher-level comprehension and reasoning skills (text interpretation) on the other side. Thus, the reading comprehension process is the result of meaning construction between the reader and the text, rather than simple transmission of the graphic information to the readers' mind (Eskey, 2005). Furthermore, the interactive processing model comprises two different notions, which are the interaction between the reader and the text (using background/ prior knowledge to rebuild text information) as well as the interaction between many constituent skills. These comprehension skills vary from fast lower-level quick automatic skills to higher-level interpretation skills and work concurrently in the process (Alderson, 2000; Grabe, 1991; McLeod & McLaughlin,

1986). These two levels of interaction complement each other. Comprehension is the outcome of these interactive variables, which function concurrently rather than successively. The interactive model is commonly accepted as the most conclusive picture of the reading process for both L1 and L2 readers (Anderson, 1999). However, critics of this model believe that a skilled reader simultaneously synthesizes the information available to him or her from several knowledge sources of either bottom-up or top-down during the reading process.

The reading process in the interactive model is guided by an interaction between the text information and the reader's previous knowledge as well as interaction between different reading strategies (Brunning et al., 1999). It should be noted that this study is guided by the fact that metacognition is a mode of instruction that focuses on the interactive nature of reading rather than a passive way of receiving information from the text through word identification and task analytic learning.

Levels of Reading Comprehension

Reading comprehension is a complex process, (Afflerbach et al., 2008; Eker, 2014; Pretorius & Lephalal, 2011). Reading comprehension is defined as the ability to acquire meaning from written text (Whitaker et al., 2004). It is the process of building meaning from a piece of writing, where the writer encodes thought as language, and the reader decodes language to thought. Readers, during this process, apply their knowledge of phonemic awareness, decoding, word meanings, cognitive strategies, and metacognitive strategies (Pecjak et al., 2011). When readers miss one or more of these skills, reading comprehension breaks down. For instance, a student may have proficient decoding skills, but while reading, s/he may not connect prior knowledge to the text or may not use reading strategies, which results in the breakdown of their comprehension.

Roe and Smith (2012) conceptualized reading comprehension as an act of general and specific communication which involves literal and higher-order comprehension.

Literal Comprehension

Literal comprehension is defined as the ability to comprehend the ideas that are directly stated in the text (Roe et al., 2009). It is considered the most basic or the entry-level of comprehension. In the literal level of reading, learners are expected to reproduce the facts supplied by the writer. This, for instance, includes grasping word meanings, recalling stated concepts, and acknowledging the sequence of events or information. It also includes following written directions and identifying details and sequences.

Higher-Order Comprehension

Higher-order comprehension involves the understanding of concepts and ideas conveyed in the text. It entails the identification and interpretation of the meaning of the text as a connected whole rather than as a series of individual words and sentences. Higher-order comprehension depends on the thinking processes and necessitates the interpretation and the synthesis of information. It has three subcategories, which are interpretive, critical, and creative comprehension. Roe et al. (2009) explicate that interpretive comprehension is as reading between the lines and making inferences in order to develop ideas that are not explicit in the text. It particularly includes making inferences about main ideas, implied cause-effect relationships, understanding pronoun and adverb referents, determining mood and purpose, drawing conclusions, inferring figurative language as well as problem- solving and assessment of the accuracy, appropriateness, bias, and timeliness of information (Ghaith & El-Sanyoura, 2019).

Metacognitive Strategies

Successful reading requires the application of various reading strategies. Numerous definitions have been developed by researchers in the educational field in an attempt to define reading strategies (Carrell, 1998; Duffy, 1993). These definitions tend to summarize reading strategies as a wide range of problem-oriented techniques that individual readers intentionally employ when reading a text in order to construct meaning. Pervious research studies have used a variety of classifications to categorize reading strategies (Alsamadani, 2008). One of these categorizations distinguishes between cognitive and metacognitive strategies. This difference lies in the variation between mastering an array of reading strategies, which is cognition, and being aware of the strategies' use including monitoring and regulating of these strategies as they take place during reading, which is metacognition. Ghaith (2020) defines metacognitive reading strategies as means that learners utilize to monitor their comprehension and better comprehend what they read. Metacognitive reading strategies do not only require learners to think about their own thinking as they engage in academic tasks (Cubukcu, 2008), but they also direct and control their cognitive strategy processing to successfully perform while reading (Phakiti, 2003). Metacognitive reading strategies have been extensively investigated and have proven in many studies to be effective in improving reading comprehension in EFL contexts (Albazi & Shukri, 2016). This explains why many researchers (Flavell, 1987; Gunstone & Northfield, 1994; Paris & Winograd, 1990) have related metacognition to important facets of learning, recommending that it be included in educational systems and school curricula (Noushad, 2008).

Cohen and Dornyei (2002) explicate that learners consciously use metacognitive strategies in order to monitor their language learning. This permits learners to lead their

own cognition by designing what they will do, evaluating how it is going, and then examining how it went (Cohen & Dornyei, 2002).

Strategies that are related to reading are categorized into three clusters of metacognition, which are planning, monitoring, and evaluating strategies (Israel, 2007; Pressley & Afflerbach, 1995).

Planning

Planning takes place at the pre-reading phase. The reader's ability to plan plays an immense role in learning (Palinscar & Brown, 1984; Zimmerman & Pons, 1986). It involves mastering strategies such as: previewing a reading text, activating prior knowledge to get prepared for reading, predicting, goal setting and creating an agenda or a plan for the reading process. Also, previewing a title, picture, illustration, identifying headings or subheadings can help readers grasp the overview of the text. Readers may also preview the general information in the text and its structure (Almasi, 2003; Paris et al., 1996). Furthermore, the reader may have a general idea about the overall information in the text and the text structure, such as cause and effect, question and answer, and compare and contrast.

Monitoring

Schraw (1998) defines monitoring as "one's on-line awareness of comprehension and task performance" (p. 115). For readers to monitor their reading, they 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). Monitoring strategies are applied during reading such as comprehension of vocabulary, self-questioning by reflecting on whether they understood what they have read, summarizing, and inferring the main idea of each

paragraph (Israel, 2007; Pressley, 2002). Readers in this phase can also detect and give attention to the text's key words including but not limited to keywords like *but*, *however, on the other hand*, *in addition*, *also*, and *in conclusion*. Furthermore, readers can decide which sections of the text can be stressed or ignored according to the objectives of the task (Hudson, 2007).

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). In other words, evaluating, as the last metacognitive phase of reading, involves assessing the overall quality of reading done both during and after reading. For instance, when learners read the text, they may think about applying what they have read to other circumstances (El Sanyoura, 2017). Also, they may construct a better outlook towards the situation they read than they did at first (El Sanyoura, 2017).

Thus, metacognitive reading strategies are classified into three groups of planning (pre-reading), monitoring (during reading), and evaluating (post-reading) strategies, and each group has various strategies that require readers' metacognitive processing.

Categories of Metacognitive Strategies

Mokhtari and Sheorey (2002) classified these strategies into the three categories of global, problem-solving, and support strategies. They also proposed the *Survey of Reading Strategies Scale* (SORS) to assess them (Mokhtari & Sheorey, 2002).

Global Strategies

Mokhtari and Sheorey (2002) define global strategies as "intentional, carefully planned techniques by which learners monitor or manage their reading, such as having a

purpose in mind, previewing the test as to its length and organization, or using typographical aids and tables and figures." (p. 4). Mokhtari and Reichard (2002) explicate that global strategies prepare the reader for reading like setting a purpose for reading, previewing, skimming, predicting, using clues, non-textual elements and typography, and activating background knowledge to support comprehension.

Problem-Solving Strategies

Mokhtari and Sheorey (2002) define problem-solving strategies as actions and procedures that readers use when problems develop in understanding textual information; examples include adjusting one's speed of reading when the materials become difficult or easy, guessing the meaning of unknown words, and rereading the text to improve comprehension." (p.4). In other words, these strategies are employed to solve problems which come to surface when the text becomes challenging and difficult to read like re-reading, slowing down, reading aloud, guessing the meaning of unfamiliar words, and visualizing information.

Support Strategies

These strategies are defined by Mokhtari and Sheorey (2002) as "basic support mechanisms intended to aid the reader in comprehending the text such as using a dictionary, taking notes, underlining, or highlighting textual information." (p.4). Support strategies help the reader while reading by using outside reference aides like dictionaries, paraphrasing what is read, note taking, annotating, and also employing post-reading activities like going back and forth in the text to link ideas or debating them with others.

Explicit Metacognitive Strategy Instruction

Many researchers have conducted studies addressing the best practices in comprehension instruction. So, it is not surprising that explicit metacognitive reading

strategy instruction has gained attention from numerous researchers in the recent years. The notion of strategy instruction is one of the issues that has been integrated into language teaching methodologies. Researchers' rationale is that learners can achieve higher levels of language achievement when they are explicitly taught language learning strategies and when they are given the opportunity to realize not only what they can learn in the language classroom, but also how they can learn the language they are studying (Graham & Harris, 2000). Besides, Evans et al. (2015) suggest that explicit instruction is essential for improving metacognitive awareness of strategy use for developing strategic readers like second language readers in academic settings. This explains why researchers have been giving attention to the integration of explicit instruction of language learning strategies into the classroom curriculum. For instance, Nunan (1996) recommends that "language classrooms should have a dual focus, not only on teaching language content but also on developing learning processes as well" (p.14). The primary goal of such instruction is to raise learners' awareness about the existing strategies and then allow each learner to select appropriate strategies to achieve his/her learning goals. Cohen (1998) and Oxford and Leaver (1996) also assert that the most efficient strategy instruction takes place when it is integrated into regular classroom instruction.

Explicit strategy instruction raises the consciousness of students of their own strategy use as well as of the existence of other strategies (Oxford, 1990). Empirical evidence indicates that strategy instruction leads to improved reading comprehension and strategy use, and independent reading behavior (Aghaie & Zhang, 2012). In terms of the comprehension instruction mode, Reuztel et al. (2005) indicate that the instruction of cognitive strategy has been given much importance, which evolves from the teaching of single cognitive comprehension strategy in isolation to the teaching of multiple "set" or

"family" of comprehension strategies in coordinated use. However, when it comes to metacognitive control, in which the reader consciously directs the reading process, this particularly important aspect of strategy reading is not emphasized. Hence, metacognitive strategy instruction is more critical in nature compared to the instruction of cognitive comprehension strategy.

Explicit metacognitive instruction is also supported by Vygotsky's theory that learning is social. Vygotsky believes that children learn best when they have social interactions with adults or other proficient peers, and these interactions increased cognitive development (Whitmore et al., 2005). In addition, when learners engage in learning with another one who is more skilled like a teacher or peer, learners and their partner co-construct knowledge together (Grelder, 2008). Afterward, students typically receive guidance and encouragement on a skill that is too difficult to be completed independently when co- constructing knowledge (Grelder, 2008; Whitmore et al., 2005).

Furthermore, in relation to metacognition, Zimmerman and Poulsen (as cited in Eker, 2014) indicate that students who are able to self-regulate have shown to "have higher self-efficacy, motivation, and success" (p. 270). Learners apply metacognitive knowledge and regulation to help guide how they will accomplish their goal (Winne & Azevedo, 2014). While reading, readers monitor and assess whether they are making meaning from the text, which is called comprehension monitoring (Gredler, 2008). Comprehension monitoring helps readers to recognize when meaning from the text is not being created and which strategy to implement to comprehend text (National Reading Panel, 2000). By using metacognition, the reader realizes there is a cognitive dissonance and is able to apply a new cognition strategy. Here comes the role of the teacher during explicit instruction where s/he must explain to students why strategies are important and

when and how to use these strategies (Gredler, 2008; McCown & Thomason, 2014). Afterward, students get trained by the teacher after explicit instruction on metacognitive regulation model during whole group and small group settings (Askell-Williams et al., 2012; Eilers & Pinkley, 2006). The teacher models the strategy in different contexts for students to understand how to be flexible with their use of strategies (Gredler, 2008). Small groups provide students with the opportunity to practice and receive feedback (Gedler, 2008). Vygotsky suggested that students have to collaborate with teachers to make learning meaningful and become independent learners (Askell-Williams et al., 2012; Eilers & Pinkley, 2006; Gredler, 2008). By the teacher modeling, asking questions, guiding, and providing feedback, the student will have a foundation to build upon when s/ he works independently (Gredler, 2008).

In their book, Sáiz-Manzanares and Montero-García (2014) explain that strategy instruction is typically moderately to highly successful, regardless of the strategy used or instructional method. In other words, students usually benefit from strategy instruction, whether it's given on single strategies or combinations of strategies (Sáiz-Manzanares & Montero-García, 2014). Furthermore, strategy instruction appears to be most beneficial for younger students, as well as for low-achieving students of all ages (Sáiz-Manzanares & Montero-García, 2014). One reason may be that younger and lower-achieving students know fewer strategies and therefore have far more room for improvement. This instruction should begin in elementary school and be maintained onward as students' progress through their academic career (Schraw & Gutierrez, 2015). Baker (2015) even suggests that children should be given strategy instruction before they are fluent readers. Strategy instruction that is backed by a focus on self-regulation and metacognitive skills has long been supported in the literature (Pressley & Harris, 1990). Unfortunately, in real

classroom environments, teachers often struggle to incorporate scaffolded implementation of various reading strategies in their daily instruction (Pressley et al., 1998; Pearson & Cervetti, 2017) although many studies assert that teachers play a critical role in guiding students in the development of their metacognitive skills (Dignath & Veenman, 2021; Gersten et al., 2001).

In the literature of learning strategies, Boulware-Gooden et al., 2007; Carrell et al., 1989; Chamot & O'Malley, 1994; Cohen, 1998, 2011; Cubukcu, 2008; Dermitzaki et al., 2008; Dhieb-Henia, 2003; Eilers & Pinkley, 2006; Greenfell & Macaro, 2007; Houtveen & Grift, 2007; Jacobs & Paris, 1987; Obeid, 2001; O'Malley & Chamot, 1990; Oxford, 1990; Pinto, 2009; Rubin et al., 2007; Salataci & Akyel, 2002; Shouman, 2006; Taylor et al., 2006; Van Keer, 2004; Zhang, 2008 have extensively argued in favor of strategy training, pointed out its significance, and offered evidence of its success. They, among many others, reported significant positive effects that instruction in metacognitive strategies improves reading comprehension. This explicit instruction is provided by teachers who explain the purpose of the strategies, model how to implement them, think aloud, and provide feedback to students during guided practice (McTavish, 2008).

Also, more studies also proved that students have to be given explicit instruction like Aghaie & Zhang, 2012; Ajideh et al., 2018; Akkakoson, 2013; Albazi & Shukri, 2016; Al-Kiyumi et al., 2021; Bui & Fagan, 2013; Cox-Magno et al., 2018; de Boer et al., 2018; Eker, 2014; Fathi & Afzali, 2020; Gayo et al., 2014; Kärbla et al., 2020; Lee, 2018; Lipari, 2014; McCown & Thomason, 2014; Mohseni et al., 2020; Muhid et al., 2020; Othman et al., 2014; Tavakoli & Koosha, 2016; Tawarik et al., 2021; and Urban et al., 2023.

Research shows that readers as young as first graders can start learning self-regulation skills during explicit reading instruction (Boulware-Gooden et al., 2007; Eilers & Pinkley, 2006). Dermitzaki et al. (2008) point out young and poor readers could benefit from early interventions with applying comprehension strategies to enable them to become self-regulated readers.

Optimal Learning Method (OLM)

It is a direct cyclical framework that is based on Pearson's gradual release of responsibility instructional model (Routman, 2014). This gradual release occurs as a result of the students' learning process, which then enables them to develop greater competence and confidence, leading to increased independence, reduced reliance on only the teacher, and improved problem-solving abilities.

This model is based on the principles of Vygotsky and Bruner, who suggest that much of our cognitive abilities are acquired through social interaction, particularly with skilled adults. This enables social interaction as well as scaffolding, which refers to the provision of support that is gradually reduced as the child becomes more proficient (Pressley, 2002). According to the social constructivist perspective, adults and children work collaboratively together to help the child learn and understand comprehension strategies and apply them effectively.

The process begins with the teacher providing the necessary demonstration and modeling of the comprehension strategy. Modeling has been shown to be a highly effective tool for cognitive apprenticeship, as the teacher verbalizes his/ her internal thought process to make it explicit and externalize it for the students (Collins et al., 1989, as cited in De Corte & Verschaffel, 2001). The teacher then provides practice opportunities, allowing the students to gain independence in applying the strategy. The

Optimal Learning Model (OLM) illustrates the students' sequential progression from situations where the teacher assumes full responsibility for completing or modeling any task, to situations where the responsibility gradually shifts to the students, and finally to situations where the students take full responsibility for the task. Throughout this process, the teacher continues to be available as a scaffold, supporting and guiding the students to avoid failure and develop the necessary skills to succeed. The teacher's ongoing communication of his/ her availability as a scaffold ensures that students do not become discouraged and give up on the task.

Students are also given a chance to interact with their peers in the class. In the classroom, Vygotsky's sociocultural perspective is highlighted, as peer sharing and collaboration helps to promote effective learning by providing students with opportunities to exchange ideas, discuss their understanding of concepts, and receive feedback from their peers. By engaging in collaborative learning, students can develop a deeper understanding of the material, as they work together to apply strategies, construct meaning, and solve problems (Vygotsky, 1986). This can lead to increased learner efficacy, as students feel more confident in their abilities to learn and apply new strategies and skills.

Furthermore, previous research has shown that while many students may be able to memorize strategies they are taught, they often struggle to independently transfer their strategic thinking to new situations. Block and Johnson (2002) suggest that effective comprehension instruction should strike a balance between being too prescriptive and too free flowing. When teachers are overly dominant in class, students may not know how to develop the ability to apply their skills independently. Conversely, when instruction is too loose and unmonitored, students may not develop the tools necessary for strategic

thinking while reading. The Optimal Learning Model provides a balance between teacher-directed instruction and student-centered experiences that helps students reach a point where they can apply comprehension strategies independently.

To sum it up, the effectiveness of the Optimal Learning Model is not solely based on the scaffolding provided during lessons, but also on the gradual reduction of scaffolding over time and across lessons as well as the social interaction it provides. Teachers must have a deep understanding of the most effective reading strategies and be able to convey them to students in a way that makes sense to them. Also, teachers must create classrooms that foster authentic engagement between teachers and students, as well as among students themselves, in the context of reading comprehension instruction (Keene & Zimmermann, 1997).

Research on the Effects of Metacognitive Strategy Instruction

A plethora of studies have been conducted on the effects of explicit metacognitive instruction and training including but are not limited to the following. The following studies are arranged in chronological order, in descending order of recency.

In their study, Urban et al. (2023) tested the impact of a field-based intervention on strategic awareness and reading comprehension and vocabulary achievement. The study developed a metacognitive strategy training program for meta-comprehension strategies and researcher-designed materials to aid Grade 3-5 and also provided support for Grade 3-5 teachers to implement and integrate the program into their classrooms over the course of one academic year. Students in the treatment conditions were contrasted with students in a typical classroom practice conditions. The results revealed that students in the intervention group showed greater gains in strategic awareness and achieved higher on a standardized test of reading comprehension and vocabulary than their peers in the

control group. Researchers reported that the benefits of the intervention were consistent across grade levels, and prior reading performance and reading self-efficacy. They also noted that effective strategy instruction for reading comprehension involves not only the use of active and elaborative strategies but also the metacognitive knowledge about how, when, and why to use specific strategies (Urban et al., 2023).

Al-Kiyumi et al. (2021) investigated the effect of metacognitive reading strategies on the reading comprehension and attitudes of Omani EFL foundation-level students. Researchers selected the participants based on the students' results in the midterm reading comprehension exam and their responses to the metacognitive strategies survey (MARSI). In a quasi-experimental study, the experimental group received instruction related to the metacognitive reading strategies whereas the control group received conventional reading instruction. As a result of metacognitive reading strategies instruction, the results of the study revealed that there was a statistically significant difference between the learners' reading comprehension in the experimental group compared to the control group in favor of the first. Furthermore, results showed that students in the experimental group held positive attitudes towards using metacognitive reading strategies.

Tawarik et al. (2021) analyzed in a quasi-experimental study whether metacognitive strategy instruction CALLA (Cognitive Academic Language Learning Approach) affects students' reading comprehension and reading awareness. The results showed that the experimental group had significantly scored higher than the control group students on reading comprehension post-test and also showed significantly higher improvement in metacognitive reading strategy awareness and reading comprehension compared to the control group students. Hence, it was concluded that the CALLA

metacognitive strategy instruction treatment improved the students' reading comprehension and reading awareness. The researchers also recommended CALLA metacognitive strategy instruction to be an effective option for teaching reading comprehension skills at the senior high school level and in the contexts, which share similar characteristics.

Kärbla et al. (2020) examined the effects of teaching text comprehension strategies at literal, inferential, and evaluative levels on vocabulary and text comprehension. A three-month long intervention was applied on sixth grade students to target their active cognitive strategies and metacognitive monitoring. Teachers used explicit instruction to describe and model the appropriate use of each strategy. Afterward, students practiced strategy implementation in peer groups and individually and were provided with feedback. The results revealed that the explicit teaching of strategies significantly promoted students' vocabulary and text comprehension at the literal, inferential and evaluative levels in the experimental group whereas students in the control group improved only in terms of their literal text comprehension. The analysis revealed that students in different profile groups of the experimental groups benefited from the intervention. In the experimental group, students from the average low-profile students managed to benefit from the intervention in terms of their literal, inferential and evaluative text comprehension whereas the average-high profile students achieved better results only in literal comprehension, but their performance in terms of evaluative comprehension did not improve, which may be backed up by previous studies that indicate that the effect of intervention for skilled readers may be minimal. On the other hand, in the control group, the literal comprehension improved only for students from the average low-profile group (lower initial reading comprehension), which may be

explained by teachers in general giving reading instructions at an average level. Thus, researchers concluded that since various strategies can improve students' text comprehension at different levels, they should be included in the curriculum and reading lessons. Furthermore, the results suggested that initial levels of proficiency in reading comprehension and vocabulary may therefore play an important role in response to strategic interventions.

Mohseni et al. (2020) conducted quasi-experimental research to examine the effect of metacognitive strategy training and critical thinking awareness- raising on EFL learners' reading comprehension of general reading, cause and effect, and argumentative texts. The study attempted to investigate the extent to which raising Iranian EFL learners' awareness of critical thinking skills and three sets of metacognitive reading strategies including global, problem-solving, and support may influence the three groups of participants' reading comprehension. 54 intermediate male Iranian EFL learners were randomly assigned as two experimental groups receiving metacognitive training and critical thinking awareness-raising and a control group. The results indicated that both groups that received metacognitive training and critical thinking awareness-raising made significant improvements in comprehending general reading and argumentative texts. Surprisingly, neither of the instructional interventions could promote the participants' comprehension of causality, which is explained by the complexity and diversity of distinctive structural and organizational features expressing causality in cause-and-effect texts.

Muhid et al. (2020) conducted a quasi-experimental study to examine if there was any significant difference on students' reading comprehension achievement by using metacognitive strategies after instruction. The study also investigated if metacognitive

strategies implemented had an effect on students' reading comprehension achieving. The intervention lasted for two months, and all participants of this study were students in the eleventh grade of Senior High School. Reading Comprehension Test (RCT) and Metacognitive Strategy Questionnaire (MSQ) were used to collect the data. The results indicated that metacognitive strategies had positive effect on students' reading achievement. Moreover, the results showed that when metacognitive strategies instructions were applied to reading comprehension activity, the students showed better performance in doing reading comprehension task.

Fathi and Afzali (2020) examined the effect of second language reading strategy instruction on Iranian English as a Foreign Language (EFL) learners' reading comprehension. In a quasi-experimental design, over a period of 12-weeks, the experimental group underwent a reading strategy instruction whereas the control group was taught in regular way with no strategy instruction. The reading component of Cambridge Preliminary English Test (CPET) was used to evaluate the reading comprehension performance of the participants at the pre-test and the post-test levels. The results revealed that the experimental group learners outperformed those in the control group in reading comprehension after the strategy instruction intervention.

Ajideh et al. (2018) research aimed to examine the impact of explicit instruction of metacognitive reading strategies on ESP (English for Special Purposes) reading comprehension among university students who have an intermediate knowledge of English in Iran. The participants in the experimental groups received explicit instruction of metacognitive reading strategies through the Cognitive Academic Language Learning Approach (CALLA) for strategy instruction. The results revealed that the students in the

experimental groups outperformed those in the control groups and showed greater achievement in their ESP reading comprehension ability.

Cox-Magno et al. (2018) conducted a quantitative research study to study the effects of metacognitive reading strategy on emerging reading comprehension (ERC) skills of kindergarten students with intellectual disabilities were examined. Researchers used direct instructional techniques with a metacognitive strategy approach to assist the comprehension skills of students with disabilities. The students involved in this study ranged in age from four to six years old. During the study, the strategy instruction was implemented by making students match pictures to support text, read the text, question, and answer choices to participants, present questions purposefully throughout the text, develop questions based on three story elements, and ensure that the texts and questions are the same for all participants. Results showed that the improved rate (IR) of intervention ranged from 60 to 80% for participants. Thus, the study showed that teaching and using metacognitive aides facilitated the learners' emerging reading comprehension (ERC) skills.

Albazi and Shukri (2016) investigated the level of metacognitive awareness of EFL learners at King Abdulaziz University (KAU) and examined how metacognitive strategy training can raise learners' metacognitive strategy awareness and correspondingly enhance their reading comprehension. Training participants focused on three metacognitive reading strategies: planning, monitoring, and evaluating. The training period consisted of nine sessions, each one lasting ninety minutes. Results showed that learners had a moderate level of metacognitive awareness and use of the strategies under each category except for the second subscale (Problem-solving strategies), even before the training started, which indicated a high level of awareness and use of these strategies.

However, the results showed that the direct instruction had a positive impact in enhancing the participants' metacognitive reading strategy awareness as well as their reading comprehension after the intervention. The researchers' findings supported the idea that these 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. By the end of the study, the treatment group achieved significantly better results than the control group after four months of strategy-based instruction. Moreover, results showed that strategy instruction contributed to autonomous reading behaviors.

Tavakoli and Koosha (2016) investigated the influence of explicit metacognitive strategy instruction on reading comprehension and self-efficacy in English as a foreign language (EFL) among university students in Iran. A randomized pre- test post-test control group design was employed in the study. After implementing the thirteen-session training program, the results revealed that students in the experimental group showed greater achievement both in reading comprehension and self-efficacy than students in the control group. Researchers concluded that explicit metacognitive strategy training seemed to have contributed to the students' ability to apply reading strategies to comprehend the passages.

Akkakoson (2013) examined the relationship among strategic reading instruction, the process of learning second language-based reading strategies and English reading achievement for Thai university students of science and technology. The experimental group in the study was taught according to a strategy-based instruction program for a period of 16 weeks, whereas the control group was taught based on a traditional, teacher-centered approach. The results of the study showed that the experimental group outperformed the control group after the experimental investigation. However, the study

showed the higher-level reading proficiency learners in the experimental group were better than their low-level peers at learning to use second language-based reading strategies effectively. Thus, the researcher concluded that explicit explanations of how to use multiple reading strategies in strategies-based instruction have resulted in students' greater metacognitive awareness of the need to be strategic and monitor comprehension, and lead to having them become more conscious of the use of strategic reasoning and consequently to higher achievement growth. Furthermore, Akkakoson (2013) concluded that learners' L2 reading proficiency level is a factor that may influence the effectiveness of strategy instruction.

Aghaie and Zhang (2012) examined the impact of explicit reading strategy instruction on English-as-a-foreign-language (EFL) students' reading performance in Iran. Employing a quasi-experimental design that involves a control group and an experimental group to test the effects of explicit teaching of cognitive and metacognitive reading strategies on reading performance and strategy use, the researchers investigated the effects after a four-month period of explicit instruction. The findings of the study revealed that explicit strategy-based instruction improved the treatment groups' perceived strategy use, reading comprehension performance, and strategy transfer. Aghaie and Zhang (2012) reported that students in the treatment group used metacognitive reading strategies more than cognitive reading strategies, which might be the reason for the transfer of reading strategies to other foreign languages and even to L1. Moreover, the results revealed that strategy instruction enhanced autonomous reading behaviors of the participants.

Cubukcu (2008) conducted a study to analyze the effects of strategy instruction on Turkish students' reading comprehension and vocabulary development in English.

Out of the 130 participants, 65 received 45 minutes of metacognition instruction a week for 5 weeks while the other 65 did not receive any additional training. The strategies that were taught included using strengths, inferring meaning, using background information, evaluating, searching based on goals, distinguishing, revising, and guessing the later topics. The training model involved five steps: preparation, presentation, practice, evaluation, and expansion. The results showed that the experimental group outperformed the control groups in terms of vocabulary and reading comprehension achievement. Thus, the study proved that metacognitive strategy instruction was beneficial in developing both the vocabulary and reading comprehension of English language learners.

Houtveen and van de Grift (2007) applied a purely metacognitive strategy intervention on ten-year-old students. The teachers of the students in the experimental group were trained in metacognitive strategy instruction and in optimizing instruction time for reading comprehension. The learning gains made by the experimental group students in metacognitive abilities for reading comprehension turned out to be significantly greater than those made by the students in the control group. Not only this, but also in the next school year, students in the former experimental group and the former control group were tested for reading comprehension, and the results showed that students in the former experimental group had significantly better results in reading comprehension than the students in the former control group.

Boulware-Gooden et al. (2007) conducted a study to determine the effectiveness of systematic direct instruction of different metacognitive strategies to assist students in comprehending the text. The reading comprehension and vocabulary achievement of 119 third graders were investigated to determine whether explicit instruction that incorporated metacognitive strategies led to an increase in the reading comprehension of expository

text. Students in the treatment group were taught over a five-week intervention how to review and answer questions, think aloud, and how to summarize and find main idea while focusing on reading expository passages and combining cognitive and metacognitive strategies. Students in the experimental group performed better than control groups, where students were not explicitly taught metacognitive strategies as the students revealed moderate reading comprehension gains and strong vocabulary improvement.

Another similar study was also conducted by Eilers and Pinkley (2006) with twenty-four first graders to explore the effects of explicit instruction of metacognitive strategies on reading comprehension. During the study, students were given whole group instruction daily for nine weeks and small group instruction once a week for thirty minutes. Students were taught how to use prior knowledge, make predictions, and sequence. Students as young as first grade were taught how to become aware of their thinking and how to apply metacognitive learning strategies. The results showed that students in the experimental group outperformed those in the control group, which shows the positive effect of metacognitive instruction. In addition, Eilers and Pinkley (2006) found that students were transferring the use of metacognition to other activities and showed that students as young as first grade can begin to develop metacognition.

Shouman (2006) also examined the role of reading strategies awareness in reading comprehension and investigated the effect of two instructional strategies, the Reciprocal Teaching Strategy, which includes the four metacognitive strategies of predicting, question generating, clarifying, and summarizing, and the Question-Answer Relationship Strategy, in improving EFL students' reading comprehension and awareness of reading strategies. Sixty-six sixth graders, middle-class students from a school in Beirut were

randomly assigned into two experimental groups and control group. A comprehension test was administered before and after the intervention and a Survey of Reading Strategies was employed to determine students' awareness of comprehension strategies. The results revealed that both strategies played a significant effect in improving students' reading comprehension. However, neither of the reading strategies indicated a statistically significant role in improving students' awareness of reading strategies.

Taylor et al. (2006) investigated the effects of explicit strategy instruction on reading comprehension in a second or foreign language; as the researchers considered two types of strategies: cognitive and metacognitive strategies. The authors found that the students who received explicit strategy training outperformed those who did not. However, the nature of the strategies that were taught – cognitive or metacognitive – did not yield any statistically significant difference based on the study.

Van Keer (2004) reported the educational benefits of explicit reading comprehension strategies instruction. A quasi-experimental pretest post-test retention test design was used with 454 students from 19 different schools throughout Belgium. The design was applied with three experimental and a matched control group who were randomly assigned into four conditions; (a) explicit reading strategies instruction followed by teacher-led whole class activities, (b) explicit reading strategies instruction followed by cross-age peer tutoring activities, (c) explicit reading strategies instruction followed by reciprocal same-age tutoring, and (d) traditional explicit reading strategies instruction without explicit instruction or peer tutoring. The results of the experimental interventions that were implemented throughout the school year revealed that the conditions a and b made the greatest gains from pre-test to post-test compared to the control group. Hence, the study confirmed the efficacy of the explicit reading strategies

instruction followed by teacher-led whole class activities and explicit reading strategies instruction followed by cross-age peer tutoring activities as feasible tools to enhance fifth graders' reading comprehension achievement.

Dhieb-Henia (2003) reported how metacognitive strategy training influenced upper-intermediate readers' declarative and procedural knowledge, and their choice and use of strategies while reading research articles in the context of English for specific purpose. The study findings showed that such training improved subjects' familiarity with and proficiency in reading research articles.

Salataci and Akyel (2002) explored the effectiveness of instruction in metacognitive strategies in both Turkish and English among Turkish learners. Researchers studied if an explicit training in metacognitive strategies would make a difference in EFL learners reading comprehension. Twenty EFL learners at a university in Turkey participated in the study. They took pre- and post-tests both in Turkish (first language) and English (foreign language). Observation and interviews were also included in the study, and eight of the subjects employed think-aloud tasks. For four weeks, in a three-hour-per-week class, the participants were taught how to use metacognitive strategies, especially how to activate background knowledge and how to monitor their reading process. Differences in the use reading strategies before and after the training were reported; support strategies (such as using a dictionary and focusing on grammar or word meaning) for reading in both Turkish and English were used less often after the training than before. Moreover, the use of global strategies (including predicting, skimming for main ideas, and summarizing) increased after the instruction while reading in both Turkish and English. In other words, the explicit training positively influenced the use of the global strategies for the EFL learners.

Obeid (2001) conducted a study to investigate the effect of training in think-alouds, a problem-solving metacognitive strategy, on the reading comprehension of a group of eighth grade ESL students in a school in Aley, Lebanon. Thirty-two subjects were randomly assigned into a control and experimental group. The students in the experimental group received training in think-aloud reading comprehension strategies for four weeks whereas students in the control group received their conventional instruction. A think-aloud awareness measure was employed to collect data. The results revealed that students in the experimental group surpassed those in the control group when it came to the critical comprehension. However, the results were more in favor of the control group when it came to the literal comprehension. Also, the findings showed that the mastery-level of think-alouds significantly affected the overall comprehension of students.

Muñiz -Swicegood (1994) explored the effects of metacognitive reading strategy training on bilingual Spanish students by implementing a metacognitive reading strategy training program for a group of third-grade bilingual students. Afterward, the researcher compared the experimental group's reading performance and reading analysis strategies with that of the control group who did not receive the training. The results showed that the frequency of using reading strategies increased by students after the metacognitive intervention. The study also found that significant improvements were documented not only in the frequency but also in the types of metacognitive strategies that the learners were using during their Spanish reading investigation. The study showed that bilingual students were capable of using metacognitive reading strategies, which suggests that metacognitive training can help to improve reading skills in bilingual students. Thus, the study highlighted the importance of metacognitive reading strategy training for bilingual

students and its potential to improve their reading performance and reading analysis skills.

Carrell et al. (1989) investigated two types of metacognitive strategy training for ESL reading method, which are semantic mapping and the experience-text-relationship (ETR). They concluded that the combined effect of cognitive and metacognitive strategy instruction in second language is effective in enhancing second language reading.

Jacobs and Paris (1987), along with their colleagues, taught elementary school children what comprehension strategies are, how they operate, when they should be used and why they are effective in a program called "Informed Strategies for Learning". They attempted to examine if children's reading skills and comprehension levels can be promoted by teaching them information about reading strategies. Seven hundred eighty-three third graders and eight hundred one fifth graders from intact classrooms participated in the study. Results showed that children in the experimental groups in both 3rd and 5th grades received significantly higher scores on measurements of reading awareness. The fifth graders exhibited greater reading awareness than the third graders. However, the evidence revealed that girls were more aware of the reading strategies than boys. Furthermore, it was noted that good readers who had a higher proficiency were generally the ones who were more aware of reading strategies when looking at the relation between reading ability and reading awareness. The study indicated that metacognition is an essential component of proficient reading and that it can be taught in the classroom to raise the students' awareness of the reading strategies.

However, there have been criticisms to strategy instruction and its usefulness in language classes. Kellerman (1991) dismissed strategy instruction as irrelevant claiming that learners already develop strategic competence in their first language (LI) and can

therefore simply automatically transfer it to their L2. Furthermore, Pei (2014) found negative results regarding direct instruction of metacognitive reading strategies in EFL contexts after investigating the impact of explicit instruction of metacognitive reading strategies on reading comprehension and the influences of instruction in enhancing EFL learners' metacognitive awareness.

Concluding Thoughts

Lastly, while previous research as reviewed here has helped to shed light on various issues related to EFL reading strategy instruction and training, more experimental and quasi-experimental studies regarding metacognitive reading strategy are needed in this area of research. It is also notable that the results of the studies on the reading strategy training are not conclusive. Moreover, there is a scarcity in research that focused on the possible impact of reading strategy instruction on EFL students' reading comprehension when the text type changes. Also, only a few studies have focused on both the literal and higher-order aspects of reading comprehension, as most of the studies conceptualized and dealt with reading comprehension as one variable. Lastly, only a very few studies have been done in the Lebanese context. It is for all these reasons that the current study was planned to undertake.

Accordingly, the aim of this study is to address the existing argument between proponents of both views regarding the impact of deliberate instruction in improving the learners' use of metacognitive reading strategies, and to fill the research gap by studying the instruction's effect in improving the literal and higher-order reading comprehension of students globally and as the text type changes across different proficiency level. The study also aims to determine if metacognitive reading strategies mediate the relationship

between deliberate instruction and literal and higher-order reading comprehension. To do this, the research will apply an intervention that is based on the Optimal Learning Model in a Lebanese private school. The researcher will rely on the results of the TOEFL Junior, reading comprehension tests employing narrative, descriptive, persuasive, and expository texts, and the Survey of Reading Strategies (SORS). The current study will adopt a quantitative approach. The next chapter will explain in detail the methodology that will be followed in this study.

CHAPTER 3

METHODOLOGY

This chapter provides an overview of the research design, research questions, variables, population and sample selection procedure, data collection measurements and procedures, and the procedures of data analysis.

Research Design

The aim of the study is to investigate the effect of deliberate instruction in metacognitive reading strategies on increasing the use of metacognitive strategies and improving the literal and higher-order reading comprehension of students globally and as the text type changes. The study also aims to determine if metacognitive reading strategies mediate the relationship between deliberate instruction and literal and higher-order reading comprehension.

In this study, a quantitative quasi-experimental research design was followed. While the experimental group received deliberate instruction in metacognitive reading strategies, the control group received regular instruction based on their basal reader books.

The study employed a pretest-posttest control-experimental group design to investigate the impact of deliberate instruction in support, global, and problem-solving metacognitive reading strategies on improving the learners' use of metacognitive reading strategies and enhancing their literal and higher-order reading comprehension while reading descriptive, narrative, persuasive, and expository types of texts. Additionally, the study examined the association between learners' use of support, global, and problem-

solving metacognitive reading strategies and their literal and higher-order reading comprehension globally and as the text type changes. It also looked at the interaction effects between participants' proficiency levels and the intervention on the participants' comprehension of various text types. Lastly, the study aimed to determine if metacognitive reading strategies mediate the relationship between deliberate instruction and literal and higher-order reading comprehension.

The study was guided by four research questions:

1. What is the relationship between metacognitive reading strategies and literal and higher-order reading comprehension?
2. What is the influence of deliberate instruction in metacognitive reading strategies on improving the use of metacognitive reading strategies?
3. What is the main effect of deliberate instruction in metacognitive reading strategies on literal and higher-order reading comprehension? Does the effect of deliberate instruction on reading comprehension depend on the English Proficiency of students (interaction effect)?
4. Do metacognitive reading strategies mediate the relationship between deliberate instruction and reading comprehension? In other words, does deliberate instruction in metacognitive reading strategies improve the reading comprehension of students by improving their metacognitive reading strategies?

For this study, two groups were randomly assigned to two different classes at the beginning of the academic year 2021-2022. Each group consisted of 20 students. A TOEFL Junior pre-test was administered for both groups before the study started as well as 4 comprehension tests, each corresponding for a different text type (narrative, descriptive, persuasive, and expository). However, the treatment through metacognitive

instruction was only provided to the experimental group. Four different reading selections, a descriptive, a narrative, a persuasive, and an expository text were selected from the students' books to apply the intervention while reading them. The first passage was narrative, the second was descriptive, the third was persuasive, and the fourth was expository. The reading passages were appropriate to the participants' age, and the texts selected addressed the aims of this study. Following the Optimal Learning Model (OLM), the experimental group received deliberate instruction, modeling, and training in how to use selected global, problem-solving, and support metacognitive reading strategies while reading narrative, descriptive, persuasive, and expository texts. The control group read the same selections following the implicit reading comprehension instruction method (teacher's normal routine of instruction), which involved having the teacher explain and give guided practice to the learners while explaining the text and the vocabulary without referring to the metacognitive strategies such as rereading, predicting, rephrasing, etc. Instead, the teacher would be the only one who explains without teaching the students specific metacognitive strategies that help them comprehend when they read on their own. Both groups completed the same comprehension pre-tests and post-tests.

Participants

The target population for the study is seventh grade EFL learners in private schools. However, the accessible population for this study was 40 seventh grade EFL students in a private high school in Greater Beirut Area. Among these students, twenty-one were males and nineteen were females. However, one of the students in the experimental group dropped out in the mid of the study because she traveled with her parents and three students in the control group refused to participate in the study, so they attended the classes, but data were not collected from them. The students were all

Lebanese, and their ages ranged between 12 and 13 years. Participants were of diverse English proficiency levels, and they came from families with medium socioeconomic and educational backgrounds.

Teachers in the school are employed based on their specialization and background. Throughout the year, teachers receive training in their fields of study by attending workshops inside and outside the school.

The subjects' native language is Arabic, and all the subjects have received approximately 6 years of formal English instruction since grade 1. Choosing this age group (12-13 years old) as subjects for this study was purposeful because, after the elementary school years, students at this level would have mastered basic decoding skills and have already acquired basic reading skills like fluent reading and understanding simple texts. Reading instruction for this age group includes developing knowledge of reading strategies and deepening the ability to comprehend texts better and have the ability to learn significant information from their reading. According to the Lebanese Center for Educational Research and Development (CERD), students are expected to comprehend and interpret any written discourse by the end of the elementary level (General Objectives, 1997). In other words, students at this intermediate level are exposed to reading different text types, which will be explored in this research. In that sense, most of the students at this stage should have mastered the basic comprehension skills and are shifting into higher phases of reading analysis and evaluation and dealing with more advanced academic texts of different types.

The school is a trilingual school. Arabic language in school is used as a first language while English is used as a first foreign language and French as a second foreign language, for the importance of these two languages nowadays. English language

instruction starts in the school in the kindergarten and continues through grade 12. English language instruction in the school targets learners' receptive skills, listening and reading, and productive skills, speaking and writing. All the students in grade 7 study English as a mandatory subject of seven class hours (50 minutes) per week. American books are used to teach the English language to EFL learners. Learners use the English language in their classes when the subject matter is taught in English, such as Biology, Chemistry, Physics, and Mathematics. However, students use their native language, Arabic in their daily communication with each other.

For this study, two-grade seven EFL intact sections were randomly assigned into control and experimental groups. The first group (18 students) was administered the implicit regular reading comprehension instruction to read narrative, descriptive, persuasive, and expository texts in a regular way based on their basal reading books without receiving any intervention. However, the second group (18 students) received deliberate instruction and training in the metacognitive reading strategies to read narrative, descriptive, persuasive, and expository, texts.

Both groups in the control and experimental sections were instructed by their regular English teacher. I, the researcher, having received one year of extensive training in deliberate instruction of reading comprehension strategies, took on the teaching of both the control and the experimental groups as there was no need for taking any additional groundwork. Hence, I began the intervention without threatening the fidelity of the study. The teacher holds a bachelor's degree in English Literature from the American University of Beirut and a diploma in teaching English as a foreign language (TEFL) for intermediate and secondary classes. She was working on her master's degree at AUB. She has seven years of experience teaching EFL to middle, high school, and university learners.

Classification of English reading proficiency

In order to compare the differential effects of metacognitive reading strategies on different English reading proficiency levels, the subjects in this study were divided into two proficiency levels (high proficient and low proficient) according to their scores on the TOEFL test. The TOEFL exam constituted of 42 questions. Participants who scored 21 or below were designated or placed in the low-proficient group (36.1 % of the participants), whereas participants whose scores fell in the range of 22-42 were designated as the high-proficient group (63.9 % of the participants).

Data Collection Tools

The measurements used to collect quantitative data for the dependent variables include the reading section of the Test of English as a Foreign Language (TOEFL, hereafter), the Survey of Reading Strategy Questionnaire (SORS, hereafter), and 8 reading comprehension tests that measure learners' literal and higher-order comprehension. All three measurements were collected before and after the treatment. The students in both the control and the experimental groups used their reading books throughout the intervention.

Textbooks

All students participating in the research study used the same textbook required for all seventh graders. The textbook is a collection of short stories, essays, or articles compiled from different resources by different authors. The book has been used in the school for more than five years and proved, according to the teachers, to be successful because it includes varied texts and tackles all the text types. The passages contained between 800 and 900 words. Each lesson is supplemented with short reading comprehension (both

literal and higher order) and vocabulary questions. Reading materials are the same regardless of the comparison or the experimental group.

Demographic Questionnaire

Participants were given a three-item measure to identify their age, gender, and the school they attended in the previous school year.

The Survey of Reading Strategies (SORS)

This questionnaire is a self-report instrument that is used to test the students' awareness of metacognitive reading strategies. According to Mokhtari and Sheorey (2002), this survey was based on Mokhtari and Reichard's (2002) "*Metacognitive-Awareness of Reading Strategies Inventory"* (MARSI), which was designed to measure the metacognitive awareness of the reading strategies of students who speak English as a native language. Afterward, the SORS was designed by Mokhtari and Sheorey (2002), and it intended to measure the frequency and the type of reading strategies that adolescent and adult EFL/ESL students perceive and use while reading academic materials in English. According to Mokhtari and Sheorey (2002), the SORS was designed for use with ESL students; has been field-tested and has demonstrated reliability and validity. The questionnaire was developed and pilot tested by Mokhtari and Sheorey (2002), with 147 ESL students in the US, and found consistent results relative to the instrument's overall reliability.

The SORS wasn't only used in ESL contexts but also in various EFL contexts like in Japan (Sheorey et al., 2008), Hungary (Sheorey & Baboczky, 2008), and Bahrain (Malcom, 2009). The SORS has even been translated into the participants' first language. It was translated into Chinese (Zhang & Wu, 2009) and Arabic (Alhaqbani & Riazi, 2012;

Alsheikh, 2009) to determine the differences between learners' use of reading strategies in both their first and second language.

The SORS developers, Mokhtari and Sheorey (2002), reported finding consistent results relative to the instrument's overall reliability with Cronbach's alpha = 0.89. Furthermore, according to Mokhtari and Sheorey (2002), the internal consistency reliability coefficient, as determined by Cronbach's alpha, was 0.92 for the Global Reading Strategies, 0.79 for the Problem-Solving Strategies, and 0.87 for the Support Strategies. These values show that there is a reasonable level of consistency in measuring the perceived use of reading strategies among EFL learners. The questionnaire is appropriate for the current study because it is specifically designed to measure second language learners' metacognitive awareness of reading strategies while reading academic materials (Mokhtari & Sheorey, 2002).

The SORS is a 30-item questionnaire using a 5-point Likert Scale. A score of 5 meant that the student always used a strategy; 4 meant it was used most of the time; 3 meant sometimes using the strategy; 2 meant using the strategy occasionally; and 1 meant the student never used the strategy (Mokhtari & Sheorey, 2002). The key to analyzing the results of the SORS is; 2.4 or lower means having a low mean item, 3.4 means having a medium mean item, and 3.5 or higher means having a high mean item (Mokhtari & Sheorey, 2002).

The SORS comprised three subscales: Global Reading Strategies, Problem Solving Strategies and Support Reading Strategies. These subcategories are:

Global reading strategies: According to Mokhtari and Sheorey (2002), global reading strategies are defined as "those intentional, carefully planned techniques by which learners monitor or manage their reading, such as having a purpose in mind,

previewing the test as to its length and organization, or using typographical aids and tables and figures." (p. 4). Students use Global Reading Strategies to work with text directly or to manage and monitor their reading intentionally and carefully Mokhtari and Sheorey (2002). They include 13 items (#1, #3, #4, #7, #10, #14, #17, #19, #22, #23, #25, #26, and #29) and are used by the reader to assess what to read and what to ignore, guess what the material will be about, and notice what the material is about.

Problem-solving strategies: These strategies are defined by Mokhtari and Sheorey (2002) as "the actions and procedures that readers used when problems develop in understanding textual information; examples include adjusting one's speed of reading when the materials become difficult or easy, guessing the meaning of unknown words, and rereading the text to improve comprehension." (p.4). Problem Solving Strategies are used for solving problems of understanding that arise during the reading in comprehending textual information Mokhtari and Sheorey (2002). They include eight items (#8, #11, #13, #16, #18, #21, #27, and #30). They involve, for example, rereading to understand more, returning to the previous sections when the concentration is lost, and thinking about the reading every now and then.

Support reading strategies: Mokhtari and Sheorey (2002) defined these strategies as "basic support mechanisms intended to aid the reader in comprehending the text such as using a dictionary, taking notes, underlining, or highlighting textual information." (p.4). These strategies sustain the reader in his/her responses to reading. They include 9 items (#2, #5, #6, #9, #12, #15, #20, #24, and #28). For example, they involve paraphrasing the text to gain more understanding, highlighting information, and going back and forth in the text.

Subjects in this study filled out the SORS questionnaire before and after the training in order to measure the possible differences and changes in their perceived strategy use. The reliability of the SORS was analyzed and tested to determine its internal consistency as measured by Cronbach's alpha and was reported in Chapter Four of this study.

Test of English as a Foreign Language-TOEFL-Junior Standard Test

The purpose of the TOEFL test is to measure the student's listening comprehension, language form and meaning, and reading comprehension. However, for this study, only the reading comprehension part was administered. The reliability coefficients of the TOEFL Junior Standard scores for the language form and meaning, and reading sections are 0.87, and 0.89, respectively. The test provides teachers, students, and parents with information about the learner's progress in developing English-language skills. The TOEFL junior standard test also serves as a measurement tool to measure the degree to which learners in middle school, specifically those whose ages are ranged between 11 and 15, have attained proficiency in academic and social English-language skills. The test used in the present study was selected from the iBT Preparation/Practice tests. The texts fit grade 7 students who are learning English as a foreign language due to its moderate difficulty level. The exam was used to determine the proficiency level of participants to indicate whether or not the deliberate instruction's effect on the reading comprehension of students is more pronounced in high proficient students compared to those with lower proficiency.

Reading Comprehension Tests

Reading comprehension exams, each based on one of the tested types of texts (narrative, descriptive, persuasive, and expository) were given to the learners to evaluate both their

literal and high-order comprehension. Four exams were administered prior to the start of the study, and another four exams that follow the pre-test's criteria were administered after the end of the intervention to both groups.

These tests were specifically designed to measure the two types of comprehension, literal and higher-order comprehension, as the participants read the narrative, descriptive, persuasive, and expository texts. The tests were prepared by the researcher (schoolteacher) and the coordinator, who supervises and tackles the work of the teachers. The researcher prepared the tests using a chart that explained how to differentiate between the two types of comprehension. The texts and many of the questions were adopted from similar resources to the ones in the learners' books. The researcher prepared eight different exams that cover the two aspects of comprehension, literal and higher order. The exams' format was multiple-choice questions.

To ensure the tests' content validity, a table of a specification that includes the two aspects of reading comprehension was compared to the reading objectives and skills covered in the participants' comprehension book. Literal comprehension aspects consisted of recognizing the text's details, identifying the sequence, and understanding directly stated ideas. Higher-order comprehension aspects included getting the text's implied meaning, making inferences, combining ideas, analyzing, summarizing, and drawing conclusions. The aspects that match the intended literal and higher-order skills under each type of text (narrative, descriptive, persuasive, and expository) were highlighted to be tested.

Besides, since one of the main characteristics of a test that a test user examines is its content, the analysis of test content is an important part of validity (Bachman, 1990). Hughes (1989) also states "the greater a test's content validity, the more likely it is to be

an accurate measure of what it is supposed to measure" (Hughes, 1989, p. 22). In order to establish the content validity of the tests used in the study, two raters specialized in teaching English as a foreign language assessed them. They evaluated and analyzed if the comprehension questions covered the two levels of the construct of reading comprehension, the literal and the higher order for the eight reading comprehension tests as defined in the literature.

The two raters reached a consensus over the different levels of the reading comprehension question. Inter-rater reliability analysis was conducted by determining the Pearson correlation coefficient in order to measure the degree of agreement between the two raters. The level of agreement between the two raters was r= 0.90, which is a high inter-reliability coefficient indicating a little variation between them.

Variables

The independent variables in the study were (a) deliberate instruction in metacognitive strategies and (b) overall metacognitive reading strategies and their three types (c) global (GLOB), (d) problem-solving (PROB), and (e) support (SUP) reading strategies.

The dependent variables were (a) literal and (b) higher order reading comprehension.

The moderator variables were (a) proficiency levels and (b) narrative, (c) descriptive, (d) persuasive, and (e) expository text types.

Data Collection Procedures

Experimental Group

After getting the approval to conduct this research from the Institutional Review Board (IRB), the researcher contacted the school's administration to get their approval to

allow the researcher to apply the study and the students to participate in it. The researcher met with the principal and explained the ethical procedures and the IRB regulations. She also explained the purpose of the study, which was to improve students' reading comprehension abilities. She also indicated the benefits of the study to the school students as well as the duration of the study. The researcher then took the principal's approval.

Afterward, a fellow teacher of English language in the school informed the participating students about the study to remove any undue influence so that learners won't feel obliged to participate because their teacher is the researcher. Students were informed that they would be recruited voluntarily without being forced to participate and that they could withdraw from the study anytime they wished without any loss of benefits or penalty. The fellow teacher explained to learners the need for their participation and gave them the choice of deciding whether or not to participate in the study. Learners were given one week to decide, and they were asked to sign an assent form and take a parental permission template to be signed by their parents. After one week, the parental consent forms and the students' assent forms were collected to identify the number of participants who agreed to take part in the study.

After the two sections were assigned to control and experimental groups, a TOEFL reading comprehension exam was administered to the students for 60 minutes during two consecutive regular English language classes. The reading exam was of a moderate difficulty level, and it consisted of five reading comprehension texts selected from the reading part of a standard practice TOEFL exam. Then, four comprehension pre-tests were administered to both the experimental and control groups to determine the initial equivalence on the dependent variable during four regular English language classes over a period of one week. The text types of the comprehension pre-tests were narrative,

descriptive, persuasive, and expository. The comprehension tests were corrected and graded for each of the literal and higher-order questions. The Survey of Reading Strategies (SORS) was then administered to learners in 25 minutes. There was neither compensation nor incentives associated with participation in this study. Participation was voluntary. The study was a part of the students' English language course of the curriculum, and research activities took place during the assigned English class sessions. Three students refused to participate in the study, so they stayed with their classmates during the English session, but data weren't collected from them.

To prevent bias and protect the students' identities, a coding system was followed where the students write the first letter of their father's name, the second letter of their mother's name, and the letter of their mom's maiden name, followed by their year of birth. In this way, the researcher made it confidential, and the students were able to fill out the pre and posttests at their own pace.

Then, the experimental group was subjected to the treatment. Both the experimental and the control groups had seven comprehension sessions a week, each lasting for 50 minutes. For a period of 8 weeks, students in the experimental group received direct deliberate instruction to use metacognitive reading strategies using the Optimal Learning Method (OLM).

The researcher, who is also the teacher, selected from the learners' book the texts that are appropriate to the text types being studied. Unlike the experimental group, the control group was taught using the implicit reading comprehension instruction method (teacher's normal routine of instruction), which involves receiving whole class reading instructions from the teacher while reading. This occurred without gripping the students' attention to the global, problem-solving, and support metacognitive strategies that help

the students become independent readers, who may manage to read and comprehend any text on their own.

During the first four weeks, three strategies, one from each of the three categories, were given individual focus for one week. Then, during the final four weeks, after participants have practiced all the strategies, all of the twelve metacognitive reading strategies were incorporated and used in the given lessons. Using the OLM method, the teacher moved through different phases. The teacher started with the demonstration OLM phase, where the teacher thinks aloud, demonstrates, and models the strategy. Then, the teacher moved to the second phase, which is shared demonstration, in which the teacher continues to model and demonstrate the strategy but encourages children to participate as best as they can using it. Afterward, the third phase was the guided practice phase, where learners started to take a more prominent role and tried to apply and practice using the strategy. The teacher circulated and conferenced with every student and created guided reading groups to clarify anything regarding the strategy if there is any need. The last phase, independent practice, was when the students started practicing using the strategy independently. During the first level of independent practice, the guided practice was still possible for learners if needed. However, in the second level of independent practice, students independently used the strategies on their own. The training also contained interactive group activities that invited learners to observe their own reading process and that of their peers, including observing and discussing the strategies they apply to understand. Furthermore, in order to encourage the students to apply the strategies presented, the subjects were given reading assignments to work on at home and record while working on their use of the metacognitive reading strategies in a reading strategy

journal. A more detailed description of the application of the OLM during the period of the intervention is provided below.

Figure 1

Description of the OLM Phases

Optimal Learning Model (OLM)				
TO LEARNERS	**WITH LEARNERS**			**BY LEARNERS**
I DO IT	WE DO IT	HANDOVER OF RESPONSIBILITY →	WE DO IT	YOU DO IT
Demonstration	**Shared Demonstration**		**Guided Practice**	**Independent Practice**
TEACHER Shows how to do it	**TEACHER** leads, negotiates, suggests		**STUDENT** takes charge, approximates, practices	**STUDENT** Initiates, self-directs, self-evaluates
STUDENT listens, observes, minimally participate	**STUDENT** questions, collaborates, responds reading/ writing	← HANDOVER OF RESPONSIBILITY	**TEACHER** encourages, clarifies, confirms	**TEACHER** affirms, coaches
INSTRUCTIONAL CONTEXT Explanation, reading/ writing aloud	**INSTRUCTIONAL CONTEXT** shared reading/ writing		**INSTRUCTIONAL CONTEXT** guided reading/ writing	**INSTRUCTIONAL CONTEXT** independent reading/ writing

DEPENDENCE → INDEPENDENCE

Demonstration: I DO IT. First, as recommended by Routman (2014), the teacher demonstrated each strategy. Initially, the teacher announced the lesson objectives. Afterward, the teacher modeled, explained, and though aloud while showing students how to apply the strategy. Throughout this stage, the teacher would interrupt the reading,

reread, and self-correct using sub-vocalizing and thinking aloud. Students at this stage were listeners and observants, but not yet invited to participate. As such, the teaching approach was explicit, direct, and purposeful during this phase.

Shared Demonstration: WE DO IT. Second, the teacher transitioned to the "shared demonstration" phase of the OLM. During this phase, the teacher continued to lead, demonstrate, support, explain, and suggest, but now the students were encouraged to interact, question, collaborate, respond, and participate and contribute to the best of their abilities. In other words, the teacher continued to provide explicit demonstrations and scaffolding while inviting student participation and approximation. The teacher interacted with and responded to their contributions, acknowledged their efforts, negotiated with them, and provided continuous feedback through interactive reading of the text. It is worth noting that at this stage, the teacher did not expect mastery from the students, as this is still a supportive "hand-holding" stage, as described by Routman (2003). In this study, this phase was conducted as a whole class. However, it could be conducted in small groups. Regardless of the way, the critical element at this stage was social interaction between the students and the teacher, who served as the more expert and knowledgeable.

Guided Practice: WE DO IT. Third, the teacher transitioned to the "guided practice" phase of the OLM. During this phase, the teacher encouraged learners to take on a more active role by taking charge and starting to practice applying what she had previously demonstrated while reading. This was done in pairs sometimes and as a part of a larger groups at other times. The teacher's role during this stage included supervising, clarifying, confirming concepts, reteaching as necessary, and encouraging students as they practiced. A more individualized instruction was provided when needed. It is

important to note that mastery of the strategy was not expected at this stage, even though it was an advanced stage of the teaching process.

Independent Practice: YOU DO IT. Lastly, the teacher transitioned to the "independent practice" phase of the OLM. During this phase, students were given the opportunity to initiate and apply the strategies on their own, with minimal intervention from the teacher. At this point, it is assumed that learners have acquired a sufficient level of proficiency that allows them to do the task independently. The teacher's role was a guide, who affirms, provides limited assistance as needed, evaluates, and celebrate students' progress. Students would practice using the strategies while reading their texts, using bookmarks and note cards to record their attempts and share and reflect on them with the rest of the class afterward.

During the final four week of the intervention period, the main focus was on demonstrating how the twelve metacognitive reading comprehension strategies are used in conjunction with each other when reading texts. This part of the intervention included explicit demonstrations and practicing of the strategies with different texts in order to systemize, reinforce, and consolidate strategy use from one text to another and emphasize that the strategies are not used in isolation.

Control Group

In the control group, the same texts were taught as in the experimental group but using different reading activities. The typical teaching process in the control group consisted of the teacher asking learners questions about the text using reading-aloud followed by class discussions, guiding the students in reading the entire text to find answers to the posed questions, having students read aloud several paragraphs, teaching new vocabulary, explaining the text's structure, and finally, having students complete

comprehension exercises. Some metacognitive reading strategies were part of the curriculum, so students were taught these strategies but not, in the same way, these strategies were taught to the control group. A comparison of the way these strategies were taught between the two groups will be explained in the next section. Group sharing and strategy use and reflection were not emphasized. Instead, the students were taught through a pattern of questioning and responding during the two months period of the intervention.

Comparison Between Control and Experimental Groups

The reading instruction given to students in both groups (control and experimental) had some similarities and differences. In terms of similarities, both the experimental and comparison groups received instruction on some before, during, and after reading strategies that were part of the curriculum such as making predictions, summarizing, and making inferences, which were similar to the text work used by the experimental group.

However, although there were similarities in some strategies provided to the learners in both groups, there were also notable differences between the two instructional approaches. While the comparison group received some instruction on comprehension strategies as part of the curriculum, it was not explicitly designed and guided by neither the theories of metacognition and self-regulation nor by the gradual release of responsibility model (OLM) as it was for the experimental group only.

Also, there was a difference in the intensity and focus of the instruction provided to each group. The experimental group received more intensive and focused instruction on specific metacognitive reading strategies and had a lot of practice using these strategies with individualized feedback. The experimental group was also explicitly taught to use

these strategies and keep the steps they follow in their journals as an essential part of their reading to help them organize their thoughts and understand the text while reading, which was not taught to the comparison group. Since the teacher employed one of the gradual release of responsibility models (OLM) to explicitly teach metacognitive thinking and metacognitive reading strategies during reading sessions in the experimental group, this allowed students to apply these strategies to any text they read and reflect on it. On the other hand, the instruction in the control group followed a regular pattern of teacher questioning and sharing, followed by student responses and only when they asked to.

For instance, both groups were required to make an inference by marking relevant sections within passages that support their answer. However, the control group did not receive the extensive strategy and text work that the experimental group did, so they only made an inference when the teacher asks them, whereas the experimental group learners were taught and trained on following specific steps to make an inference whenever they are trying to interpret and understand the text without necessarily being asked to do so. In other words, students in the control group were taught how to make an inference, but without stressing it and without being aware of the necessity of using it across different settings. For example, students in the control group were asked questions like “What do you think of this character based on his actions?” whereas learners in the experimental group were taught by being asked first and later on by asking themselves independently “What can you infer about this character based on his actions?” Lastly, only the experimental group was taught the other useful fix-up metacognitive reading strategies when working with reading texts, such as, but not limited to rereading, paraphrasing, using context clues, and looking up unfamiliar words in a dictionary.

The strategies that were modeled and applied in this study in the experimental group were:

Global Strategies, which prepare the readers for reading, and for this study they were: *setting a purpose, previewing text characteristics, predicting, and activating prior knowledge.*

Problem-solving strategies, which are employed to solve problems that come to the surface when the text becomes challenging and difficult to read, and for this study they were: *re-reading, reading aloud, guessing the meaning of a word using context clues, and stopping to think and make inferences.*

Support strategies, which are used to help the readers while they are reading, and for this study they were: *using outside reference aids, summarizing, paraphrasing what was read, and annotating.*

The control group followed the normal English teaching by learning the reading skills used for comprehension in their books. However, group sharing, teacher modeling of skills, and reading strategy reflection were not emphasized.

After the treatment, all the subjects in the control and the experimental groups took the posttest with the same SORS questionnaire and the reading comprehension tests for each text type.

Reflections: A Teacher-Researcher

Reflection is a crucial part of effective teaching. Reflective practices are often seen as an indicator of successful teaching. When the teacher reflects on his/her own learning experiences, s/he can gain a more comprehensive understanding of how learning has occurred and reflect on the steps s/he has taken to minimize any potential bias that aims to confirm his/ her preconceived beliefs. Reflection on my practices being the

researcher and the teacher at the same time is an essential part of this study to ensure the study's authenticity and address issues related to its internal validity.

This study lends itself to potential researcher bias because it involves evaluating the effectiveness of teaching metacognitive reading strategies using the Optimal Learning Model taking into account the researcher's direct personal interest in this study being the researcher and the teacher at the same time. This bias may in some cases influence the study's design, data collection, analysis, and interpretation. I'm reflecting in this section on my experience being the researcher and the teacher by highlighting the practices I've followed to minimize this bias.

By using a pre and post-test design, I was able, to a certain extent, to assess the outcome of the intervention while controlling for the potential impact of other confounding variables and demonstrate that the noticed changes in the experimental group were due to the treatment.

Furthermore, I prepared lesson plans for all the sessions for both the control and the experimental groups. These plans were subsequently reviewed by the school's coordinator before the sessions started, prior to my entrance to the class. Consistency in applying these plans was maintained throughout the two months while implementing the intervention. Also, the coordinator conducted class visits, as an independent observer, to monitor the teaching process and had peer briefings with me to provide an objective assessment on my teaching to reduce the possibility of any potential bias due to my involvement as a researcher in the study. These steps helped ensure that the study's design and implementation are objective, implemented as intended, and, indeed, minimized potential biases.

Though there is a potential for bias, I worked to ensure that it was not injected into the data collected by using multiple sources of data such as the Survey of Reading Strategies (SORS), eight comprehension tests, and the TOEFL exam. Also, I monitored my own biases by using standardized and validated data collection tools to measure each student's proficiency and reading comprehension performance using multiple-choice questions (MCQs) to reduce bias in assessing learning. This is because MCQs provide a standardized set of answer choices for questions, which minimizes subjective grading, improves the objectivity of the results, and minimizes my own biases. Students were also asked to fill in these data collection tools in the presence of a fellow teacher in the school, without me, the teacher/ researcher, being with my learners, which helped remove any potential impact of biases. Also, I made an effort to ensure that any potential bias did not influence the analysis of my data by using ANCOVA and FANCOVA quantitative tests to control for differences in the variables under study measured prior to the intervention. Also, these tests were used to determine if there was any significant difference on the posttest level while the covariate was being held constant, which verifies the results.

In other words, adopting a rigorous research design and utilizing specifically appropriate measures, developing detailed lesson plans, implementing precise data collection procedures and analysis, and reporting accurate findings for the control and experimental groups all helped in minimizing biases in the study.

Data Analysis Procedures

All the analyses were quantitative. The strongest advantage of quantitative methods is their ability to obtain results that generalize to the population.

Descriptive statistics (means and standard deviations) of the scores on the variables under study were reported. t-test was conducted to test for any preexisting differences between the two groups on the pre-test.

Several correlations (Pearson and Spearman's Rho), at the posttest level, between metacognitive reading strategies (Overall, Global, Problem Solving, and Support) and reading comprehension skills (literal and higher total, globally and across the four text types) were done.

ANCOVA was performed to control for differences in the variables under study measured prior to the intervention (pre-tests) and to determine if there was any significant difference on the posttest level when the covariate was held constant. ANCOVA was used to be able to adjust the post-test means on the basis of the pre-test means, and then compare these adjusted means to see if they differed significantly. Second, in experimental studies that use ANCOVA, causality can be inferred when significance occurs. Also, the use of the pre-test reading comprehension score as a covariate also provides a more conservative statistical analysis. FANCOVA was also used for all the previously mentioned reasons in addition to finding the interaction between two of the variables under study. The Partial Eta Squared was computed for the purpose of reporting estimates of effect size, thus augmenting significance tests.

Hayes Process Macro Model 4 Mediation Analysis was also used to test whether metacognitive reading strategies act as a mediator between the independent variable, deliberate instruction in metacognitive reading strategies, and the dependent variable, post-test of reading comprehension (literal and higher-order separately).

Table 1

Summary of the study's hypotheses, measurements, and data analysis tests

Research Hypothesis	Measurement	Data Analysis
Hypothesis 1: There is a significant positive association between metacognitive reading strategies and reading comprehension (literal and higher order)	Posttest of SORS Posttest of reading comprehension	Pearson and Spearman Rho's Correlations
Hypothesis 2: The OLM intervention improves the use of metacognitive reading strategies by students	Pretest of SORS Posttest of SORS	Several Analyses of Covariance tests (ANCOVA)
Hypothesis 3: a: The OLM intervention improves the reading comprehension (literal and higher order) of students regardless of the text type. b: The OLM intervention effect on the reading comprehension of students is more pronounced in students with higher English proficiency compared to those with lower proficiency.	TOEFL Pretest of reading comprehension Posttest of reading comprehension	Several Two-Way Factorial Analyses of Covariance (FANCOVA) tests
Hypothesis 4: Metacognitive reading strategies mediate the relationship between the intervention OLM and Reading Comprehension of students	Posttest of reading comprehension Posttest of SORS	Hayes Process Macro Model 4 Mediation Analysis

All analysis was performed using the SPSS statistic package. The table summarizes the measurements and data analysis for the four research hypotheses.

CHAPTER 4

QUANTITATIVE RESULTS

This chapter presents the quantitative analysis statistical results used to test the study hypotheses and address the research questions under investigation. The independent variables in this study are metacognitive reading strategies and its subscales, global, problem-solving, and support strategies and deliberate instruction in metacognitive reading strategy. The dependent variables are the two kinds of comprehension, which are literal and higher-order comprehension. The moderator variables are the participants' proficiency levels (high and low) and the text types under study, which are narrative, descriptive, persuasive, and expository texts.

Statistical Techniques

The aim of the study is to examine the effect of deliberate instruction in metacognitive reading strategies on intermediate EFL learners' reading comprehension in four text types. Nevertheless, random assignment to the experimental and control groups may not guarantee perfect balancing groups. Hence, to confirm any preexisting difference between the two groups in terms of their English reading proficiency level, reading strategies uses, and their English reading comprehension achievement in literal and higher-order comprehension, a t-test was used. The chapter reports descriptive statistics (mean and standard deviation) for all the variables under study.

Data pertaining to variables were analyzed using the Statistical Package for the Social Science (SPSS) version 28. For hypothesis 1, several correlations (Pearson and Spearman's Rho), at the posttest level, between metacognitive reading strategies (Overall, Global, Problem Solving, and Support) and reading comprehension skills (literal and

higher total and across the four text types) were done. For hypothesis 2, ANCOVA was performed to control for differences in the variables under study measured prior to the treatment (pre-tests) and to determine if there was any significant difference in the post-metacognitive strategies and the subscales when the covariate, pre-metacognitive strategies and the subscales score, was held constant. For hypothesis 3, factorial analysis of covariate (FANCOVA) was performed to determine if there was any significant difference in the post-reading comprehension test (literal and higher order separately) when the covariate, pre-reading comprehension, was held consonant and the interaction between the intervention and the proficiency level was studied as well. Hypothesis 4 was studied using Hayes Process Macro Model 4 Mediation Analysis with metacognitive reading strategies as a mediator between the independent variable, deliberate instruction in metacognitive reading strategies, and the dependent variable, post-test of reading comprehension (literal and higher-order separately).

Descriptive Statistics of the Participants

Originally, there were 19 students in the experimental group and 21 in the control group. 3 students in the control group refused to participate in the study and fill in the pre and post-tests. All the students in the experimental group assented to participate in the study. However, one of the learners in the experimental group withdrew from the study because she had to travel. In other words, 18 students were left in each group. Summary of the sample size is shown in table 2.

Table 2

Sample Size of the Study

Groups	Frequency	Percent
Experimental Group	18	50
Control Group	18	50
Total	36	100

Descriptive Summary of Pretest Data

Descriptive summary of the sample data of each group is listed in table 3. All scores of TOEFL proficiency test, SORS pretest, and reading comprehension (literal and higher-order comprehension) were raw scores. Table 3 contains group means for categorical variables (number of subjects) as well as numeric variables (proficiency score, pre-SORS score, and pre-literal and pre-higher-order reading comprehension scores for the four text types) for the treatment group and the control group.

As the sample was randomly selected, independent-samples *t*-test were conducted to confirm any preexisting difference between the two groups in terms of their English reading proficiency level as measured by the Test of English as a Foreign Language-Junior (TOEFL), reading strategies uses as measured by the Survey of Reading Strategies (SORS), and their English reading comprehension achievement in literal and higher-order comprehension in narrative, descriptive, persuasive, and expository texts as measured by 4 English comprehension tests. The use of independent sample t-test requires the test of the homogeneity of variance; therefore, Levene's test was performed to test whether the assumption of homogeneity of variance was met. Results of Levene's tests (table 4) were not significant at $p>0.05$, indicating that the difference between variance is zero in each pretest. In other words, the pretest had significantly equal variance

in the experimental group and the control group. Hence, the assumption of homogeneity of variance was met and the use of independent *t*-test was appropriate.

Table 3

Descriptive Summary of the Pretest Score on Each Group

	Groups	N	MS	SD
Proficiency	Experimental	18	29.67	8.39
	Control	18	24	10.38
Overall Reading Strategies Pretest	Experimental	18	2.59	.6
	Control	18	2.87	.7
Pre-Global-Strategies	Experimental	18	2.28	.66
	Control	18	2.67	.83
Pre-Problem-Solving-Strategies	Experimental	18	2.66	.64
	Control	18	2.93	.9
Pre-Support-Strategies	Experimental	18	2.97	.52
	Control	18	3.11	.4
Pre-Literal-General-Reading-Comprehension	Experimental	18	3.11	1.28
	Control	18	3	1.37
Pre-Literal-Narrative-Reading-Comprehension	Experimental	18	1.56	.62
	Control	18	1.28	.57
Pre-Literal-Descriptive-Reading-Comprehension	Experimental	18	.39	.5
	Control	18	.61	.5
Pre-Literal-Persuasive-Reading-Comprehension	Experimental	18	.5	.51
	Control	18	.61	.5
Pre-Literal-Expository-Reading-Comprehension	Experimental	18	.67	.49
	Control	18	.5	.51
Pre-Higher-Order-General-Reading-Comprehension	Experimental	18	16.94	5.47
	Control	18	16.5	5.57
Pre-Higher-Order-narrative-Reading-Comprehension	Experimental	18	4.89	1.71
	Control	18	4.22	1.9
Pre-Higher-Order-Descriptive-Reading-Comprehension	Experimental	18	2.89	1.02
	Control	18	3	1.08
Pre-Higher-Order-Persuasive-Reading-Comprehension	Experimental	18	4.28	1.67
	Control	18	4.06	1.35
Pre-Higher-Order-Expository-Reading-Comprehension	Experimental	18	4.89	1.78
	Control	18	5.22	1.83

Table 4

Results of Homogeneity of Variance Test Between Groups in Terms of Proficiency, Pre-SORS, Pre-Literal, and Pre-Higher-Order Comprehension of Text in Narrative, Descriptive, Persuasive, and Expository Texts (Levene's Test for Equality of Variance)

Variables	F	p
Proficiency	1.32	.26
Overall Reading Strategies Pretest	.175	.68
Pre-Global-Strategies	.43	.51
Pre-Problem-Solving-Strategies	1.41	.24
Pre-Support-Strategies	3.49	.07
Pre-Literal-General-Reading-Comprehension	.53	.47
Pre-Literal-Narrative-Reading-Comprehension	.45	.51
Pre-Literal-Descriptive-Reading-Comprehension	0	1
Pre-Literal-Persuasive-Reading-Comprehension	.88	.35
Pre-Literal-Expository-Reading-Comprehension	2.13	.15
Pre-Higher-Order-General-Reading-Comprehension	.004	.95
Pre-Higher-Order-Narrative-Reading-Comprehension	.1	.75
Pre-Higher-Order-Descriptive-Reading-Comprehension	.03	.87
Pre-Higher-Order-Persuasive-Reading-Comprehension	.85	.36
Pre-Higher-Order-Expository-Reading-Comprehension	.14	.71

Results of independent t-test on three pretests are shown in Table 5 below. For proficiency level, t (34) = 1.8, p >0.05, which was not significant.

For pre-SORS overall reading strategies test, t (34) = -1.3, p >.05, which was not significant, for pre-Global SORS global reading strategies test, t (34) = -1.56, p >.05, which was not significant, for pre-SORS problem-solving reading strategies test, t(34)=-1.04, p>.05, which was not significant, and for pre-SORS support reading strategies test, t (34) = -.92, p >.05, which was not significant also.

For pre-literal reading comprehension in all texts, t (34) = .25, p >.05, which was not significant, for pre-literal reading comprehension in narrative text, t (34) = 1.4, p>0.05, which was not significant, for pre-literal reading comprehension in descriptive text, t (34) = -1.33, p >.05, which was not significant, for pre-literal reading comprehension in persuasive text, t (34) = -.66, p >.05, which was not significant, and for pre-literal reading comprehension in expository text, t (34) = 1, p >.05, which was not significant as well.

For pre-higher order reading comprehension in all texts, t (34) = .24, p >.05, which was not significant, for pre-higher order reading comprehension in narrative text, t(34)=1.11, p>.05, which was not significant, for pre-higher order reading comprehension in descriptive text, t (34) = -.32, p >.05, which was not significant, for pre-higher order reading comprehension in persuasive text, t (34) = .44, p >.05, which was not significant, and for pre-higher order reading comprehension in expository text, t (34) = -.55, p >.05, which was not significant as well.

In other words, the two groups were similar in terms of their English reading proficiency level, their reading strategy uses, and their English reading comprehension achievement in the four text types before the experiment was conducted. Thus, both conditions were equivalent and relatively comparable before the beginning of the treatment, which reflects favorably upon the internal validity of the findings.

Table 5

Independent t-Tests on Difference Between Groups on Proficiency, Pre-SORS, Pre-Literal, and Pre-Higher-Order Comprehension of Text in Narrative, Descriptive, Persuasive, and Expository Texts.

	t	df	p
Proficiency	1.8	34	.08
Overall Reading Strategies Pretest	-1.3	34	.2
Pre-Global-Strategies	-1.56	34	.13
Pre-Problem-Solving-Strategies	-1.04	34	.31
Pre-Support-Strategies	-.92	34	.36
Pre-Literal-General-Reading-Comprehension	.25	34	.8
Pre-Literal-Narrative-Reading-Comprehension	1.4	34	.17
Pre-Literal-Descriptive-Reading-Comprehension	-1.33	34	.19
Pre-Literal-Persuasive-Reading-Comprehension	-.66	34	.52
Pre-Literal-Expository-Reading-Comprehension	1	34	.32
Pre-Higher-Order-General-Reading-Comprehension	.24	34	.81
Pre-Higher-Order-Narrative-Reading-Comprehension	1.11	34	.28
Pre-Higher-Order-Descriptive-Reading-Comprehension	-.32	34	.75
Pre-Higher-Order-Persuasive-Reading-Comprehension	.44	34	.66
Pre-Higher-Order-Expository-Reading-Comprehension	-.55	34	.58

Reliability of Scores of the Measurements

The validity and reliability of SORS used in this study was already established by previous research. However, the testing environment and population of this study were

different from previous studies. For that reason, the reliability of the SORS and reading comprehension measurements was tested with the participants of this study to check whether it is also reliable in this experimental condition. Cronbach alpha α, one of the most commonly reported standard reliability estimates in the language testing literature, was used to check reliability or internal consistency of SORS whereas face validity was used with the comprehension tests.

Reliability of scores of the Survey of Reading Strategy (SORS)

The reliability of the scores of the SORS and its subscales were also calculated in pre-test and post-test administration for the entire sample with N=36 by using Cronbach's alpha α. The result indicates that this instrument as a whole and the subscales had a high reliability for the sample tested. The overall α was .97 for the pretest and .98 for the posttest. The Cronbach's alpha α of the global metacognitive strategies in the pretest data was .97 and .98 in the posttest. The Cronbach's alpha α of the problem-solving metacognitive strategies in the pretest data was .95 and .96 in the posttest. The Cronbach's alpha α of the support metacognitive strategies in the pretest data was .61 and .78 in the posttest. (table 6)

As the overall Cronbach's alpha α values in the pretest and the posttest were all above 0.6 and thus indicates good reliability; hence, the SORS is a reliable instrument for surveying reported reading strategy use in this study.

Table 6

Reliability of Scores of the SORS in the Pre-Test and Post-Test

	SORS Pretest Cronbach Alpha α	SORS Posttest Cronbach Alpha α
Overall Metacognitive Strategies	.97	.98
Global Metacognitive Strategies	.97	.98
Problem-Solving Metacognitive Strategies	.95	.96
Support Metacognitive Strategies	.61	.78

Inter-reliability of Reading Comprehension Tests

Two raters specialized in teaching English as a foreign language examined the tests to establish their content validity. The two raters reached a consensus over the different levels of the reading comprehension question. Inter-rater reliability analysis was conducted by determining the Pearson correlation coefficient in order to measure the degree of agreement between the two raters. The level of agreement between the two raters was r= 0.90, which is a high inter-reliability coefficient indicating a little variation between them.

First Research Question: Relationship Between Strategies and Comprehension

Correlational Analysis

The first research question examines the relationship between metacognitive reading strategies and literal and higher-order reading comprehension. To address the first research question and determine the relationship between the participants' use of metacognitive reading strategies with each of the SORS strategy types (global, problem-

solving, and support) and the literal and higher order reading comprehension, correlation bivariate analysis was conducted and Pearson product- moment coefficient (*r*) values were computed using SPSS. All variable skewness and kurtosis statistics were within the acceptable limits, which was suggestive of univariately normal distribution. Table 7 presents the results of the correlational analysis. It shows the statistical relationships of higher order reading comprehension to the overall metacognitive reading strategies and each of the three SORS strategy types (global, problem-solving, and support).

Table 7

Correlational Table on the Relation Between Post General Literal and Post General Higher-Order Comprehension and Metacognitive Reading Strategies and Their Subscales

	Post-General-Literal	Post-General-Higher Order
Post-Global-Strategies	.75**	.89**
Post-Problem-Solving-Strategies	.72**	.90**
Post-Support-Strategies	.77**	.88**
Post-Overall Metacognitive-Strategies	.77**	.92**

** indicates $p < 0.01$

The results of the correlational analysis summarized in table 7 reveal the following aspects of interest:

General Literal Comprehension. There was a strong, positive, and statistically significant relationship between overall metacognitive reading strategies and literal reading comprehension ($r=.77$, $p<.001$). Also, the results showed that the relationship was strong, positive, and statistically significant between literal reading comprehension and

global reading strategies (r=.75, p<.001), problem-solving reading strategies (r=.72, p<.001), and support reading strategies (r=.77, p<.001).

General Higher-Order Comprehension. Furthermore, there was a strong, positive, and statistically significant relationship between overall metacognitive reading strategies and higher-order reading comprehension (r=.92, p<.001). The results also showed that the relationship was strong, positive, and statistically significant between higher-order reading comprehension and global reading strategies (r=.89, p<.001), problem-solving reading strategies (r=.90, p<0.001), and support reading strategies (r=.88, p<.001).

Table 8

Correlational Table on the Relation Between Post Literal and Post Higher-Order Comprehension in Narrative, Descriptive, Persuasive, and Expository Texts and Metacognitive Reading Strategies and Their Subscales

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Overall Meta Str	3.32	.83														
2. Glob	3.19	.97	.99**													
3. Prob	3.36	.92	.98**	.97**												
4. Sup	3.47	.64	.93**	.89**	.87**											
5. Literal General	3.78	1.33	.77**	.75**	.72**	.77**										
6. Literal Nar	1.61	.55	.58**	.59**	.56**	.57**	.80**									
7. Literal Desc	.75	.44	.61**	.61**	.59**	.63**	74**	.51*								
8. Literal Pers	.78	.42	.61**	.59**	.55**	.63**	61**	.40	.46*							
9. Literal Expo	.64	.49	.41*	.38*	.41*	.42*	.62**	.30	.23	.02						
10. HO General	18.75	6.41	.92**	.89**	.90**	.88**	.75**	.52*	.56**	.57**	.43					
11. HO Nar	5.06	2.03	.82**	.81**	.79**	.77**	.69**	.51*	.55**	.46*	.39*	.89**				
12. HO Desc	3.14	1.25	.82**	.80**	.83**	.73**	.54**	.42	.54**	.35**	.22	.84**	.74**			
13. HO Pers	4.53	1.68	.83**	.80**	.80**	.85**	.63**	.42	.49*	.52*	.37*	.89**	.66**	.70**		
14. HO Expo	6.03	2.24	.80**	.78**	.78**	.77**	.76**	.53*	.52*	.61	.52*	.92**	.72	.66**	.82**	

** indicates $p < 0.01$

* indicates $p < 0.05$

Literal Comprehension in Narrative, Descriptive, Persuasive, and Expository Texts. For literal comprehension of narrative, descriptive, persuasive, and expository comprehension, none of variables met the normality assumption, as they deviated from the normal distribution. The absolute values for Skew of literal narrative, literal descriptive, and literal persuasive were -2.58, -3.07, and -3.55 respectively. The kurtosis measure for literal expository was -2.26. Hence, a Spearman product-moment correlation coefficient (r) for tests that were not normally distributed was used to thoroughly address the first research question regarding the relationship between the participants' use of metacognitive reading strategies with each of the SORS strategy types (GLOB, PROB, and SUP) and literal reading comprehension of narrative, descriptive, persuasive, and expository texts.

The results of the Spearman correlational analysis summarized in table 8 reveal the following aspects of interest:

Literal Comprehension in the Narrative Text. There was a moderate, positive, and statistically significant relationship between overall metacognitive reading strategies and literal reading comprehension of narrative texts (r_s=.58, p<.001). The results also showed that the relationship was moderate, positive, and statistically significant between literal reading comprehension of narrative texts and global reading strategies (r_s= .59, p<.001), problem-solving reading strategies (r_s= 0.56, p<0.001), and support reading strategies (r_s= .57, p<.001).

Literal Comprehension in the Descriptive Text. There was a moderate, positive, and statistically significant relationship between overall metacognitive reading strategies and literal reading comprehension of descriptive texts (r_s=.61, p<.001). The results also showed that the relationship was moderate, positive, and statistically significant between

literal reading comprehension of descriptive texts and global reading strategies (r_s=.61, p<.001), problem-solving reading strategies (r_s=.59, p<.001), and support reading strategies (r_s=.63, p<.001).

Literal Comprehension in the Persuasive Text. There was a moderate, positive, and statistically significant relationship between overall metacognitive reading strategies and literal reading comprehension of persuasive texts (r_s=.61, p<.001). The results also showed that the relationship is moderate, positive, and statistically significant between literal reading comprehension of persuasive texts and global reading strategies (r_s=.59, p<.001), problem-solving reading strategies (r_s=.55, p<.001), and support reading strategies (r_s=.63, p<.001).

Literal Comprehension in the Expository Text. There was a moderate, positive, and statistically significant relationship between overall metacognitive reading strategies and literal reading comprehension of expository texts (r_s=.41, p=.007). The results also showed that the relationship is moderate, positive, and statistically significant between literal reading comprehension of expository texts and global reading strategies (r_s=.38, p=.011), problem-solving reading strategies (r_s=.41, p=.006), and support reading strategies (r_s=.42, p=.006).

Higher-Order Comprehension in Narrative, Descriptive, Persuasive, and Expository Texts. A Pearson product-moment correlation coefficient (r) for normal distributed tests was also computed to thoroughly address the first research question regarding the relationship between the participants' use of metacognitive reading strategies with each of the SORS strategy types (GLOB, PROB, and SUP) and higher order reading comprehension of narrative, descriptive, persuasive, and expository texts. All variable skewness and kurtosis statistics were within the acceptable limits.

Higher-Order Comprehension in the Narrative Text. There was a strong, positive, and statistically significant relationship between overall metacognitive reading strategies and higher-order reading comprehension of narrative texts ($r=.82$, $p<.001$). The results also showed that the relationship was strong, positive, and statistically significant between higher-order reading comprehension of narrative texts and global reading strategies ($r=.81$, $p<.001$), problem-solving reading strategies ($r=.79$, $p<.001$), and support reading strategies ($r=.77$, $p<.001$).

Higher-Order Comprehension in the Descriptive Text. There was a strong, positive, and statistically significant relationship between overall metacognitive reading strategies and higher-order reading comprehension of descriptive texts ($r=.82$, $p<.001$). The results also showed that the relationship was strong, positive, and statistically significant between higher-order reading comprehension of descriptive texts and global reading strategies ($r=.80$, $p<.001$), problem-solving reading strategies ($r=.83$, $p<.001$), and support reading strategies ($r=.73$, $p<.001$).

Higher-Order Comprehension in the Persuasive Text. There was a strong, positive, and statistically significant relationship between overall metacognitive reading strategies and higher-order reading comprehension of persuasive texts ($r=.83$, $p<.001$). The results also showed that the relationship was strong, positive, and statistically significant between higher-order reading comprehension of persuasive texts and global reading strategies ($r=.80$, $p<.001$), problem-solving reading strategies ($r=.80$, $p<.001$), and support reading strategies ($r=.85$, $p<.001$).

Higher-Order Comprehension in the Expository Text. There was a strong, positive, and statistically significant relationship between overall metacognitive reading strategies and higher-order reading comprehension of expository texts ($r=.80$, $p<.001$).

The results also showed that the relationship was strong, positive, and statistically significant between higher-order reading comprehension of expository texts and global reading strategies (r=.78, p<.001), problem-solving reading strategies (r=.78, p<.001), and support reading strategies (r=.77, p<.001).

Second Research Question: Influence of Instruction on the Use of Strategies

Analysis of Covariance (ANCOVA)

The second research question explores the influence of deliberate instruction in metacognitive reading strategies on improving the use of metacognitive reading strategies. To address the second research question and investigate the influence of the OLM deliberate instruction on metacognitive reading strategies, several analyses of covariance (ANCOVA) were used. The variables were studied globally and as per each text type (narrative, descriptive, persuasive, and expository).

Influence of Intervention on Post-Overall Metacognitive Strategies. The first dependent variable was the posttest of overall metacognitive strategies. Analysis of covariate (ANCOVA) was conducted to examine between-subjects effect of intervention on the use of overall metacognitive strategies. Results of the ANCOVA, as shown in table 9, revealed that the covariate, pretest of overall metacognitive strategies, was significantly related to the participants' post-overall metacognitive strategies, F (1, 33) = 858.86, p<.001. The effect size (Partial Eta Squared) $\eta p^2 = 0.96$, which indicates a large effect of the covariate on the use of the post-overall strategies.

In addition, there was a statistically significant effect of the OLM intervention on the use of overall metacognitive strategies after controlling for the pre-overall metacognitive strategies, F (1, 33) = 390.03, p <.001. The effect size (Partial Eta

Squared) ηp^2= 0.92 of the OLM treatment), which indicates a large effect on the post overall strategies. The values of effect size are useful because they provide an objective and standardized measure of the importance of the effect, the OLM intervention effect, in this study. The computed Partial Eta Squared (η^2 = 0.92) reveals that 92 % of the variance between the results of the control and experimental groups on the post-test can be explained or accounted for by the treatment. The remaining 8 % is due to other uncontrolled factors. To put it briefly, there was a significant difference between the experimental group and the control group on the post overall use of metacognitive reading strategies after the treatment (OLM) when the covariate, pre-overall use of metacognitive reading strategies, was held constant (table 9).

ANCOVA was also used to compare the adjusted means of the control and experimental groups to see if they differed significantly after the adjustment of the post-test means on the basis of the pre-test means. The results showed that the adjusted mean of the control group is M_{adj}=2.81 whereas that of the experimental group was much higher with M_{adj} = 3.82 and a standard error SE= 0.04 for both groups (table 10).

Table 9

ANCOVA Table on Overall Reading Strategies in Post-SORS

Variables	SS	df	MS	F	p	Partial Eta Squared
Overall Reading Pretest (Covariate)	19.3	1	19.30	858.86	.000	.96
Treatment	8.77	1	8.77	390.03	.000	.92
Error	.742	33	.022	6		
Total	420.477	36				

Table 10

Adjusted Mean and Standard Error of Overall Reading Strategies in Post-SORS

Treatment	M_{adj}	SE	N
Experimental	3.82	.04	18
Control	2.81	.04	18

Influence of Intervention on Post-Global Metacognitive Strategies. The second dependent variable was the posttest of global metacognitive strategies. The results of the ANCOVA, as shown in table 11, revealed that the covariate, pretest of global metacognitive strategies, was significantly related to the participants' post-global metacognitive strategies, with F (1, 33) = 870.38, p <.001. The effect size (Partial Eta Squared) $\eta p^2 = 0.96$, which indicates a large effect of the covariate on the use of the post-global strategies.

In addition, there was a statistically significant effect of the OLM intervention on the use of global metacognitive strategies after controlling for the pre-global metacognitive strategies, F (1, 33) = 504.36, p<.001. The effect size (Partial Eta Squared) $\eta p^2 = 0.94$ of the treatment (OLM), which indicates a large effect on post global strategies. The computed Partial Eta Squared ($\eta^2 = 0.94$) reveals that 94 % of the variance between the results of the control and experimental groups on the post-test can be explained or accounted for by the treatment. The remaining 6% is due to other uncontrolled factors (table 11).

The results also showed that the adjusted mean of the experimental group M_{adj}=3.84 was higher than the adjusted mean of the control group, M_{adj}=2.53, with a standard error SE=0.04 for both groups (table 12).

Table 11

ANCOVA Table on Global Reading Strategies in Post-SORS

Variables	SS	df	MS	F	p	Partial Eta Squared
Global Pretest (Covariate)	24.95	1	24.95	870.38	.000	.96
Treatment	14.46	1	14.46	504.36	.000	.94
Error	.95	33	.029			
Total	398.07	36				

Table 12

Adjusted Mean and Standard Error of Global Reading Strategies in Post-SORS

Treatment	M_{adj}	SE	N
Experimental	3.84	.04	18
Control	2.53	.04	18

Influence of Intervention on Post-Problem-Solving Metacognitive Strategies. The third dependent variable was the posttest of problem-solving metacognitive strategies. The results of the ANCOVA, as shown in table 13, revealed that the covariate, pretest of problem-solving metacognitive strategies, was significantly related to the

participants' post- problem-solving metacognitive strategies, F (1, 33) = 496.96, p <.001. The effect size (Partial Eta Squared ηp2) = 0.94, which indicates a large effect of the covariate on the use of the post- problem-solving strategies.

In addition, there was a statistically significant effect of the OLM intervention on the use of problem-solving metacognitive strategies after controlling for the pre- problem-solving metacognitive strategies, *F* (1, 33) = 169.71, p < .001. The effect size (Partial Eta Squared) ηp^2 = 0.84 of the treatment (OLM) indicates a large effect on post problem-solving strategies. The computed Partial Eta Squared (η^2 = 0.84) reveals that 84 % of the variance between the results of the control and experimental groups on the post-test can be explained or accounted for by the treatment. The remaining 16% is due to other uncontrolled factors.

The results also showed that the adjusted mean of the experimental group M_{adj}=3.85 was higher than the adjusted mean of the control group, M_{adj}= 2.88, with a standard error SE=0.05 for both groups (table 14).

Table 13

ANCOVA Table on Problem-Solving Reading Strategies in Post-SORS

Variables	SS	df	MS	F	p	Partial Eta Squared
Problem-Solving Pretest (Covariate)	23.70	1	23.70	496.96	.000	.94
Treatment	8.09	1	8.093	169.71	.000	.84
Error	1.57	33	.048	3		
Total	436.89	36				

Table 14

Adjusted Mean and Standard Error of Problem-Solving Reading Strategies in Post-SORS

Treatment	M_{adj}	SE	N
Experimental	3.85	.05	18
Control	2.88	.05	18

Influence of Intervention on Post-Support Metacognitive Strategies. The fourth dependent variable is the posttest of support metacognitive strategies. The results of the ANCOVA, as shown in table 15, revealed that the covariate, pretest of support metacognitive strategies, was significantly related to the participants' post- support metacognitive strategies, F (1, 33) = 187.32, p <.001. The effect size (Partial Eta Squared) $\eta p^2 = 0.85$, which indicates a large effect of the covariate on the use of the post-support strategies.

In addition, there was a statistically significant effect of the OLM intervention on the use of support metacognitive strategies after controlling for the pre- support metacognitive strategies, F (1, 33) = 54.91, p<.001. The effect size (Partial Eta Squared $\eta p^2 = 0.63$ of the treatment (OLM) indicates a large effect on post support strategies. The computed Partial Eta Squared ($\eta p^2 = 0.63$) reveals that 63 % of the variance between the results of the control and experimental groups on the post-test can

be explained or accounted for by the treatment. The remaining 37% are due to other uncontrolled factors.

The results also showed that the adjusted mean of the experimental group M_{adj}=3.77 was higher than the adjusted mean of the control group is M_{adj}=3.17 with a standard error SE=0.06 for both groups (table 16).

Table 15

ANCOVA Table on Support Reading Strategies in Post-SORS

Variables	SS	df	MS	F	p	Partial Eta Squared
Support Pretest (Covariate)	10.721	1	10.721	187.32	.000	.85
Treatment	3.143	1	3.143	54.91	.000	.63
Error	1.889	33	.057			
Total	446.728	36				

Table 16

Adjusted Mean and Standard Error of Support Reading Strategies in Post-SORS

Treatment	M_{adj}	SE	N
Experimental	3.77	.06	18
Control	3.17	.06	18

Consequently, the second research question addressed in the study is answered as the results reveal that indeed, the direct instruction of metacognitive reading

comprehension strategies significantly improves the students' use of metacognitive reading strategies as opposed to regular instruction that relies heavily on the use of basal readers and the teaching of reading skills.

Third Research Question: Effect of Instruction on Comprehension Across Proficiency Levels and Text Types

Two-way Factorial Analysis of Covariance (FANCOVA)

The third research question investigates the main effect of deliberate instruction in metacognitive reading strategies on literal and higher-order reading comprehension as well as the dependence of this effect on the proficiency level of the students. Research Question 3 was studied using several two-way factorial analyses of covariance (FANCOVA) to indicate the main effect of the OLM intervention on literal and higher-order comprehension and to determine if the effect of the OLM intervention on reading comprehension depends on the English proficiency of the students (interaction effect). The variables were studied globally and as per each text type (descriptive, narrative, persuasive, and narrative).

English Reading Proficiency. The English language proficiency variable, which was studied using a TOEFL-Junior test, was transformed into a categorical variable, into two groups based on the midpoint. The exam included 42 questions, so those who scored from 0-21 were considered low-proficiency participants whereas those who scored from 22-42 were classified high-proficiency participants. 13 students (36.1%) scored below 21, whereas 23 participants (63.9%) students scored between 22 and 42.

Influence of Intervention on Post Literal General Reading Comprehension. The first dependent variable was the posttest of the general literal English reading comprehension as measured by four reading comprehension tests. The results of the

FANCOVA, as shown in table 17, revealed that the covariate, pretest of general literal reading comprehension, was significantly related to the participants' post general literal reading comprehension, F (1, 31) = 7.57, p =.01. The effect size (Partial Eta Squared ηp^2=0.2), which indicates an effect of the covariate on post- general literal reading comprehension.

Furthermore, there was a statistically significant effect of the OLM intervention on the post- general literal reading comprehension after controlling for the pre- general literal reading comprehension, F (1, 31) = 5.29, p= 0.03. The effect size (Partial Eta Squared ηp^2 = 0.15 of the treatment (OLM) indicates an effect on the post general literal reading comprehension.

The results also showed that the adjusted mean of the experimental group M_{adj}=3.36 was lower than the adjusted mean of the control group M_{adj}= 4.17 with a standard error SE=0.22 for the first and SE=0.28 for the second (table 18).

However, FANCOVA results showed that the proficiency level didn't have a main effect on the post- general literal reading comprehension and the obtained F (1, 31) = 1.62, p = .213, which is not significant. The effect size (Partial Eta Squared) ηp^2 = 0.05.

Moreover, the results of interaction between intervention and proficiency on general literal posttest were not at a significant level with F (1, 31) = 2.34, p = .136. The effect size (Partial Eta Squared) ηp^2 = 0.07. Hence, no interaction effect was found between the OLM intervention and the proficiency level on literal comprehension in all texts.

Table 17

FANCOVA Table on Post Literal General Reading Comprehension

Variables	SS	df	MS	F	p	Partial Eta Squared
Pre-Literal General Comp	6.33	1	6.33	7.57	.01	.2
Treatment	4.42	1	4.42	5.29	.03	.15
Proficiency	1.35	1	1.35	1.62	.21	.05
Treatment * Proficiency	1.96	1	1.96	2.34	.14	.07
Error	25.92	31	.84			
Total	576	36				

Table 18

Adjusted Mean and Standard Error of Control and Experimental Groups and Proficiency Level on Post Literal General Reading Comprehension

Treatment	Proficiency	M_{adj}	SE	N
	low	2.78	.35	9
Control	high	3.94	.34	9
	total	3.36	.22	18
	low	4.11	.55	4
Experimental	high	4.22	.27	14
	total	4.17	.28	18
	low	3.45	.36	13
Total	high	4.08	.23	23

Influence of Intervention on Literal Narrative Posttest. The second dependent variable was the posttest of literal reading comprehension in a narrative text as measured by a reading comprehension test. The results of the FANCOVA, as shown in table 19, revealed that the covariate, pretest of literal reading comprehension in a narrative text, was significantly related to the participants' post literal reading comprehension in a narrative text, F (1, 31) = 4.69, p= 0.04. The effect size (Partial Eta Squared $\eta p^2 = 0.13$), which indicates a medium to large effect of the covariate on post- literal reading comprehension in a narrative text.

However, there was not a statistically significant effect of the OLM intervention on the post- literal reading comprehension in a narrative text after controlling for the pre-literal reading comprehension in a narrative text, F (1, 31) = 0.21, p= 0.65. The effect size Partial Eta Squared $\eta p^2 = 0.01$ of the treatment (OLM).

Moreover, FANCOVA results showed that the proficiency level didn't have a main effect on the post-literal reading comprehension in a narrative text and the obtained F (1, 31) = 1.39, p = 0.25, which is not significant. The effect size (Partial Eta Squared) $\eta p^2 = 0.04$.

Furthermore, the results of interaction between intervention and proficiency on the posttest literal reading comprehension in a narrative text were not at a significant level with F (1, 31) = 0.14, p = .72. The effect size (Partial Eta Squared) $\eta p^2 = 0.004$. Hence, no interaction effect was found between the OLM intervention and the proficiency level on literal comprehension in a narrative text.

Table 19

FANCOVA table on Post Literal Reading Comprehension in a Narrative Text

Variables	SS	df	MS	F	p	Partial Eta Squared
Pre-literal Narrative	1.23	1	1.23	4.69	.04	.13
Treatment	.06	1	.06	.21	.65	.01
Proficiency	.37	1	.37	1.39	.25	.04
Treatment * Proficiency	.04	1	.04	.14	.72	.004
Error	8.13	31	.26			
Total	104	36				

Table 20

Adjusted Mean and Standard Error of Control and Experimental Groups and Proficiency Level on Post Literal Narrative Text

Treatment	Proficiency	M_{adj}	SE	N
	low	1.40	.17	9
Control	high	1.69	.17	9
	total	1.55	.12	18
	low	1.55	.26	4
Experimental	high	1.71	.14	14
	total	1.63	.15	18
	low	1.48	.16	13
Total	high	1.70	.11	23

Influence of Intervention on Literal Descriptive Posttest. The third dependent variable was the posttest of literal reading comprehension in a descriptive text as measured by a reading comprehension test. The results of the FANCOVA, as shown in table 21, revealed that the covariate, pretest of literal reading comprehension in a descriptive text, was significantly related to the participants' post literal reading comprehension in a descriptive text, F (1, 31) = 9.9, p=0.004. The effect size (Partial Eta Squared ηp^2 = 0.24), which indicates a large effect of the covariate on post- literal reading comprehension in a descriptive text.

Also, there was a statistically significant effect of the OLM intervention on the post- literal reading comprehension in a descriptive text after controlling for the pre-literal reading comprehension in a descriptive text, F (1, 31) = 16.22, p=<0.001. The effect size Partial Eta Squared ηp^2 = 0.34 of the treatment (OLM), which indicates a large effect of the intervention on post- literal reading comprehension in a descriptive text. The results showed that the adjusted mean of the experimental group M_{adj} = 0.96 was higher than the adjusted mean of the control group M_{adj}= 0.52 with a standard error SE=0.08 for the first and SE=0.07 for the second (table 22).

Moreover, FANCOVA results showed that the proficiency level had a main effect on the post-literal reading comprehension in a descriptive text and the obtained F (1, 31) = 5.38, p = 0.03, which was significant. The effect size (Partial Eta Squared) ηp^2 = 0.15, which indicates a large effect of the proficiency on post- literal reading comprehension in a descriptive text. The results also showed that the adjusted mean of the low proficiency group M_{adj} = 0.60 was lower than the adjusted mean of the high proficiency group

M_{adj}=0.88 with a standard error SE=0.09 for the first and SE=0.06 for the second (table 22).

However, the results of interaction between intervention and proficiency on the posttest literal reading comprehension in a descriptive text were not at a significant level with F (1, 31) = 3.72, p = 0.06. The effect size (Partial Eta Squared) ηp^2 = 0.11. Hence, no interaction effect was found between the OLM intervention and the proficiency level on literal comprehension in a descriptive text.

Table 21

FANCOVA table on Post Literal Reading Comprehension in a Descriptive Text

Variables	SS	df	MS	F	p	Partial Eta Squared
Pre-literal Descriptive	.77	1	.77	9.9	.004	.24
Treatment	1.27	1	1.27	16.22	.00	.34
Proficiency	.42	1	.42	5.38	.03	.15
Treatment * Proficiency	.29	1	.29	3.72	.06	.11
Error	2.42	31	.08			
Total	27	36				

Table 22. *Adjusted Mean and Standard Error of Control and Experimental Groups and Proficiency Level on Post Literal Descriptive Text*

Treatment	Proficiency	M_{adj}	SE	N
	low	.28	.10	9
Control	high	.75	.10	9
	total	.52	.07	18
	low	.92	.15	4
Experimental	high	1.00	.08	14
	total	.96	.08	18
	low	.60	.09	13
Total	high	.88	.06	23

Influence of Intervention on Literal Persuasive Posttest. The fourth dependent variable was the posttest of literal reading comprehension in a persuasive text as measured by a reading comprehension test. The results of the FANCOVA, as shown in table 23, revealed that the covariate, pretest of literal reading comprehension in a persuasive text, was not significantly related to the participants' post literal reading comprehension in a persuasive text, $F(1, 31) = 1.78$, p=0.19. The effect size (Partial Eta Squared) $\eta p^2 = 0.05$.

Additionally, there was not a statistically significant effect of the OLM intervention on the post- literal reading comprehension in a persuasive text after controlling for the pre- literal reading comprehension in a persuasive text, $F(1, 31) = 3.12$, p=0.09. The effect size Partial Eta Squared $\eta p^2 = 0.09$ of the treatment (OLM).

Moreover, FANCOVA results showed that the proficiency level doesn't have a main effect on the post-literal reading comprehension in a persuasive text and the obtained F (1, 31) = 2.83, p = 0.10, which is not significant. The effect size (Partial Eta Squared) ηp^2 = 0.08.

Also, the results of interaction between intervention and proficiency on the posttest literal reading comprehension in a persuasive text were not at a significant level with F (1, 31) = 3.45, p = .07. The effect size (Partial Eta Squared) ηp^2 = 0.1. Hence, no interaction effect was found between the OLM intervention and the proficiency level on literal comprehension in a persuasive text.

Table 23

FANCOVA table on Post Literal Reading Comprehension in a Persuasive Text

Variables	SS	df	MS	F	p	Partial Eta Squared
Pre-Literal Persuasive	.20	1	.20	1.78	.19	.05
Treatment	.35	1	.35	3.12	.09	.09
Proficiency	.32	1	.32	2.83	.10	.08
Treatment * Proficiency	.39	1	.39	3.45	.07	.10
Error	3.48	31	.11			
Total	28	36				

Table 24

Adjusted Mean and Standard Error of Control and Experimental Groups and Proficiency Level on Post Literal Persuasive Text

Treatment	Proficiency	M_{adj}	SE	N
	low	.40	.12	9
Control	high	.91	.13	9
	total	.66	.08	18
	low	.86	.19	4
Experimental	high	.91	.09	14
	total	.89	.10	18
	low	.63	.12	13
Total	high	.91	.08	23

Influence of Intervention on Literal Posttest Expository. The fifth dependent variable was the posttest of literal reading comprehension in an expository text as measured by a reading comprehension test. The results of the FANCOVA, as shown in table 25, revealed that the covariate, pretest of literal reading comprehension in an expository text, was not significantly related to the participants' post literal reading comprehension in an expository text, F (1, 31) = 0.26, p=0.61. The effect size (Partial Eta Squared) $\eta p^2 = 0.01$.

Additionally, there was not a statistically significant effect of the OLM intervention on the post- literal reading comprehension in an expository text after

controlling for the pre- literal reading comprehension in an expository text, F (1,31)=0.25, p=0.62. The effect size Partial Eta Squared $\eta p^2 = 0.01$ of the treatment (OLM).

Moreover, FANCOVA results showed that the proficiency level doesn't have a main effect on the post-literal reading comprehension in an expository text and the obtained F (1, 31) = 3.23, p = 0.08, which is not significant. The effect size (Partial Eta Squared) $\eta p^2 = 0.09$.

Also, the results of interaction between intervention and proficiency on the posttest literal reading comprehension in an expository text were not at a significant level with F (1, 31) = 0.17, p = 0.68. The effect size (Partial Eta Squared) $\eta p^2 = 0.01$. Hence, no interaction effect was found between the OLM intervention and the proficiency level on literal comprehension in an expository text.

Table 25

FANCOVA table on Post Literal Reading Comprehension in an Expository

Variables	SS	df	MS	F	p	Partial Eta Squared
Pre-literal Expository	.06	1	.06	.26	.61	.01
Treatment	.05	1	.05	.25	.62	.01
Proficiency	.71	1	.71	3.23	.08	.09
Treatment * Proficiency	.04	1	.04	.17	.68	.01
Error	6.83	31	.22			
Total	23	36				

Table 26

Adjusted Mean and Standard Error of Control and Experimental Groups and Proficiency Level on Post Literal Expository Text

Treatment	Proficiency	M adj	SE	N
	low	.469	.164	9
Control	high	.769	.157	9
	total	.619	.112	18
	low	.308	.261	4
Experimental	high	.758	.136	14
	total	.533	.136	18
	low	.389	.163	13
Total	high	.764	.106	23

Influence of Intervention on Post Higher-Order General Reading Comprehension. The sixth dependent variable was the posttest of the general higher-order English reading comprehension as measured by four reading comprehension tests. The results of the FANCOVA, as shown in table 27, revealed that the covariate, pretest of general higher-order reading comprehension, was significantly related to the participants' post general higher-order reading comprehension, $F(1, 31) = 60.2, p < 0.001$. The effect size (Partial Eta Squared $\eta_p^2 = 0.66$), which indicates a large effect of the covariate on post- general higher-order reading comprehension.

Furthermore, there was a statistically significant effect of the OLM intervention on the post- general higher-order reading comprehension after controlling for the pre-general higher-order reading comprehension, F (1, 31) = 14.89, p<0.001. The effect size (Partial Eta Squared ηp^2 = 0.32 of the treatment (OLM) indicates a large effect on the post general higher-order reading comprehension.

The results also showed that the adjusted mean of the experimental group M_{adj}=20.04 was higher than the adjusted mean of the control group M_{adj}= 16.74 with a standard error SE=0.69 for the first and SE=0.52 for the second (table 28).

Moreover, FANCOVA results showed that the proficiency level had a main effect on the post- general higher-order reading comprehension and the obtained F(1, 31)= 4.66, p = .04, which is significant. The effect size (Partial Eta Squared) ηp^2 = 0.13. The results also showed that the adjusted mean of the low proficiency group M_{adj} = 17 is lower than the adjusted mean of the high proficiency group M_{adj}= 19.78 with a standard error SE=0.93 for the first and standard error SE=0.58 for the second (table 28).

On the other hand, the results of interaction between intervention and proficiency on general higher-order posttest were not at a significant level with F (1, 31) = .05, p=.82. The effect size (Partial Eta Squared) ηp^2 = 0. Hence, no interaction effect was found between the OLM intervention and the proficiency level on higher-order comprehension in all texts.

Table 27

FANCOVA Table on Post Higher-Order General Reading Comprehension

Variables	SS	df	MS	F	p	Partial Eta Squared
Pre_Higher_Order General	293.34	1	293.34	60.2	.00	.66
Treatment	72.56	1	72.56	14.89	.00	.32
Proficiency	22.73	1	22.73	4.66	.04	.13
Treatment * Proficiency	.24	1	.24	.05	.82	.00
Error	151.06	31	4.87			
Total	14093	36				

Table 28

Adjusted Mean and Standard Error of Control and Experimental Groups and Proficiency Level on Post Higher-Order General Reading Comprehension

Treatment	Proficiency	M_{adj}	SE	N
Control	low	15.26	.87	9
	high	18.22	.85	9
	total	16.74	.52	18
Experimental	low	18.74	1.39	4
	high	21.33	.65	14
	total	20.04	.69	18
Total	low	17	.93	13
	high	19.78	.58	23

Influence of Intervention on Higher-Order Narrative Posttest. The seventh dependent variable was the posttest of higher-order reading comprehension in a narrative text as measured by a reading comprehension test. The results of the FANCOVA, as shown in table 29, revealed that the covariate, pretest of higher-order reading comprehension in a narrative text, was significantly related to the participants' post higher-order reading comprehension in a narrative text, F (1, 31) = 57.03, p<.001. The effect size (Partial Eta Squared $\eta p^2 = 0.65$), which indicates a large effect of the covariate on post- higher-order reading comprehension in a narrative text.

Furthermore, there was a statistically significant effect of the OLM intervention on the post- higher-order reading comprehension in a narrative text after controlling for the pre- higher-order reading comprehension in a narrative text, F (1, 31) = 6.04, p=.02.

The effect size Partial Eta Squared $\eta p^2 = 0.16$ of the treatment (OLM). The results showed that the adjusted mean of the control group M_{adj} = 4.57 was lower than the adjusted mean of the experimental group M_{adj}= 5.37 with a standard error SE=0.21 for the first and SE=0.26 for the second (table 30).

However, FANCOVA results showed that the proficiency level didn't have a main effect on the post- higher-order reading comprehension in a narrative text and the obtained F (1, 31) = 0.92, p = .35, which is not significant. The effect size (Partial Eta Squared) $\eta p^2 = 0.03$.

Also, the results of interaction between intervention and proficiency on the posttest higher-order reading comprehension in a narrative text were not at a significant level with F (1, 31) = 0.38, p = .54. The effect size (Partial Eta Squared) $\eta p^2 = 0.01$.

Hence, no interaction effect was found between the OLM intervention and the proficiency level on higher-order comprehension in a narrative text.

Table 29

FANCOVA table on Post Higher-Order Reading Comprehension in a Narrative Text

Variables	SS	df	MS	F	p	Partial Eta Squared
Pre-higher-order-Narrative	45.1	1	45.10	57.03	.00	.65
Treatment	4.78	1	4.78	6.04	.02	.16
Proficiency	.73	1	.73	.92	.35	.03
Treatment * Proficiency	.3	1	.30	.38	.54	.01
Error	24.51	31	.79			
Total	1064	36				

Table 30

Adjusted Mean and Standard Error of Control and Experimental Groups and Proficiency Level on Post Higher-Order Narrative Text

Treatment	Proficiency	M_{adj}	SE	N
Control	low	4.45	.35	9
	high	4.68	.31	9
	total	4.57	.21	18
Experimental	low	5.06	.49	4
	high	5.68	.26	14
	total	5.37	.26	18
Total	low	4.76	.33	13
	high	5.18	.22	23

Influence of Intervention on Higher-Order Descriptive Posttest. The eighth dependent variable was the posttest of higher-order reading comprehension in a descriptive text as measured by a reading comprehension test. The results of the FANCOVA, as shown in table 31, revealed that the covariate, pretest of higher-order reading comprehension in a descriptive text, was significantly related to the participants' post higher-order reading comprehension in a descriptive text, F (1, 31) = 15.1, p<.001. The effect size (Partial Eta Squared ηp^2 = 0.33), which indicates a large effect of the covariate on post- higher-order reading comprehension in a descriptive text.

Furthermore, there was a statistically significant effect of the OLM intervention on the post- higher-order reading comprehension in a descriptive text after controlling for the pre- higher-order reading comprehension in a descriptive text, F (1, 31) = 9.68, p<.01. The effect size Partial Eta Squared ηp^2 = 0.24 of the treatment (OLM). The results showed that the adjusted mean of the control group M_{adj} = 2.58 is lower than the adjusted mean of the experimental group M_{adj}= 3.51 with a standard error SE=0.18 for the first and SE=0.24 for the second (table 32).

However, FANCOVA results showed that the proficiency level didn't have an effect on post-higher-order reading comprehension in a descriptive text and the obtained F (1, 31) = 2.7, p =.11, which is not significant. The effect size Partial Eta Squared = 0.08.

Also, the results of interaction between intervention and proficiency on the posttest higher-order reading comprehension in a descriptive text were not at a significant level with F (1, 31) = 0.09, p = .77. The effect size (Partial Eta Squared) ηp^2 = 0. Hence, no interaction effect was found between the OLM intervention and the proficiency level on higher-order comprehension in a descriptive text.

Table 31

FANCOVA table on Post Higher-Order Reading Comprehension in a Descriptive Text

Variables	SS	df	MS	F	p	Partial Eta Squared
Pre-higher-order Descriptive	8.92	1	8.92	15.10	.00	.33
Treatment	5.72	1	5.72	9.68	.00	.24
Proficiency	1.6	1	1.60	2.70	.11	.08
Treatment * Proficiency	.05	1	.05	.09	.77	.00
Error	18.32	31	.59			
Total	409	36				

Table 32

Adjusted Mean and Standard Error of Control and Experimental Groups and Proficiency Level on Post Higher-Order Descriptive Text

Treatment	Proficiency	M_{adj}	SE	N
	low	2.32	.27	9
Control	high	2.84	.26	9
	total	2.58	.18	18
	low	3.16	.45	4
Experimental	high	3.86	.21	14
	total	3.51	.24	18
	low	2.74	.28	13
Total	high	3.35	.18	23

Influence of Intervention on Higher-Order Persuasive Posttest. The ninth dependent variable was the posttest of higher-order reading comprehension in a persuasive text as measured by a reading comprehension test. The results of the FANCOVA, as shown in table 33, revealed that the covariate, pretest of higher-order reading comprehension in a persuasive text, was significantly related to the participants' post higher-order reading comprehension in a persuasive text, $F(1,31)=6.95$, p=.01. The effect size (Partial Eta Squared $\eta p^2 = 0.18$), which indicates a large effect of the covariate on post- higher-order reading comprehension in a persuasive text.

However, there was not a statistically significant effect of the OLM intervention on the post- higher-order reading comprehension in a persuasive text after controlling for the pre- higher-order reading comprehension in a persuasive text, $F(1, 31) = 0.21$, p=.65. The effect size Partial Eta Squared $\eta p^2 = 0.01$ of the treatment (OLM).

On the other hand, FANCOVA results showed that the proficiency level had a main effect on the post- higher-order reading comprehension in a persuasive text and the obtained $F(1, 31) = 11.62$, $p < .01$, which is significant. The effect size (Partial Eta Squared) $\eta p^2 = 0.27$. The results showed that the adjusted mean of the low proficiency group $M_{adj} = 3.41$ was lower than the adjusted mean of the high proficiency group $M_{adj}=5.18$ with standard error SE=0.38 for the first and SE=0.25 for the second (table 34).

The results of interaction between intervention and proficiency on the posttest higher-order reading comprehension in a persuasive text were not at a significant level with $F(1, 31) = 0.11$, $p = .75$. The effect size (Partial Eta Squared) $\eta p^2 = 0$. Hence, no interaction effect was found between the OLM intervention and the proficiency level on higher-order comprehension in a persuasive text.

Table 33

FANCOVA table on Post Higher-Order Reading Comprehension in a Persuasive Text

Variables	SS	df	MS	F	p	Partial Eta Squared
Pre-higher-order Persuasive	6.59	1	6.59	6.95	.01	.18
Treatment	.20	1	.20	.21	.65	.01
Proficiency	11.03	1	11.03	11.62	.00	.27
Treatment * Proficiency	.10	1	.10	.11	.75	.00
Error	29.43	31	.95			
Total	837	36				

Table 34

Adjusted Mean and Standard Error of Control and Experimental Groups and Proficiency Level on Post Higher-Order Persuasive Text

Treatment	Proficiency	M_{adj}	SE	N
	low	3.27	.37	9
Control	high	5.16	.36	9
	total	4.21	.23	18
	low	3.56	.58	4
Experimental	high	5.21	.28	14
	total	4.38	.29	18
	low	3.41	.38	13
Total	high	5.18	.25	23

Influence of Intervention on Higher-Order Expository Posttest. The tenth dependent variable was the posttest of higher-order reading comprehension in an expository text as measured by a reading comprehension test. The results of the FANCOVA, as shown in table 35, revealed that the covariate, pretest of higher-order reading comprehension in an expository text, was significantly related to the participants' post higher-order reading comprehension in an expository text, $F(1,31)=9.98$, p=.004. The effect size (Partial Eta Squared $\eta p^2 = 0.24$), which indicates a large effect of the covariate on post- higher-order reading comprehension in an expository text.

However, there was not a statistically significant effect of the OLM intervention on the post- higher-order reading comprehension in an expository text after controlling for the pre- higher-order reading comprehension in an expository text, $F(1, 31) = 1.86$, p=0.18. The effect size Partial Eta Squared $\eta p^2 = 0.06$ of the treatment (OLM).

However, FANCOVA results showed that the proficiency level had a main effect on the post- higher-order reading comprehension in an expository text and the obtained $F(1, 31) = 8.17$, $p = .008$, which is significant. The effect size (Partial Eta Squared) $\eta p^2 = 0.21$. The results showed that the adjusted mean of the low proficiency group M_{adj} =3.45 was lower than the adjusted mean of the high proficiency group M_{adj}= 4.08 with a standard error SE=0.36 for the first and SE=0.23 for the second (table 36).

The results of interaction between intervention and proficiency on the posttest higher-order reading comprehension in an expository text were not at a significant level with $F(1, 31) = 0.04$, $p = .85$. The effect size (Partial Eta Squared) $\eta p^2 = 0$. Hence, no

interaction effect was found between the OLM intervention and the proficiency level on higher-order comprehension in an expository text.

Table 35

FANCOVA table on Post Higher-Order Reading Comprehension in an Expository Text

Variables	SS	df	MS	F	p	Partial Eta Squared
Pre-higher-order Expository	17.31	1	17.31	9.98	.004	.24
Treatment	3.22	1	3.22	1.86	.18	.06
Proficiency	14.16	1	14.16	8.17	.008	.21
Treatment * Proficiency	.07	1	.07	.04	.85	.00
Error	53.77	31	1.73			
Total	1483.00	36				

Table 36

Adjusted Mean and Standard Error of Control and Experimental Groups and Proficiency Level on Post Higher-Order Expository Text

Treatment	Proficiency	M_{adj}	SE	N
	low	2.78	.35	9
Control	high	3.94	.34	9
	total	3.36	.22	18
	low	4.11	.55	4
Experimental	high	4.22	.27	14
	total	4.17	.28	18
	low	3.45	.36	13
Total	high	4.08	.23	23

Fourth Research Question: Strategies Mediating the Relationship Between Instruction and Comprehension

Mediation Analysis

The fourth research question explores whether metacognitive reading strategies mediate the relationship between OLM intervention and literal and higher-order reading comprehension. To investigate this research question, Hayes Process Macro Model 4 Mediation Analysis was performed for both literal and higher-order comprehension.

Mediation Analysis 1: Literal Comprehension. For the mediation analysis, the OLM intervention was entered into the mediation model for analysis as the independent variable. Metacognitive reading strategies were entered as the mediating variable and the post literal reading achievement as the dependent variable. Table 37 summarizes the result of the mediation analysis of OLM intervention predicting the learners' post-literal comprehension mediated by metacognitive reading strategies.

In model 1 (path a), the result indicated that the OLM intervention had a significant effect on metacognitive reading strategies, with b = -0.68, *SEBoot*=0.26, 95%BCI [-1.20, -0.16] and F (1, 34) = 7.13, p = .01.

In model 2, the results of the use of metacognitive reading strategies to improve post-literal comprehension (path b) were significant with b=1.23, *SEBoot*=0.18, 95%BCI [0.87, 1.59], which indicates that metacognitive reading strategies had an effect post-literal comprehension. However, the results of the direct effect of OLM intervention (path c') on post-literal comprehension in the presence of the mediator, metacognitive reading strategies while controlling for it, indicated that the OLM intervention did not have an effect on post-literal comprehension, b= -0.06, *SEBoot*=0.32, 95%BCI [-0.72, 0.60].

As for the indirect effect (path a*b), the mediation analysis revealed that the OLM intervention had a significant indirect effect on the post-literal comprehension through metacognitive reading strategies, b=-0.83, *SEBoot*=0.32, 95%BCI [-1.49, -0.2]. This indicates that mediation occurred, as the indirect effect was statistically significantly different from zero.

In model 3, the total effect of the OLM intervention on the post-literal comprehension, which includes both the direct and the indirect effect, (path c'+ a*b), significantly had an effect on post-literal comprehension, with b= -0.89, *SEBoot*=-0.42, 95%BCI [-1.75, -0.03] and F (1, 34) = 4.39, p=.04.

To sum it up, the OLM intervention had no direct effect (c') on post-literal comprehension, with 95%BCI [-0.72, 0.60], and the entire effect was indirect (a*b) with 95%BCI [-1.49, -0.2]. Hence, the results proved that there is a complete mediation, as the total effect (c) 95%BCI [-1.75, -0.03] of the OLM intervention on post-literal comprehension is transmitted through the mediator variable, metacognitive reading strategies.

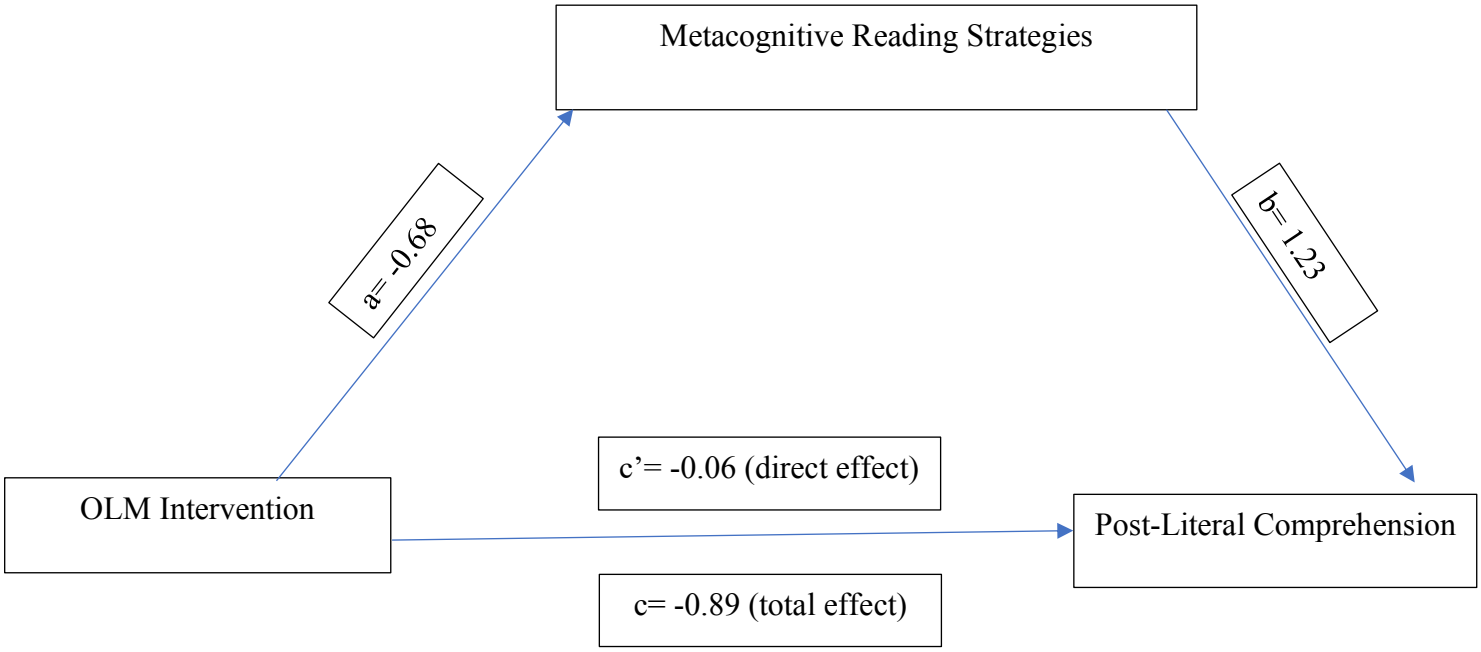
Table 37

OLM Intervention Predicting Post-Literal Comprehension Mediated by Metacognitive Reading Strategies

Variables	path	Coeff (b)	SE	95%		p
Model 1				LL	UL	
From intervention to metacognitive strategies	a	-.68	.26	-1.20	-.16	.01
			F (1,34) = 7.13 p=0.012			
Model 2						
From metacognitive strategies to literal comprehension	b	1.23	.18	.87	1.59	.00
From intervention to literal comprehension (+ metacognitive strategies)	c'	-.06	.32	-.72	.60	.85
			F (2,33) = 23.42 p<.01			
Model 3 c'+ a*b	c	-0.89	0.42	-1.75	-.03	.04
			F (1,34) = 4.39 p=.04			
Indirect effect	a*b	-0.83	0.32	-1.49	-0.2	

Figure 2 demonstrates the variables' path, the direct and the indirect effects of OLM intervention predicting the learners' post-literal comprehension mediated by metacognitive strategies.

Figure 2. Path Model for Direct and Indirect Effect of OLM Intervention on Post-Literal Comprehension Mediated by Metacognitive Reading Strategies



Mediation Analysis 2: Higher-Order Comprehension. Another Hayes Process Macro Model 4 Mediation Analysis was performed to determine the relationship between OLM intervention and higher-order comprehension. For this mediation analysis, the OLM intervention was entered into the mediation model for analysis as the independent variable. Metacognitive reading strategies were entered as the mediating variable and the post higher-order reading achievement as the dependent variable. Table 38 summarizes the result of the mediation analysis of OLM intervention predicting the learners' post-higher-order comprehension mediated by metacognitive reading strategies.

In model 1 (path a), the result indicated that the OLM intervention had a significant effect on metacognitive reading strategies, with b = -0.68, *SEBoot*=0.26, 95%BCI [-1.20, -0.16] and F (1, 34) = 7.13, p =.01.

In model 2, the results of the use of metacognitive reading strategies to improve post-higher-order comprehension (path b) were significant with b=7.04, *SEBoot*=0.53, 95%BCI [5.96, 8.13], which indicates that metacognitive reading strategies had an effect on post-higher-order comprehension. However, the results of the direct effect (path c') of OLM intervention on post- higher-order comprehension in the presence of the mediator, metacognitive reading strategies while controlling for it, indicated that the OLM intervention did not have an effect on post- higher-order comprehension with b= 0.51, *SEBoot*=0.97, 95%BCI [-1.47, 2.49].

As for the indirect effect (path a*b), the mediation analysis revealed that the OLM intervention had a significant indirect effect on the post- higher-order comprehension through metacognitive reading strategies, b=-4.90, *SEBoot*=1.85, 95%BCI [-8.45, -1.26]. This indicates that mediation occurred, as the indirect effect was statistically significantly different from zero.

In model 3, the total effect of the OLM intervention on the post- higher-order comprehension, which includes both the direct and the indirect effect, (path c'+ a*b), significantly had an effect on post- higher-order comprehension, with b=-4.39, *SEBoot*=2.03, 95%BCI [-8.52, -0.26] and F (1, 34) = 4.67, p=.04.

To sum it up, the OLM intervention had no direct effect (c') on post- higher-order comprehension, with 95%BCI [-1.47, 2.49], and the entire effect was indirect (a*b) with 95%BCI [-8.45, -1.26]. Hence, the results proved that there is a complete mediation, as the total effect (c) 95%BCI [-8.52, -0.26] of the OLM intervention on post- higher-order comprehension is transmitted through the mediator variable, metacognitive reading strategies.

Table 38

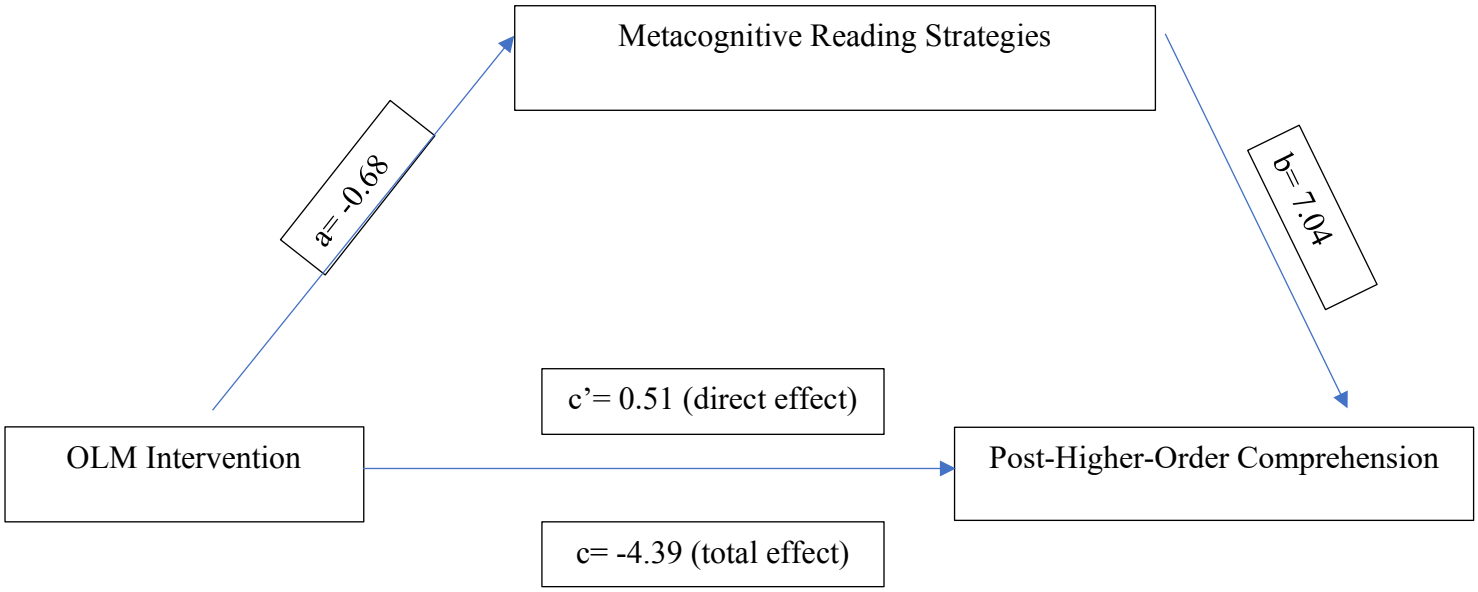
OLM Intervention Predicting Post-Higher-Order Comprehension Mediated by Metacognitive Reading Strategies

Variables	path	Coeff (b)	SE	95%		p
Model 1				LL	UL	
From intervention to metacognitive strategies	a	-.68	.26	-1.20	-.16	.01
			F (1, 34) = 7.13 p=0.01			
Model 2						
From metacognitive strategies to literal comprehension	b	7.04	.53	5.96	8.13	.00
From intervention to literal comprehension (+ metacognitive strategies)	c'	.51	.97	-1.47	2.49	.603
			F (2,33) = 85.4 p<0.01			
Model 3 c'+ a*b	c	-4.39	2.03	-8.52	-.26	.04
			F (1,34) = 4.67 p=.04			
Indirect effect	a*b	-4.90	1.85	-8.45	-1.26	

Figure 3 demonstrates the variables' path, the direct and the indirect effects of OLM intervention predicting the learners' post- higher-order comprehension mediated by metacognitive strategies.

Figure 3

Path Model for Direct and Indirect Effect of OLM Intervention on Post-Higher Order Comprehension Mediated by Metacognitive Reading Strategies



Summary of the Results

This chapter presented the qualitative findings resulting from the research study that based on examining the effect of the deliberate instruction in global, problem-solving, and support metacognitive strategies using the optimal learning method (OLM) on EFL students' literal and higher-order comprehension across narrative, descriptive, persuasive, and expository texts and across proficiency levels.

The results showed that there is a correlation between overall, global, problem-solving, and support metacognitive reading strategies and literal and higher-order comprehension on the general level and across the four text types.

The results also showed that the OLM intervention has a significant effect on the use of overall metacognitive strategies as well as the use of global, problem-solving, and support metacognitive reading strategies.

Also, the results showed that the OLM intervention has a statistically significant effect of on the post-literal and post-higher-order general reading comprehension. The intervention also has an effect on the literal level in descriptive texts and the higher-order level in narrative and descriptive texts. As for the proficiency level, it has an effect of the literal level in descriptive texts and the higher-order level in general, persuasive, and expository texts.

Lastly, the results showed that the OLM intervention has a significant indirect effect on both the literal and higher-order reading comprehension through metacognitive reading strategies.

CHAPTER 5

DISCUSSION OF RESEARCH FINDINGS

Introduction

A review of literature showed that there is conflicting evidence when it comes to the effects of instruction in metacognitive instruction on reading comprehension. Also, there is a gap in literature in studying this effect on literal and higher-order comprehension across text types and proficiency levels. For these reasons, our aim in this study was to examine the association between learners' use of overall, global, problem-solving, and support metacognitive reading strategies, and their literal and higher-order reading comprehension globally and as the text type changes. The study also investigated the impact of deliberate instruction on improving the learners' use of metacognitive reading strategies, their literal and higher-order reading comprehension globally, as the text type changes, and across different proficiency levels. Lastly, the study aimed to determine if metacognitive reading strategies mediate the relationship between deliberate instruction and literal and higher-order reading comprehension. Therefore, this study is viewed as exploratory and explanatory in the field of metacognition in EFL reading process.

The study was guided by four research questions. The first research question aimed to find the relationship between metacognitive reading strategies and literal and higher-order reading comprehension. The second research question aimed to explore the influence of metacognitive deliberate instruction on improving the use of metacognitive reading strategies. The third research question aimed to explore the main effect of deliberate instruction in metacognitive reading strategies on literal and higher-order reading comprehension and whether this effect depends on the English proficiency of

learners. The fourth research question aimed to determine if metacognitive reading strategies mediate the relationship between deliberate instruction and reading comprehension.

This chapter discusses and explains the results of this study in light of what was established by relevant literature. This chapter consists of four sections. The first section presents a discussion of the research findings organized by research question. The second section presents the limitations of the study. Then, the third section discusses pedagogical implications followed by a fourth section that includes suggestions for future research.

First Research Question: Relationship between metacognitive reading strategies and literal and higher-order reading comprehension.

The first research question aimed to examine the association between learners' use of support, global, and problem-solving metacognitive reading strategies, and their literal and higher-order reading comprehension, globally and as the text type changes. It was hypothesized that there is a significant positive association between metacognitive reading strategies and reading comprehension (literal and higher order)

Based on the correlational study, all the coefficient correlation of Pearson Product Moment and Spearman rank coefficient have a significant value that is less than 0.05. This explains that there is a correlation between metacognitive strategies and students' reading achievement on both the literal and higher-order level across general, narrative, descriptive, persuasive, and expository text types.

These research findings suggest the following. First, there is a positive direct correlation between the overall, global, problem-solving, and support strategies and EFL literal and higher-order reading comprehension in narrative, descriptive, persuasive, and expository texts. These results corroborate the findings of Madhumathi and Ghosh

(2012), Meniado (2016), and Zare (2013) who also reported significant correlations between all of the categories of reading strategies and the comprehension of Indian engineering students, preparatory year program Saudi EFL learners, and Persian-speaking learners of EFL, respectively. The finding of this research study show that the use of metacognitive language learning strategies is highly related with learners' literal and higher-order language comprehension across text types. Jafari and Ketabi (2012) explained the importance of teaching learners to develop their metacognitive abilities in language learning to help them become more self-aware and effective learners. The study's findings build on Jafari and Ketabi's conclusion by showing that by teaching and making students practice employing metacognitive strategies, learners can monitor and adjust their learning processes, leading to better outcomes and improved language proficiency, which explains this study's results regarding the relationship between metacognitive strategies and students' achievement.

The findings highlight the importance of the correlation between metacognitive strategies and both the literal and higher-order levels of reading comprehension, as these strategies help students become more aware of their own reading processes and more skilled at adjusting their strategies to meet the demands of different texts. By fostering metacognitive use and awareness and using effective metacognitive reading strategies, students become more proficient readers and better able to engage with complex texts in a variety of contexts, which improves their reading achievement.

The study proves that metacognitive strategies are strongly associated with success in foreign language learning. Learners who have received instruction in metacognitive strategies became better equipped to manage their own learning process by understanding when and how to apply the most appropriate strategies to complete the

given tasks. They have become able to plan their learning in advance, monitor their progress during task performance, and evaluate their learning outcomes after task completion. By developing their metacognitive abilities in this way, learners become more effective and efficient learners, which leads to improved reading achievement.

The results of this study contradict that of Al-Sobhani (2013) and Kerbalaee Kamran (2013) who found that only global and problem-solving metacognitive strategies have significant positive associations with reading comprehension among Arabic-speaking Yemeni college students and Iranian university EFL learners, respectively, while there was no association between the support category of strategies and reading comprehension. The findings also contradict that of Zuweldi et al. (2018) who did not observe any significant correlations between the three categories of strategies and the reading comprehension of Indonesian EFL students. Since the results show that the use of global, problem-solving, and support metacognitive reading strategies has positive and direct relationship with literal and higher-order reading comprehension performance, and as poor reading comprehension remains a challenge, one potential solution is for EFL teaching and learning processes to focus on developing and emphasizing the teaching of metacognitive reading strategy skills. This can help learners to better understand and engage with reading materials, ultimately improving their overall comprehension abilities while reading different text types.

In fact, these varying reported findings regarding the relationship between reading strategies and reading comprehension are not consistent across several populations and different contexts, which highlights the need to consider contextual and academic factors that may act as a mediator between strategy use and EFL comprehension such as the model of instruction, learners' proficiency, text type, text difficulty level, which require

additional exploration, as that may influence the relationship between strategy use and EFL comprehension. However, a common point between most of the previous research studies and this study's finding is the fact that there is an association between metacognitive reading strategies and EFL learners' achievement. What this study adds to previous research is the fact that all the metacognitive subcategories, global, problem-solving, and support strategies are related to both literal and higher-order comprehension, and most importantly, this relation doesn't change even if the text type changes.

Research Questions Two and Three

There are two points that should be brought to discussion based on the study's research questions. The first discussion is about the increase in metacognitive strategies use; the second discussion lies in the effectiveness of metacognitive strategies instruction on literal and higher-order comprehension across text types and across proficiency levels.

Second Research Question: Deliberate Instruction in Metacognitive Reading Strategies Improves the Use of Metacognitive Reading Strategies.

The second research question aimed to investigate the impact of deliberate instruction in metacognitive strategies in improving the learners' use of metacognitive reading strategies. It was hypothesized that OLM intervention improves the use of metacognitive reading strategies by students.

In the second research question, the study aimed to investigate the impact of metacognitive reading strategy instruction on participants' use of metacognitive reading strategies. The results of the inferential statistics analysis (ANCOVA) indicated a significant increase in the scores of the survey of reading strategies (SORS) after the deliberate instruction sessions compared to before the training. The statistical analysis found a significant difference in the overall scores and the scores of each of the subscale

strategies, with a calculated p-value less than 0.05. The study observed a shift in the behavior of the subjects in the experimental groups towards using strategies to enhance their English reading comprehension afterwards. The effect of the intervention on overall, global, problem-solving, and support strategies was statistically significant with a p value that is less than 0.05. This result was consistent with the researcher's hypothesis that there would be an increase in strategy use following the instructional intervention.

The results indicate that the metacognitive strategy instruction and training sessions have a positive effect on improving the participants' use of metacognitive reading strategies. Although the participants have already reported a low to moderate level of metacognitive use prior to the training, the study found that their level of using metacognitive strategies has increased after the training. This can be attributed to the 8-weeks intervention, which provided enough time for students to become familiar with the metacognitive strategies. The rise in the use of these metacognitive strategies implies that students recognize the benefits of employing them in EFL reading and find metacognitive strategies helpful in approaching reading materials. This finding supports the notion that the instruction sessions were effective in helping the participants understand not only what a reading strategy entails but also when, why, and how to use it. As a result, participants have learned to utilize them effectively, as they reported in the SORS. Thus, the training sessions were successful in providing the participants with the necessary skills and knowledge to utilize metacognitive reading strategies more effectively. Consequently, the participants became more adept at using these strategies with increased training, leading them to use these strategies automatically while reading.

Besides, metacognitive strategies have been identified as a vital component of any form of strategy use (Cohen, 2007). The metacognitive aspects are essential help in

transferring strategies to new tasks (O'Malley & Chamot, 1990), which is a significant objective of the study's metacognitive instruction by aiming to transform the enhanced use of strategies into a better performance in reading comprehension. This study focused on training participants on three specific metacognitive reading strategies: planning, monitoring, and evaluating, which are all needed to achieve a better comprehension. These strategies were selected because they align with the strategies measured in the SORS survey used in the study. The survey's global reading strategies (GLOB) section includes statements that question many of the strategies related to the three metacognitive strategies examined in the study. For example, the GLOB strategies involve purpose setting, previewing the text, activating information from prior knowledge, and predicting, which are all related to planning as a metacognitive reading strategy. Additionally, the GLOB strategies involve previewing while continually analyzing the text's information, which are related to monitoring as a metacognitive reading strategy. The GLOB subscale strategies also contain statements that investigate whether the predictions made about the text in the planning phase correspond to 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) in the SORS survey include statements about self-questioning and self-regulating, which are at the heart of the monitoring metacognitive strategy. Furthermore, the support reading strategies (SUP) section includes statements that relate to both monitoring and evaluating metacognitive strategies. In terms of monitoring, the statements question the use of notetaking and paraphrasing and summarizing to comprehend main ideas, whereas checking if the answers to the text's questions are present in the text itself or not is related to evaluating. As a result, teaching students to use these strategies during the treatment period in the

training sessions increased their awareness and understanding of these strategies, which led to higher levels of awareness that is reflected in the students' higher use of strategies in the second survey of reading strategies.

The primary aim of providing such a deliberate instruction in this study was to enable students to increase their use of reading strategies and to help them become more responsible in meeting their own objectives while comprehending reading texts. The findings of this study reveal that instruction has an effect on increasing the use of metacognitive strategies, which indicates that reading strategy instruction can enhance learners' metacognition. It is possible that such instruction has helped the students develop their knowledge of reading strategies, ultimately leading to improved reading comprehension afterward (Alexander, 2005; Graesser, 2007; Pearson & Cervetti, 2017). This is because during instruction, readers can learn how to effectively monitor and control their reading process, while also becoming more aware of how to use different reading strategies in different situations, similar to skilled readers. In other words, the application of metacognitive strategies has grown over the intervention time as the participants studied which ones are best related to contribute to their comprehension. The increase in the level of use in metacognitive reading strategies that resulted from the metacognitive strategy training implies that students have engaged in more reflective and thoughtful reading. Using metacognitive reading strategies has enabled students to take charge of their learning and understanding, thereby becoming more self-aware and responsible readers in terms of monitoring their own learning and understanding. Thus, the study proves that improvement in the use of metacognitive strategies results in positive impacts on metacognitive awareness, which in turn, is expected to improve the students' comprehension.

Research on metacognition has also demonstrated that metacognitive strategy use is strongly associated with success in second/foreign reading. Learners who are taught metacognitive strategies and use them are able to realize their learning, and they have a clear understanding of how and when to use the most effective strategies to accomplish a given task (Zhang & Goh, 2006). They plan their learning in advance, monitor their progress during the task performance, and evaluate their learning after completing the task. The study tested the use of metacognitive strategies after metacognitive instruction to prove that there is a positive relationship between reading achievement and the students' use of metacognitive strategies. This is because prior to reading, readers need the strategies to establish a purpose and develop a plan for reading. During reading, they need to monitor comprehension and utilize problem-solving strategies when encountering comprehension difficulties. After reading, readers evaluate whether their purpose was met by utilizing support strategies. In other words, as the students' reported use of metacognitive strategies increases, so should the reading performance because the use of these effective reading strategies plays a vital role in making students think more metacognitively, improving their understanding, and, consequently, enhancing their reading achievement. Based on the results, it can be concluded that the teaching of metacognitive strategies has a beneficial effect on learners' ability to become more aware of their strategy use, leading to an improvement in their use of metacognitive strategies, and at a later stage, in their reading comprehension. This is to say that these changes in the use of metacognitive strategies after instruction are expected to positively impact students' comprehension levels when reading texts. The findings of this research study and the deliberate instruction's success in increasing the students' use of overall, global, problem-solving, and support metacognitive strategies after the intervention suggests that

explicitly teaching students how to use reading strategies will have a positive impact on their reading comprehension and overall achievement because it improves students' awareness and competence in using relevant strategies at the right time, regardless of their reading abilities. In other words, using metacognitive strategies promotes reading comprehension. Hence, the use of metacognitive reading strategies by learners after instruction seems to have helped the participants deal with the problems that arise while reading the comprehension texts in the foreign language, which is why they reported a higher use. These strategies have helped learners monitor their comprehension levels and implement the necessary steps to boost their comprehension when it broke down while reading. This explains why the participants in this study used them more reportedly after the intervention because they had tools to deal with the text in their attempt to understand it. The study's results can be interpreted by the metacognitive reading strategy's usefulness in helping readers achieve better comprehension when reading a passage, which is emphasized in the realm of EFL. By increasing students' use and awareness of their own reading strategies through deliberate metacognitive instruction, teachers can help them become more skilled and proficient readers.

Lastly, numerous studies have shown that the implementation of metacognitive strategies encourages learners to be more self-regulated, maintain self-discipline, and achieve success in their learning (Goh, 1997; O'Malley & Chamot, 1990; Vandergrift, 2003). According to Hauck (2005), learners who have enhanced their metacognitive understanding are more likely to become autonomous language learners. Since learners reported a higher use of metacognitive strategies, this indicates that they now possess a good understanding of their strategies and can plan and monitor their learning effectively, leading to greater independence and self-direction in language learning. These findings

highlight the importance of prioritizing the instruction of metacognitive strategies in EFL classrooms, as it can provide learners with effective tools to overcome reading comprehension difficulties, enhance their overall reading proficiency, and develop autonomous language learners. Students after the intervention became equipped with metacognitive strategies that better develop their learning skills. Also, Students who use metacognitive strategies will have the ability to efficiently learn and overcome any academic difficulties they may face by proactively identifying and addressing their learning needs. As a result, the findings of this research study provide further evidence to support the importance of incorporating reading strategy instruction in order to improve learners' metacognitive awareness and ultimately, enhance their metacognitive understanding to become autonomous readers.

Lastly, the present study's metacognitive strategy instruction and training has led to better recognition of metacognitive reading strategies, as reported in the results of the participants in the second SORS survey conducted after the instruction sessions. Interestingly, the intervention in this study facilitated improvement in strategic awareness regardless of prior reading performance. This is a promising finding and reveals that irrespective of the students' previous reading performance, the students at all levels of reading ability benefited from the deliberate instruction and training in metacognitive instruction, as the use of strategies increased in global, problem-solving, and support strategies after metacognitive instruction. The study's finding implies the necessity of providing more emphasis on explicit instruction of strategies across various disciplines, as this will help learners improve their self-regulation and monitoring, metacognitive-awareness and understanding, and reading comprehension, which will all help participants to become autonomous language learners.

Third Research Question: Improvement in Strategy Use Impacts Reading Comprehension Depending on the Text Type and Proficiency Level.

The third research question aimed to investigate the effect of deliberate instruction in metacognitive reading strategies on improving the literal and higher-order reading comprehension of students globally and as the text type changes. It also aimed to determine if the deliberate instruction's effect on the reading comprehension of students is more pronounced in high proficient students compared to those with lower proficiency. Based on the analytical approach, the study addresses whether the change in strategic use is directly translated to increased overall reading performance. The results showed that the metacognitive strategy intervention was able to improve the students' strategic use of strategies, which was subsequently translated into better performance only for literal and higher-order reading comprehension in the general text, the descriptive text (both literal and higher-order level), and the narrative text (only higher-order level). However, the intervention didn't have any effect in improving the literal comprehension in narrative, persuasive, and expository texts as well as the higher-order comprehension in persuasive and expository texts.

Hypothesis 3 a: The OLM intervention improves the reading comprehension (literal and higher order) of students regardless of the students' proficiency level.

Effect of the Intervention on the General Comprehension Texts

Based on the quantitative results, this hypothesis was accepted because there was a significant effect of the intervention on the post reading comprehension general test on both literal and higher-order levels. The factorial ANCOVA results showed the significant results of the intervention, which constituted of a continuous deliberate instruction, practice, and training of strategies, on learners' literal and higher-order

comprehension. The results prove that if readers are given instruction in effective strategies and taught to monitor and check their comprehension while reading, they can achieve better in reading comprehension. The metacognitive instruction made learners develop their thinking process and able to think metacognitively. In other words, learners who received this intervention have developed a set of strategies to use while reading. These strategies have improved their metacognitive skills, which in turn has led to better reading comprehension. By developing metacognitive strategies, learners have become more aware of the contextual information in the text, allowing them to question their own understanding as they read. "If we know that thinking about our own thinking and using strategies that form this metacognitive foundation are associated with the tendency to read more critically, deeply and independently, then shouldn't comprehension strategy instruction be a major focus of our work with children who are learning to read?" (Keene & Zimmerman, 1997, p.43). The results can be explained by the fact that learners, after the metacognitive strategy instruction, have become equipped with tools to deal with the texts effectively, such as reading aloud, and self-monitoring of their comprehension by making inferences, previewing, and rereading. Utilizing these strategies by students while reading resulted in improving their literal and higher-order comprehension. This is why it is crucial to teach students what these metacognitive strategies are and how and when to use them as well as to incorporate these strategies into all EFL classes to improve learners' comprehension.

Many previous studies (e.g., Akkakoson & Setobol, 2009; Cubukcu, 2008; Fan, 2009) substantiate that metacognitive strategies are a necessity as they help students to comprehend the text better with more self-awareness (Khun, 2000). Pressley et al. (1992) also 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 intervention. Previous scholars have argued in favor of strategy instruction and have presented evidence supporting its effectiveness (e.g. Aghaie and Zhang, 2012; Akkakoson & Setobol, 2009; Albazi & Shukri, 2016; Al-Kiyumi et al., 2021; Chamot & O'Malley, 1994; Cohen, 1998; Cox-Magno et al., 2018; Cubukcu, 2008; de Boer et al., 2018; Diehb- Henia, 2003; Eilers & Pinkley, 2006; Eker, 2014; Estacio, 2013; Fathi & Afzali, 2020; Ikeda & Takeuchi, 2003; Jafari and Ketabi; 2012; Kärbla et al., 2020; Mohseni et al., 2020; Muhid et al., 2020; O'Malley & Chamot, 1990; Oxford, 1990; Salataki & Akyel, 2002; . Tavakoli & Koosha, 2016; Tawarik et al., 2021; Urban et al., 2023; Van Keer, 2004; Zare, 2013; Zhang, 2008, 2010a; Zhang et al., 2008). On the other hand, Diebold (2011), Kellerman (1991), and Pei (2014) argued that strategy instruction is unnecessary and irrelevant. Kellerman even believed that learners develop strategic competence in their first language and can hence transfer it to their second language without any instruction. Notably, the results of this study suggest that students achieve significant gains in their reading comprehension after metacognitive strategy instruction and training. The findings provide further empirical evidence on the effect of the implementation of metacognitive reading strategy instruction on improving reading comprehension in L2 reading research and confirm the facilitative effects of metacognitive training on EFL learners' reading comprehension. Significantly, the study's results highlight the importance of incorporating metacognitive strategy instruction in the EFL classroom to assist students in controlling their learning more effectively and transferring those strategies to other learning settings. The results prove that by teaching students various metacognitive strategies, teachers can improve their learners' reading comprehension, as the instructional procedures resulted first in the

improvement in the use of reading strategies in the treatment group, followed by an improvement in comprehension. In other words, students transferred the use of metacognitive strategies into improvement in comprehension. The explicit and direct teaching of comprehension strategies coupled with activities lead by more proficient models, such as in OLM, results in the greatest benefits, as it has been documented in this study. The study confirms that students who receive such instruction perform better compared to those who do not receive it. It is believed that learners who underwent this intervention were able to develop a range of strategies that they could use while reading to enhance their comprehension skills while reading.

Thus, as the third research question aimed to investigate whether deliberate instruction and training in metacognitive reading strategies could improve participants' reading comprehension, the statistical findings reveal that receiving explicit metacognitive instruction contributes to improved reading performance in both literal and higher-order comprehension while reading a general text. Since, unfortunately, many textbooks lack adequate information about learning metacognitive strategies in EFL contexts, as the case in Lebanon is, it is evident that there is a need to include and emphasize metacognitive reading strategies. The study's outcomes emphasize the advantages of integrating strategy instruction into the English language arts curriculum. This is because the findings suggest that the metacognitive reading strategy instruction and training sessions have a positive impact on the overall literal and higher-order reading comprehension skills of students while reading a general text without any specific genre. Hence, we can reject the null hypothesis and accept the alternate hypothesis. The reason behind the positive impact of the metacognitive reading strategies on the participants' reading comprehension can be attributed to the alignment of the selected strategies (finding the purpose, previewing,

predicting, activating prior knowledge, rereading, reading aloud, guessing the meanings of unknown words, making inferences, summarizing, paraphrasing, annotating, and using external aids) with the three stages of reading: pre-reading, reading, and post-reading, which affect students' awareness of their learning process and allow them to adopt self-directed behaviors that further improve their comprehension and learning. Consequently, the study results shed the lights on the highly recommended need to incorporate metacognitive strategy instruction in the EFL classroom to assist students in controlling their comprehension and learning more effectively and transferring those strategies to other learning settings.

Optimal Learning Model (OLM) Intervention. According to the results, the OLM intervention, which is applied for the first time to teach metacognitive reading strategies in this study, has been effective in engaging students in a series of phases over the 8-week period. The teacher's approach, which involved guiding the students to slightly perform above their current level by challenging their zone of proximal development (Vygotsky, 1978) has shown its efficacy. Vygotsky's theory underscores the importance of social environment and scaffolding in fostering students' cognitive development, so, through collaboration and guidance from more experienced individuals, whether they are their peers or teachers, less capable students were able to develop and construct new knowledge and skills within their Zone of Proximal Development during the treatment period.

Furthermore, the OLM has also encouraged students to respond openly, providing the teacher with an opportunity to assess their level of proficiency and competence and offer the necessary feedback to help them progress. In contrast, the regular instructional mode used with the control group that involves the teacher imparting content-based

knowledge during regular comprehension sessions may have obscured students' abilities and competencies.

Factorial ANCOVA results have proved the positive significant effect of the intervention represented by the instructional mode (OLM) employed in the intervention. The OLM's direct teaching and training of comprehension strategies has enabled students to be aware of their limitation while reading and consciously apply self-regulating comprehension strategies under the teacher's continual guidance to improve their understanding of the text and enhance meaning making. Additionally, having these tools in their cognitive repertoire empowered students to be more involved, reflective, and engaged readers.

Effects of the Proficiency Levels on the General Comprehension Exam

The results showed that the students' proficiency level had a significant effect on the students' higher-order comprehension, whereas it didn't have any noted effect on the literal level of comprehension.

Hypothesis 3 b: The OLM intervention effect on the reading comprehension of students is more pronounced in students with higher English proficiency compared to those with lower proficiency.

To explain these results, it should be noted first that the aim of implementing metacognitive reading strategies was to develop learners' reading comprehension. For example, the fundamental role of the readers' background knowledge, which is emphasized in the planning strategy, is supported by the schema theory. This theory suggests that comprehension occurs when the background knowledge of the reader interacts with the reading text (Saricoban, 2002). According to Bentahar (2012), skilled proficient 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. The same concept applies to the problem-solving and support strategies. This theory explains why the learners' proficiency level on the general reading exam played a significant role in affecting their post-higher order comprehension, which needs a lot of interpretation. As proficient learners were more aware of their metacognition, they employed their proficiency skills as well as the metacognitive reading strategies taught throughout the intervention to interpret higher-order comprehension questions that need analysis. However, this wasn't the case at the literal level, as the learners' proficiency level was insignificant for literal comprehension because literal types of questions typically require a basic understanding of the text. Literal questions do not need a lot of interpretation; hence, even readers with lower proficiency levels can often comprehend the basic meaning of a text, which allows them to answer questions that require a literal understanding of the text regardless of their proficiency level. Additionally, literal comprehension questions tend to focus on specific details that are directly stated in the text, making it easier for students to answer them than higher-order questions that require more in-depth analysis or interpretation of the text. Therefore, the study proved that the use of metacognitive reading strategies for literal comprehension is not significantly impacted by a person's proficiency level, whereas the proficiency level has a significant effect on higher-order comprehension. This variance that the study draws on the different role of proficiency between literal and higher-order comprehension is probably due to the high levels of analysis that higher-order questions need, which obliges skilled learners to benefit from their proficiency to answer them.

The Effect of Intervention and Proficiency Level on the Literal and Higher-Order Comprehension of Narrative, Descriptive, Persuasive, and Expository Texts

On the literal level, the results showed that the intervention did not result in any significant improvement in the students' comprehension of narrative, persuasive, and expository texts, whereas it had a significant effect on their comprehension of a descriptive text. On the higher-order level, the intervention did not yield positive results in students' higher-order level of persuasive and expository texts, while it had a significant effect on their comprehension of narrative and descriptive texts. The following sub-sections will discuss the results under two themes, literal reading comprehension; and higher-order comprehension, together with the effect of proficiency level on both levels.

Literal Level: Effects of the Intervention and Proficiency Level on Narrative, Descriptive, Persuasive, and Expository Texts. The results showed that both the intervention and the proficiency level had an insignificant effect on the literal comprehension level of narrative, persuasive, and expository texts. This finding suggests that students have the ability to develop literal-level text comprehension without the need to explicit strategy teaching. In a previous research study, Kärbla et al. (2020) reported that students who were placed in the control condition and studied with their regular reading lessons without any explicit instruction of reading strategies showed statistically improved results in literal comprehension because the reading lessons are primarily focused on supporting students' literal comprehension. The results of this study imply that students have mastered answering literal questions without any need to use the strategies they learned during explicit strategy instruction, as the focus of their regular reading lessons before the start of the intervention is on answering literal questions. This

can be supported by the fact that the learners' reading comprehension lessons, as examined in their books, involves designing instructional materials and activities which mainly support students' explicit understanding of the text at the literal level by focusing on factual details and explicit information.

Furthermore, the questions that the students are asked, which are related to the literal comprehension level, require them to recall and recognize specific details and place story events in order without making any inferences or drawing any conclusions. An explanation for why the intervention didn't have any effect on students answering literal questions (in narrative, persuasive, and expository texts) can be interpreted by the fact that students were instructed to approach and perform the test in the same way they usually do reading tasks in their usual classroom setting. As a result, it is possible that they have primarily focused on answering the literal comprehension questions and relied heavily on making predictions and simple understandings to aid their understanding the way they usually do it without any reliance on neither metacognitive reading strategies they were taught during the intervention nor their proficiency level. Students have answered literal questions they are used to answer the same way they are accustomed to do, without employing any of the strategies.

Moreover, since higher-level text comprehension is a complex skill, some teachers may not be adequately prepared to teach it with intention (Randi et al., 2005). Besides, due to the fact that Lebanese national tests in Brevet primarily assess students' literal comprehension of texts, which provides guidance to teachers on which text comprehension skills to teach and how to enhance them, teachers tend to focus mainly on promoting students' literal level reading skills during reading lessons. This may have obstructed the students' use of metacognitive strategies they were taught during the

intervention while answering literal questions, as students may not have been motivated to initiate and regulate their use of these strategies as long as they were already trained and used to answer such literal questions without employing any strategies before the intervention was applied.

Lastly, as seventh graders' reading lessons focus on literal-level skills and, at this level they have already acquired basic skills at this stage, it can be inferred that learners didn't have an urge to either use the metacognitive strategies nor to employ their level of proficiency to answer these literal questions. This explains why the intervention's effect was insignificant while reading narrative, persuasive, and expository texts. Therefore, the way in which text comprehension is taught along with students' grade level explains the results and shows why students didn't resort to the metacognitive strategies while reading narrative, persuasive, and expository texts; hence, making the intervention's effect insignificant.

However, the results surprisingly showed that the proficiency level and the intervention had an effect on students' comprehension in descriptive texts. This may be due to the vivid descriptions used in descriptive texts, which usually requires learners to have a good background in vocabulary, which makes learners resort to their language proficiency and the metacognitive strategies they were taught during the intervention to figure out these meanings and try to the answer literal questions.

Higher-Order Level: Effects of the Intervention and Proficiency on Narrative, Descriptive, Persuasive, and Expository Texts. Nonetheless, it was found that the effect of the intervention was statistically insignificant with a p value that is more than 0.05 for persuasive and expository text. This means that the metacognitive reading strategy training didn't have positive effects on developing the participants' performance

in higher-order comprehension for persuasive and expository texts. However, surprisingly, the proficiency level was statistically significant in its effect on the participants' higher-order comprehension.

On the other side, the statistical analysis showed that the metacognitive reading strategy instruction had a positive impact on the development of participants' performance in higher-order comprehension for narrative and descriptive texts, with a p-value of less than 0.05. It's worth noting that the proficiency of participants did not have a significant effect on the effectiveness of the intervention for narrative and descriptive texts.

As this study is exploratory and previous studies haven't looked into the effects of metacognitive instruction across text types and proficiency levels, the following possibilities can explain these surprising results.

Types of Texts. The results can be interpreted by the fact that narrative and descriptive texts are more familiar to students and easier to comprehend than persuasive and expository texts due, for example, to the structure or style of these texts. According to Ghaith and El-Sanyoura (2019), the use of metacognitive strategies may be regulated by the readability level and types of texts that EFL students are required to process. The study's results suggest that students may have been better able to apply the metacognitive reading strategies taught during the intervention to narrative and descriptive texts, leading to a significant effect of the intervention and an improved comprehension. On the other hand, persuasive and expository texts require a sophisticated standard of literacy competency; and comprehending them cannot be as simple as the ability to decode and comprehend narrative and descriptive texts. This is because of the complexity and diversity of distinctive structural and organizational features expressed in these texts along with the participants' inadequate processing mechanisms to recognize these

features at this age and the students' lack of pedagogical focus on such features in the curriculum. In other words, comprehension of expository materials is a complex process that depends on numerous factors. Previous studies on the comprehension of expository texts have shown that how well an individual understands and learns information from such texts depends on a multifaceted interplay between their individual differences and the features of the text (Linderholm et al., 2001; McNamara et al., 1996; O'Reilly & McNamara, 2007; Voss & Silfies, 1996). These text types like persuasive and expository texts may have posed a greater challenge for students, particularly if they were experiencing foreign language reading anxiety while reading them, to employ metacognitive reading strategies. Consequently, it can be suggested that learners at the advanced level of reading proficiency have resorted to the most appropriate metacognitive strategies that were implemented or they have already known like re-reading, guessing the meaning of unfamiliar words and phrases, visualizing comprehension, and paying closer attention to difficult passages in order to read for the meaning and comprehend challenging texts, which explains why the proficiency level had a significant effect on higher-order comprehension while reading persuasive and expository texts. However, less proficient learners encountered difficulties when reading these two texts due to their complexity and lack of lexical knowledge; as vocabulary recognition plays a fundamental role in students' reading comprehension. Since struggling readers only have a very limited number of English vocabulary, this may have led to poor strategy use while reading persuasive and expository texts.

Furthermore, the previously mentioned sophisticated characteristics of persuasive and expository texts may have expectedly hampered the use of metacognitive reading strategies of less-skilled readers who are not proficient enough to apply these strategies

on a text they find incomprehensible. These text features were beyond the reach of the interventions and remained untouched from the pre-test to the post-test. However, the case wasn't the same while reading narrative and descriptive texts, as the students applied the strategies, and the intervention was significant regardless of the students' proficiency level when the texts' type was adequate to participants. Despite the importance of understanding the relationship between text types and reading strategy use, only a limited number of studies have investigated this area. One such study was conducted by Sun (2003) whose findings indicated that students' use of reading strategies was influenced by the type of text they were reading as students encountered more challenges in choosing appropriate strategies when reading a collection text as compared to reading a comparison/contrast expository text. Chomphuchart (2006) also indicated a significant difference in the frequency of reading strategies used by students while reading academic and literary texts. Ellis (2009) concluded that text difficulty is known to influence strategy use. Hence, although numerous studies have investigated how the structure of a text affects reading comprehension and retention, there is a lack of research that compares the use of reading strategies used across different types of texts. Since text types vary in their level of difficulty, the study's results suggest that metacognitive reading strategy use differs depending on the type of text being read and its difficulty level despite the scarcity of empirical evidence supporting this assertion.

It is also possible that the metacognitive strategies that were taught during the intervention may have focused more on skills and strategies that are better suited for narrative and descriptive texts, rather than persuasive and expository texts. The intervention may not have sufficiently addressed the specific challenges posed by these text types, leading to its insignificance for persuasive and expository texts.

Lastly, previous studies have not explored the use of reading strategies across text types in a comprehensive manner, but the results of this research prove that metacognitive instruction does not always play a role in improving the participants' reading achievement across all texts, which suggests that the text structure, when the text type changes, affects the students' employment of metacognitive reading strategies.

Foreign Language Reading Anxiety: Persuasive and Expository Texts. The results may also be attributed to the direct and indirect influence of foreign language reading anxiety, as students were exposed to two unfamiliar text types alongside two familiar ones. This factor could have contributed to the observed outcomes, as students at this age level (7th graders) are more familiar with reading narrative and descriptive texts, which they have been exposed to since elementary school. On the other hand, they have had limited exposure to expository texts and have never read persuasive texts before, making it more challenging for them to comprehend these types of texts. This unfamiliarity with these two text types may have created foreign language reading anxiety to learners, preventing them from employing the metacognitive reading strategies they were taught. This explanation is supported by the findings of Ghaith (2020), Guimba and Alico (2015), and Jafarigohar and Behrooznia (2012), who reported significant negative relationships between foreign language reading anxiety and the EFL reading comprehension of EFL learners. High levels of foreign language reading anxiety may lead to text bottom-up processing (Ghaith, 2020). The high levels of foreign language reading anxiety the learners experienced may have limited their abilities to use metacognitive reading strategies like interactively reading between the lines, guessing implied meanings, and evaluating information although these strategies are crucial for comprehending challenging texts, such as persuasive and expository texts. By not being able to use these

strategies, EFL readers may not be able to draw on their background knowledge and inferential and critical thinking skills to comprehend the texts.

Foreign Language Reading Anxiety: Narrative and Descriptive Texts. An explanation of the positive results of the training sessions on narrative and descriptive texts can be attributed to the reduced level of anxiety in the participants while reading narrative and descriptive texts. According to Krashen's (1982) 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 current study, this factor was a double sword when it comes to the reduction of the participants' anxiety levels and the augmentation of their motivation and self-confidence. This is because the participants, who are seventh graders, are accustomed to mostly read narrative and descriptive writing since elementary classes according to the curriculum. The increase in the use of metacognitive strategies as reported by the participants after the training in relation to the type of texts they are used to read allowed them to strengthen their cognitive processes and in turn feel more confident and less anxious, which explains why the intervention was statistically significant in affecting the students' higher-order comprehension in narrative and descriptive texts.

Metacognitive reading strategy instruction stresses familiarizing EFL students with a range of reading strategies through teachers' explicit explanation of their significance, teacher demonstrating and modeling, monitoring comprehension, and evaluating their effectiveness based on individual needs and the task at hand. This approach recognizes that different reading problems require different strategies and that EFL students must be aware of and able to choose the appropriate strategies to address

these challenges. As a result of this explicit instruction and students' use of metacognitive reading strategies, EFL students of all proficiency levels improved their reading comprehension scores when reading narrative and descriptive texts, which are typically taught since elementary school. Regardless of their different proficiency levels, the intervention had a significant effect. This was achieved by enabling students to self-reflect and self-evaluate their reading process while reading texts they are used to read (narrative and descriptive).

The findings suggest that anxiety can impede the use of reading comprehension skills in a foreign language. In other words, the anxiety the students experienced while reading persuasive and expository texts, which are somehow considered challenging texts to seventh graders, may have obstructed their use of metacognitive reading strategies. This, in return, has ultimately led to the insignificance of the intervention on higher-order comprehension. This explanation suggests that foreign language reading anxiety can have a significant impact on EFL learners' use of metacognitive and highlights the importance of addressing this issue in foreign language instruction.

Text Readability Level and Vocabulary. The insignificant effects of the intervention on persuasive and expository texts can be also attributed to the text readability level and the lack of vocabulary knowledge. Previous research has shown that vocabulary knowledge is strongly related to reading comprehension (e.g., Perfetti & Hart, 2002). In particular, readers with larger vocabularies are able to comprehend more complex texts and use more sophisticated reading strategies than those with smaller vocabularies. For instance, Verhoeven and Van Leeuwe (2008) found that vocabulary knowledge was a strong predictor of reading comprehension among both native speakers and second language learners. The different level of text comprehension that a student

attains is largely dependent on their vocabulary, as indicated by various studies such as those conducted by Kärbla et al. (2019), Nouwens et al. (2016), and Tennent (2015). Vocabulary is particularly important for comprehending more complex texts where words may have nuanced or contextualized meanings. A sufficient breadth and depth of vocabulary allows readers to select appropriate linguistic representations, activate a larger number of interconnected concepts, and make the inferences necessary to effectively facilitate the comprehension process (Calvo, 2005).

As text comprehension involves various interactive skills at both lower and higher order levels, this can present multiple challenges for students having limited vocabulary. As vocabulary is crucial at the inferential higher-order level of comprehension since it requires instant integration of prior knowledge with written words throughout the entire text (Cain & Oakhill, 2014). Given the critical role of vocabulary in text comprehension, the study's findings suggest that the vocabulary level of the expository and persuasive texts may have been more challenging for the participants, particularly given that they had limited prior experience with these text types. The vocabulary level of the persuasive and expository texts may have acted as a barrier to their ability to effectively use metacognitive reading strategies and comprehend these types of texts. As a result, the participants may have had more difficulty using the metacognitive reading strategies taught in the intervention with these texts, which could have contributed to the lack of significant improvement in comprehension for these text types. Since vocabulary knowledge is a key component of reading comprehension, when learners have encountered unfamiliar words, this has negatively impacted their ability to comprehend the text and use metacognitive reading strategies especially while reading expository and persuasive texts that include more challenging vocabulary compared to the familiar

narrative and descriptive texts. In a nutshell, the vocabulary level of the texts used in the study could be a possible explanation for the insignificant effect of the intervention in metacognitive strategies on literal and higher-order persuasive and expository texts.

Level of Motivation. The findings of the study suggest that participants may have had a higher level of reading motivation when reading familiar text types like narrative and descriptive texts, as compared to reading persuasive and expository texts. This difference in motivation may have contributed to the insignificance of the intervention and the lack of significant improvement in comprehension for the latter text types, despite the intervention in using metacognitive reading strategies. A recent study by Miyamoto et al. (2019) have highlighted the mediating effects of metacognitive knowledge and autonomous reading motivation, respectively suggesting that metacognitive knowledge of reading strategy use mediated the relationship between intrinsic motivation and reading comprehension. Lu et al. (2021) also demonstrated that autonomous reading motivation mediated the relationship between reading strategy instruction and reading comprehension. In essence, students with a higher level of autonomous reading motivation may have been more likely to engage in effective reading strategies, leading to a deeper understanding of the text and improved comprehension. This highlights the importance of considering students' motivational factors when designing reading instruction and implementing reading strategies.

As previous research has shown that motivation can play an important role in reading comprehension, with high levels of motivation associated with greater engagement and deeper processing of the text (e.g., Guthrie et al., 2004), the results of this research suggest that participants may have been more engaged and motivated when reading familiar text types like narrative and descriptive texts, which allowed them to

more effectively use the metacognitive reading strategies taught in the intervention. Conversely, when reading persuasive and expository texts, participants may have felt less motivated and therefore less able to effectively use these strategies, which could have contributed to the insignificant effect of the intervention in using metacognitive reading strategies. It is possible that learners lacked motivation to independently use and monitor their metacognitive strategies when trying to comprehend persuasive and expository texts, especially when they struggled with basic concepts and terms. Of note is that reading motivation can have a direct impact on comprehension performance, as well as an indirect impact through the effective use of comprehension strategies (Anmarkrud & Bråten, 2009). This highlights the need to address both students' motivation levels and their ability to use appropriate strategies when designing interventions to improve reading comprehension. Simply, providing instruction on metacognitive strategies may not be enough to improve reading comprehension if students lack the motivation to apply these strategies when they confront different types of texts with different readability levels.

Self-Efficacy. Participants' level of self-efficacy may have also resulted in these surprising results. Self-efficacy is the individual's belief in their ability to perform a specific task within a particular domain, as defined by Bandura (1997). These beliefs are shaped by an individual's prior experiences and can significantly impact their future learning success, as noted by Schunk and Zimmerman (2007). Reading self-efficacy, specifically, refers to a student's perception of their ability to read, understand, and recall various types of reading material. This perception is directly linked to a student's motivation to read, as higher levels of reading self-efficacy are associated with improved use of cognitive strategies, according to Andreassen and Bråten (2011). It may be speculated that the students' self-efficacy has affected their strategy use and

metacognitive awareness. Although the research evidence on the interplay between self-efficacy and reading strategies across text types is not entirely clear, it is crucial to pose the question of how initial levels of reading self-efficacy may have affected the change in the use of metacognitive strategies in narrative, descriptive, persuasive, and expository texts under study in this research.

Time. The study's limited time may have also contributed to these surprising results. Previous research has suggested that metacognitive reading strategy instruction may take a considerable amount of time to have an impact on students' reading comprehension. According to Pressley et al. (2006), the effectiveness of reading strategy interventions can vary greatly depending on their duration and intensity, which can lead to a wide range of student outcomes. While middle school students tend to maintain their level of reading performance over extended periods of time, their growth rates often level off in later years, requiring less frequent progress monitoring evaluations (Espin et al., 2010). Given this, the success of the current intervention may have been enhanced by allotting additional instructional time devoted to deliver metacognitive reading strategy instruction using the optimal learning method, which could have helped to significantly close the gap regarding the effect of the intervention on the four types of texts. The 8-weeks period may not have been enough for learners to boost their use of metacognitive reading strategies while reading expository and persuasive texts, which resulted in the insignificance of the intervention.

Significance of the Proficiency Level. The results showed that the proficiency level had a significant effect on students' literal comprehension of descriptive texts as well as their higher-order comprehension of persuasive, and expository texts. In fact, earlier research has suggested that intervention for skilled readers may have little impact.

This could be due to the fact that skilled readers have already developed their own comprehension system (Cromley & Azevedo, 2007; Duke & Pearson, 2009). For students who are already proficient and possessed sufficient knowledge of text comprehension strategies, teaching them new strategies may prove to be a distraction or even disrupt their established system (Elleman, 2017). Additionally, reinforcing the strategies that proficient students already know and use may lead to oversaturation and decreased interest in those topics. As a result, this explains why the proficiency level had a significant effect when students read persuasive and expository texts, which are considered new and sophisticated to them. Learners didn't utilize the metacognitive reading strategies they learned during the period of deliberate instruction. Instead, learners relied on their proficiency to comprehend. This suggests that initial levels of proficiency in reading comprehension may therefore play an important role in response to strategic interventions.

In fact, despite the fact that both low and high proficiency level learners showed an improvement in their use of metacognitive strategies in the post-test, the findings suggest a complicated interplay between the text type, proficiency level, and metacognitive strategies. Zhang et al. (2008) confirm that learners with higher English proficiency in English exhibit stronger linguistic knowledge of the English language. Based on the study's findings' this enhanced understanding may have allowed learners to better identify the reading requirements and strategies that influenced their comprehension while reading complex texts like persuasive and expository texts. Such proficient learners demonstrated greater competence in deciphering and utilizing textual conventions, as well as interpreting meaning from the text and recognizing the intended purposes of different types of text. In contrast, individuals with limited English

proficiency struggled with proper decoding, often without any relation to the meaning of the text.

Therefore, the study findings suggest that hypothesis 3 was supported, indicating that providing instruction in metacognitive reading strategies has a positive impact on both literal and higher-order reading comprehension for students reading a general English text. However, when the type of text changes, the results differ based on the text type. Additionally, the study found that the effect of the Optimal Learning Method (OLM) intervention on students' reading comprehension of a general text is more significant for those with higher English proficiency levels, particularly at the higher-order comprehension level, compared to those with lower proficiency levels. Also, the OLM intervention has an effect on the literal level comprehension of a general text regardless of the students' proficiency. On the other hand, there is an interplay between the effect of the OLM intervention and proficiency level depending on the level of comprehension and the text types for different reasons this section attempted to explain.

Lastly, the study found that there was no interaction effect between OLM intervention and proficiency on all levels of the study. This new finding shows that the combined effect of the OLM intervention and proficiency is null, so the study's outcomes are the same even if these two independent variables are combined. In other words, the effect of the intervention and proficiency level on students' achievement in literal and higher-order comprehension is the same and is not affected by the interaction between the intervention and the proficiency level because there isn't any interaction effect between them.

Fourth Research Question: Metacognitive Reading Strategies Mediate the Relationship Between Deliberate Instruction and Reading Comprehension.

This question aimed to determine if metacognitive reading strategies mediate the relationship between deliberate instruction and literal and higher-order reading comprehension. In other words, the question's purpose was to determine if deliberate instruction in metacognitive reading strategies improves the reading comprehension of students by improving their metacognitive reading strategies.

Hypothesis 4: Metacognitive reading strategies mediate the relationship between the OLM intervention and reading comprehension of students.

Two Hayes Process Macro Model 4 Mediation Analyses were performed to determine the relationship between OLM intervention and literal and higher-order comprehension. The mediation analysis revealed that the OLM intervention didn't have a direct effect on literal and higher-order comprehension, and the entire effect was indirect. Thus, the results proved that there is a complete mediation of the OLM intervention on literal and higher-order comprehension that is transmitted through the mediator variable, metacognitive reading strategies. This result is consistent with the researcher's hypothesis that metacognitive reading strategies mediate the relationship between the intervention OLM and reading comprehension of students.

Strategic readers are very metacognitive, and they realize the ongoing of the process of reading and how a text can be difficult, and this makes them resort to metacognitive strategies to overcome the challenges they face while reading. Estacio (2013) declared that the use of metacognitive reading strategies can be used as a predictor of reading comprehension achievement. So, if someone is able to effectively use

metacognitive reading strategies, it is likely that they will achieve higher levels of reading comprehension. Hustre (2011) also supported the idea that metacognitive reading strategies can predict text comprehension. In the present research, the mediating effect analysis was used to uncover the direct and the indirect relationship among three teaching phenomena related to reading: deliberate metacognitive strategy instruction, metacognitive reading strategies, and reading comprehension achievement (literal and higher-order). This analysis not only revealed the complex nature of the indirect relationship among these variables, but also revealed the positive and significant relationship between metacognitive instruction and reading comprehension. The mediating effect of metacognitive reading strategies demonstrated the strength of their partial indirect effects in this relationship. The Hayes Process Model has revealed underlying mechanisms through which the independent variable, deliberate metacognitive strategy instruction has influenced the dependent variable, literal and higher-order comprehension. Testing the indirect effect of the deliberate instruction on literal and higher-order comprehension through metacognitive reading strategies, has helped us determine that metacognitive reading strategies play a significant mediating role in explaining the mechanism underlying the relation between deliberate instruction and comprehension. This makes us gain a deeper understanding of the process that drives deliberate instruction to be related to getting better outcomes in comprehension, which is through metacognitive reading strategies. Also, this mediating analysis increases construct validity and strengthens the evidence of the study's hypothesis by making us confidently draw conclusions about the importance of the mediating variable, metacognitive reading strategies, in enhancing the students' achievement in literal and higher-order comprehension. The study's findings highlight the importance of using and

developing metacognitive strategies to improve reading comprehension performance and students' abilities to understand complex texts, extract implied meaning, and critically analyze assigned reading materials. In other words, students who are trained to use metacognitive strategies will be better equipped to comprehend and engage with difficult texts.

Gaining a comprehensive understanding of the direct and intermediary relationships among these variables is important for reconceptualizing reading teaching and improving reading comprehension outcomes through metacognitive reading strategies, as the results proved.

Conclusion

As I was trying to interpret the results of quantitative data, several questions and doubts came into my mind, which could be the directions for future research. Also, some limitations of this study need to be addressed. Although the researcher tried the best to ensure the validity and reliability of the current study, some issues were unavoidable. The areas of limitation that have emerged and should be considered when interpreting the findings from this study and suggestions for future research are outlined in the following section.

Limitations

While researchers usually tightly control strategy interventions, their involvement in classrooms may compromise ecological validity, which limits the potential for the design to be scalable, as noted by Pressley and Harris (1990) and Pressley and Gaskins (2006). The reason for such a high degree of control is likely due to the fact that teachers in actual classroom settings may not be adequately trained to incorporate strategy instruction into their everyday teaching, as pointed out by Medina et al. (2021) and

Pearson and Cervetti (2017), which made the researcher apply the intervention by herself, which may have affected the study's internal and ecological validity. However, it should be noted that the teacher/ researcher took many steps to minimize this bias as much as possible.

Another limitation of the study is that the data was collected through a survey in which participants reported their use of reading strategies in an abstract and general way. This raises questions about how aware learners were of their strategy use. There might be some students who may have used strategies without being aware that they were strategies and therefore not reporting them. Likewise, the reported frequencies of their use of metacognitive reading strategies may not have been entirely accurate. Furthermore, all explanations were based on the reported frequency of use, which is only one aspect of reading strategy use. To address these issues, future research might attempt to triangulate data from different instruments, including interviews, observations, and think-alouds for a more precise interpretation of metacognitive strategy use.

An additional limitation in the study is the small size of the selected sample. The subjects participating were only 36 seventh grade EFL students equally assigned into the control and experimental groups. The results would have been more reliable and the findings more faithful had there been a larger number of students participating in the study. Furthermore, given that this study was conducted in Beirut with adolescent EFL students, it is difficult to ascertain the extent to which the findings can be extrapolated to EFL contexts in other countries anywhere around the world. In other words, the magnitude of the generalizability of the findings is interpreted with caution and may extend only to this immediate population, as the generalization is limited by the constraint of the sample size and geography. Caution should be exercised when attempting to

generalize the results to other populations, as age, cultural, and contextual factors may influence the use of reading strategies. Future research could investigate the use of metacognitive reading strategies in different EFL contexts to provide a more comprehensive understanding of the phenomenon.

Moreover, the pre and post comprehension tests used in the study were developed by the researcher. Although they were reviewed by two 7th grade teachers and coordinators, the school's head of department, and validated by the advising professor, the results may have been more credible and legitimate if a well-established, standardized reading comprehension assessment tool had been used for the four different text types. However, the researcher faced feasibility challenges in using such instruments. Future research could address this limitation by using established, validated instruments to ensure the reliability and validity of the assessments.

Another limitation of the study was that the actual intervention period lasted no longer than 8 weeks. This may have impacted the post-test results if students in the experimental group may have benefitted from additional instruction, training, and opportunities to engage with the comprehension strategies. A longer intervention period could have allowed for more sustained and deeper learning of the strategies, leading to potentially different outcomes. Future studies could explore the impact of lengthening the intervention period to provide more insights into the effects of extended strategy instruction on students' reading comprehension.

Lastly, during the treatment period, students in this English class were required to develop other skills, including listening, speaking, and writing. As a result, students were exposed to other types of input in addition to learning metacognitive reading strategies. This exposure to multiple skills and types of input may have influenced the results of the

study, making it challenging to isolate the impact of strategy instruction on reading comprehension alone. Future studies could explore the use of strategy instruction in a more focused and isolated context to better understand its impact on reading comprehension.

Pedagogical Implications

The findings of this study have pedagogical implications for teachers, students, and curriculum designers.

This study was conducted to assess a specific instructional intervention in literacy with the aim of aiding educators in developing a deeper understanding of effective reading instruction. The findings of the study support the researcher's argument, as a literacy teacher, that new standards emphasizing the importance of teaching metacognitive reading comprehension strategies should be adopted in schools. This argument is supported by a broad consensus that metacognitive reading strategies are teachable and learnable. Routman (2003) also contends that comprehension instruction should be prioritized by teachers if students are to ultimately develop strong comprehension skills. The study's results may have practical implications for literacy instruction in schools and may guide future research in the area of reading strategy instruction.

In order to effectively teach reading, it is important to consider the developmental level, interests, readiness, and learning styles of the students, as well as anticipate the skills they will need in the future and foresee what and how they will need to read. These skills include but are not limited to identifying important ideas, reading critically, locating biases, making predictions and connections, inferring, and synthesizing information. How much of the reading instruction given at schools is dedicated to that? Unfortunately,

research indicates that teaching strategic reading is not the norm, and classrooms often prioritize word calling, automaticity, and fluency over comprehension and critical thinking (Van Keer, 2004; Routman, 2003). This is consistent with the state of reading instruction in Lebanese schools, as the majority of literacy and language arts teachers do not systematically teach reading strategies, and any attempts to do so are often spontaneous and inconsistent. As such, the findings of this study are significant and should be taken into consideration when developing reading instruction practices in Lebanese schools. By emphasizing the importance of teaching strategic reading, educators can help students develop the skills they need to become proficient readers and critical thinkers. Furthermore, since metacognition is a crucial element of reading instruction, it can be incorporated into the earliest stages of reading in the curriculum. By teaching children to use metacognitive strategies and comprehension monitoring, they can develop skills that will benefit them in future reading tasks. It's important for teachers to recognize that drill and memorization practices that are currently mostly practiced in Lebanese schools can limit students' cognitive and metacognitive development, hindering their problem-solving, critical thinking, and communication skills. In the long term, such practices can put students at a disadvantage in the ever-changing economy of the 21st century. Exam-oriented instruction will be trading long-term benefits to EFL students for short-term gains on standardized tests. Teachers should avoid teaching solely to exams, as this will not provide students with the skills they need for success beyond the classroom. Instead, EFL school students should be encouraged to explore different metacognitive reading strategies, experiment with them, and evaluate their effectiveness to determine which strategies work best for their individual needs. These metacognitive

strategies can benefit EFL learners by learning how to plan, monitor, and evaluate their reading processes.

Furthermore, it is highly recommended that both pre-service and in-service training programs focus extensively on preparing Lebanese teachers for teaching strategic reading comprehension. Teacher quality and education have the most significant impact on student achievement, as shown by research (Reutzell et al., 2002). Teachers have an important responsibility when teaching reading. Teachers must teach beyond reading the words, and, additionally, teach students to monitor their thoughts and comprehension as they read. Teacher must also encourage students to employ strategies that lead to overall comprehension while reading. They should also teach them how to try out a variety of strategies with a variety of texts. Teachers should do this by modeling the use of metacognitive strategies during instruction and in group instructions. By working first with guided reading and strategy groups, teachers can focus on explicit metacognitive strategy instruction in an engaging group setting. Afterward, the teacher can move to the independent practice stage. The teacher can use anchor charts and mentor texts to model a metacognitive strategy, stopping to discuss with students what they notice the teacher is doing to monitor themselves as they read. The teacher and students can then apply the strategy into a text or passage together until finally students are prepared to apply the strategy to their independent reading. However, after examining, for instance, the education courses offered at my university, which is one of the most prestigious universities in the world, it was found that none of them was specifically related to teaching strategic reading comprehension neither during the undergraduate nor during the graduate stage. Thus, the Department of Education must address this issue seriously to

ensure that language arts elementary, intermediate, and secondary education students are adequately prepared to teach reading comprehension effectively.

Moreover, most reading materials used in teaching focus on narratives, neglecting other types of reading although studies have shown that only less than 25% of adult reading is done in narrative texts (Snowball, 1995, as cited in Blachowicz and Ogle, 2001). Hence, it is crucial to expose students to various genres of writing to develop their proficiency in multiple literacies.

Also, it is important for teachers to recognize that each student in a classroom may have different learning styles and levels of awareness about using metacognitive reading strategies. Understanding these individual differences can help language teachers better comprehend the complex system of language learning and teaching. As Cohen (2007) and Macaro (2001) suggest, it is essential for language teachers to know which strategies their students are using and how they are using them in different contexts. This understanding can help teachers identify EFL students' problems with reading strategies and adjust teaching procedures accordingly.

Moreover, teaching metacognitive strategies to students should be integrated in the curriculum in order to help students learn more successfully. It is important to consider how particular strategies are applied and the contexts in which they are needed.

Besides, Vygotsky's sociocultural perspective that emphasizes the importance of peer sharing and collaborative learning in the classroom, which can lead to more effective learning and learner efficacy (Vygotsky, 1986) is supported by the findings of this study. In Lebanon, many EFL classes tend to be teacher-centered without any activities that involve dialogue and interaction among learners, on one side, and among the teacher and the learners, on the other. However, the results of this study showed that the OLM

intervention, where group work and sharing is an essential part, has allowed EFL students to gain different perspectives from their peers on how to think while reading together. Through dialogic interaction, they challenge and support one another's thinking.

Furthermore, according to Carrell (1998), becoming a skilled reader requires repeated and prolonged practice with a variety of texts, along with ample opportunities to apply and evaluate different reading strategies. This is a complex process that takes time and effort, and it is important for EFL students to be trained in this aspect over the long term. To ensure the effectiveness of teaching strategies, it is important to provide sufficient and consistent training over a period of time. Learners need to be given ample opportunities to practice the strategies in a variety of contexts with different types of texts. This repeated exposure and practice will help learners internalize the strategies and use them automatically and flexibly in different reading situations. Additionally, teachers should provide feedback and support to learners as they practice using the strategies. By doing so, learners can become aware of their personal learning preferences and needs, receive guidance and make adjustments in their strategy use, and utilize reading strategies independently to enhance their reading comprehension and their overall reading proficiency.

In conclusion, I hope that the results of my research will encourage Lebanese schools to create educational settings that promote the acquisition and effective utilization of metacognitive comprehension strategies, which will cultivate a positive attitude towards reading as a vital life-long skill among students. With over three decades of research into reading instruction, it is time for us to take a more practical approach and incorporate advanced comprehension processing techniques across various text types and

among a broader range of learners. This way, strategic reading will become a habitual practice in the minds of both young readers and their teachers (Pressley, 2002).

Suggestions for Future Research

Although this research was conducted on EFL students in Lebanon, it is difficult to establish whether the outcomes are applicable to EFL/ ESL contexts in Lebanon and other parts of the world as well. Despite the fact that obtaining permission from schools and administrative officials, teachers, parents, and students is a significant challenge, conducting such research is necessary to investigate the impacts of metacognitive reading strategy instruction on real learners. This is because the findings of the study highlight the need for further research into the prevalence and frequency of using metacognitive reading strategies after metacognitive instruction in Lebanese schools and other similar multilingual contexts where English is a medium of instruction.

This study did not investigate the L1 literacy skills of EFL students. However, previous research (Alderson, 1984; Bernhardt, 2005; Clarke, 1979; Koda, 2007) in L2 reading field has shown that there is a transfer and interaction effect of EFL or ESL1earners' literacy and proficiency skills on L2 reading skills. This unexplored area in this study raises questions about whether L1 reading strategies or skills transfer to or interfere with L2 reading, as demonstrated in current research on bilingual populations (Lindsey et al., 2003; Alderson, 1984). Therefore, a possible direction for future research is to use a more comprehensive model that includes both L1 proficiency levels, L1 reading strategies, L2 proficiency levels, and L2 reading strategies. This approach could help to explore the differential roles of L1 and L2 in predicting L2 reading comprehension.

The study found a positive effect of metacognitive instruction using the Optimal Learning Model on reading comprehension, but it is not clear whether this effect was due to teaching reading comprehension strategies along with the use of the Optimal Learning Model as the instructional mode or due to other factors. In fact, several factors could impact reading comprehension scores, such as gender, household income, school type, student grade, autonomous and controlled reading motivation, text types, metacognitive awareness of reading strategies, and many other variables that require consideration in future research. For example, learners' intelligence quotient, learning style, and engagement in reading could also influence student outcomes. The study was confounded, meaning that it is not possible to determine which factor or combination of factors was primarily responsible for the gains observed. Hence, further research is needed to investigate the specific factors that contribute to improved reading comprehension scores. This may involve comparing different instructional modes, examining the impact of specific reading comprehension strategies, or investigating other factors that could affect student learning outcomes. By understanding the specific factors that contribute to improved reading comprehension, educators can design more effective teaching practices and help students to achieve better academic outcomes.

Besides, most studies on metacognitive reading strategies instruction have utilized statistical methods to investigate its effectiveness on reading comprehension, as demonstrated in the existing literature. There have been only a few qualitative-oriented studies that focused on metacognitive reading strategy instruction and its impact on the reading comprehension of ESL/EFL students (Jiménez, 1997). Thus, more qualitative and mixed methods in research are needed in this field. Despite limited evidence, individual differences such as individual learning styles and reading strategy transfer are always

evident, which can only be explored through qualitative methods to investigate whether the use of metacognitive strategies in EFL reading changes after metacognitive instruction and as the text types change and the learners' English proficiency grows. Consequently, further research in this area should incorporate, for instance, case studies and ethnographic methods to gain better insights into overall findings for groups of learners and the effects on individuals within those groups.

Furthermore, future studies can explore the interplay between instruction in different types of metacognitive strategies (global, problem-solving, support), the types of texts that EFL learners read, and the differential effects of this instruction on struggling, average, and proficient readers. This line of inquiry can help researchers determine whether metacognitive strategy categories are changeable based on learners' proficiency levels and the complexity and genre of the texts they are reading. By exploring these inquiries, researchers can gain a better understanding of the role that different metacognitive strategies play in EFL reading and develop more effective instructional practices that cater to the needs of learners at different proficiency levels.

The study had a relatively short intervention period of eight weeks, with 350 minutes per week, which may limit the generalizability of the findings. Hence, future research with a longer intervention period could help to clarify the impact of the long-term intervention on the target population.

Previous research has indicated that cognitive reading strategy has a short-term effect while metacognitive reading strategy instruction has a long-term effect on students' reading achievement. This study did not evaluate the lasting effects of metacognitive reading strategy instruction, which prevented the exploration of potential long-term effects after the intervention. To address this, future research could include a prolonged

period after the intervention and assess the retention effect. Hence, future longitudinal research, such as delayed post-test or follow- up questionnaires, on metacognitive reading strategy instruction and its effect on language learners' reading comprehension are desired.

Lastly, conducting an experimental study can present various challenges, particularly when it involves private schools that have to follow a specific organization of the lessons according to the syllabus. In the present study, although efforts were made to maintain external validity, internal validity was partially controlled for because the instructor of the experimental and control groups was the researcher although the latter tried her best to minimize extraneous variables that could affect the outcome. Hence, future research aiming to conduct similar experiments should consider both internal and external validity, particularly with regards to the instructors applying the intervention.

APPENDIX A

SURVEY OF READING STRATEGIES (SORS)

The purpose of this survey is to collect information about the various strategies you use when you read **school-related academic materials in ENGLISH** (e.g., reading textbooks for homework or examinations; reading journal articles, etc.). Each statement is followed by five numbers, 1, 2, 3, 4, and 5, and each number means the following:

'1' means that 'I **never or almost never** do this'.

'2' means that 'I do this **only occasionally**'.

'3' means that 'I **sometimes** do this'. (About **50%** of the time.)

'4' means that 'I **usually** do this'.

'5' means that 'I **always or almost always** do this'.

After reading each statement, ***CIRCLE THE NUMBER*** (1, 2, 3, 4, or 5) which applies to you**.** Note that there are **no right or wrong responses** to any of the items on this survey.

Statement	**Never**				**Always**
1. I have a purpose in mind when I read.	1	2	3	4	5
2. I take notes while reading to help me understand what I read.	1	2	3	4	5
3. I think about what I know to help me understand what I read.	1	2	3	4	5
4. I take an overall view of the text to see what it is about before reading it.	1	2	3	4	5
5. When text becomes difficult, I read aloud to help me understand what I read.	1	2	3	4	5
6. I think about whether the content of the text fits my reading purpose.	1	2	3	4	5
7. I read slowly and carefully to make sure I understand what I am reading.	1	2	3	4	5

8. I review the text first by noting its characteristics like length and organization.	1	2	3	4	5
9. I try to get back on track when I lose concentration.	1	2	3	4	5
10. I underline or circle information in the text to help me remember it.	1	2	3	4	5
11. I adjust my reading speed according to what I am reading.	1	2	3	4	5
12. When reading, I decide what to read closely and what to ignore.	1	2	3	4	5
13. I use reference materials (e.g. a dictionary) to help me understand what I read.	1	2	3	4	5
14. When text becomes difficult, I pay closer attention to what I am reading.	1	2	3	4	5
15. I use tables, figures, and pictures in text to increase my understanding.	1	2	3	4	5
16. I stop from time to time and think about what I am reading.	1	2	3	4	5
17. I use context clues to help me better understand what I am reading.	1	2	3	4	5
18. I paraphrase (restate ideas in my own words) to better understand what I read.	1	2	3	4	5
19. I try to picture or visualize information to help remember what I read.	1	2	3	4	5
20. I use typographical features like bold face and italics to identify key information.	1	2	3	4	5
21. I critically analyze and evaluate the information presented in the text.	1	2	3	4	5
22. I go back and forth in the text to find relationships among ideas in it.	1	2	3	4	5
23. I check my understanding when I come across new information.	1	2	3	4	5
24. I try to guess what the content of the text is about when I read.	1	2	3	4	5
25. When text becomes difficult, I re-read it to increase my understanding.	1	2	3	4	5
26. I ask myself questions I like to have answered in the text.	1	2	3	4	5
27. I check to see if my guesses about the text are right or wrong.	1	2	3	4	5
28. When I read, I guess the meaning of unknown words or phrases.	1	2	3	4	5
29. When reading, I translate from English into my native language.	1	2	3	4	5
30. When reading, I think about information in both English and my mother tongue.	1	2	3	4	5

SCORING GUIDELINES FOR THE *SURVEY OF READING STRATEGIES*

Student Name: _____ Date: _____

1. Write the number you circled for each statement (i.e., 1, 2, 3, 4, or 5) in the appropriate blanks below.
2. Add up the scores under each column and place the result on the line under each column.
3. Divide the subscale score by the number of statements in each column to get the average for each subscale.
4. Calculate the average for the whole inventory by adding up the subscale scores and dividing by 30.
5. Use the interpretation guidelines below to understand your averages.

Global Reading Strategies (GLOB Subscale)	Problem Solving Strategies (PROB Subscale)	Support Reading Strategies (SUP Subscale)	**Overall Reading Strategies (ORS)**
1. _____	7. _____	2. _____	**GLOB _____**
3. _____	9. _____	5. _____	**PROB _____**
4. _____	11. _____	10. _____	
6. _____	14. _____	13. _____	**SUP _____**
8. _____	16. _____	18. _____	
12. _____	19. _____	22. _____	
15. _____	25. _____	26. _____	

17. _____ 28. _____ 29. _____

20. _____ 30. _____

21. _____

23. _____

24. _____

27. _____

_____ GLOB Score	_____ PROB Score	_____ SUP Score	____**Overall Score**
/ 13	**/ 8**	**/ 9**	**/ 30**
_____ GLOB Average	_____ PROB Average	_____ SUP Average	____ **Overall average**

KEY TO AVERAGES: 3.5 or higher = High 2.5 – 3.4 = Medium 2.4 or lower = Low

INTERPRETING YOUR SCORES: The overall average indicates how often you use reading strategies when reading academic materials. The average for each subscale shows which group of strategies (i.e., Global, Problem Solving, or support strategies) you use most often when reading. It is important to note, however, that the best possible use of these strategies depends on your reading ability in English, the type of material read, and your reading purpose. A low score on any of the subscales or parts of the inventory indicates that there may be some strategies in these parts that you might want to learn about and consider using when reading (adapted from Oxford 1990, pp. 297-300).

Mokhtari, K., & Sheorey, R. (2002). Measuring ESL students reading strategies. *Journal of Developmental Education*, 25 (3), pp. 2-10.

APPENDIX B

COMPREHENSION PRE-TEST (NARRATIVE TEXT) AND ANSWER KEY

Read the following text. Then, answer the correct answer.

Coin Confusion

1. Samuel looked through troubled eyes at his sister and said, “I wouldn’t have thought Everett would be a thief.” His sister Emily replied, “Whoa, there—we don’t know that for sure. That’s a serious accusation to make against your best friend!”
2. Samuel’s eyes were dark as he said, “But who else could it be? He was there, he had them in his hands, and now they are missing.”
3. Samuel remembered two days ago when he had brought out his coin collection for Everett to see. He had received a new coin as an early birthday gift from his aunt, and he was very excited about it. Some time ago the United States government decided to create new designs for the quarters that represented each state. Five new designs were issued each year. He now had every state quarter that had been issued. He had silver dollars and coins from different countries too, but none meant as much as his quarter collection. Samuel loved it because he and his dad were both collecting the coins. It was like a game they played to see who

could complete his collection first. Everett knew how much the collection meant to Samuel.

4. At the end of that day, Samuel's mother had said, "Samuel, would you please take this recipe to Mr. Bates down the street? He's trying to prepare it for dinner tonight, so would you go now?"

5. Samuel had turned to his friend and said, "Is it okay if I leave you for a few minutes?" Everett had said, "Actually, I have a task to run, but you go on ahead, and I'll clean up here," gesturing at the piles of coins on the floor.

6. When Samuel had returned from Mr. Bates' house, he had done his homework, had eaten dinner, and had read for a while before bed. It never occurred to him to check his coins. It was not until two days later that he realized the quarters were gone. The foreign coins were there, but his quarter set was missing.

7. Samuel's sister said, "Why don't you just ask him?" "Ask him what?" replied Samuel scornfully. "Hey, Best Friend, did you steal my coin collection?"

8. "Well, maybe you could just mention you can't find your set of quarters, and ask him where he put it when he cleaned up," replied Emily.

9. Samuel thought for a moment, deciding if that would be a good idea. The theft of his collection left him with a feeling of betrayal. How could I have misjudged my friend's character?

10. The next day Samuel went over to Everett's house. Everett was acting funny—sort of jittery, like he couldn't be still. In fact, Samuel thought Everett was acting like someone with a secret. Anger blossomed as he watched Everett pretend to be kind and pretend to be his friend, when Everett had obviously stolen from him. Samuel finally could not stand it anymore and stood up.

11. Suddenly, Everett cried, “I can’t stand it anymore!” Samuel was astonished at hearing his own thoughts burst forth from his friend. Only, instead of sounding guilty or anguished, Everett sounded excited. Samuel watched his friend jump up and pull something from underneath the chair. “Go on—open it! I was going to wait until your birthday tomorrow, but I can’t wait!”
12. Slowly, Samuel lifted the top of the box. Silver flashed at him, and his eyes suddenly stung. Laid out in front of him in glorious splendor were all of the quarters from his coin collection. Each quarter was nestled in its own spot in a collection case. Each quarter shone like it was new.
13. Samuel felt heat rush over his neck and ears. He weakly said, “Thank you—this means . . . a great deal to me.” He was grateful that Everett had cut him off before he said something he would regret. Everett was exactly the type of person he wanted as a friend!

1. **In paragraph 3, the phrase “but none meant as much as his quarter collection” suggests that the collection**

   A. contains many coins

   B. has a new design

   C. has personal value

   D. includes rare coins

2. **Based on paragraph 5, the reader may conclude that**

   A. Samuel trusts Everett

   B. Everett lives near Samuel

   C. Samuel works hard

   D. Everett will go home

3. **Read this sentence from paragraph 10.**

In fact, Samuel thought Everett was acting like someone with a secret.

What is the purpose of the sentence?

A. To describe Everett's guilt

B. To summarize Everett's bad character

C. To add suspense to the plot

D. To reveal the initiating event

4. **Why is Samuel's coin collection important to him?**

A. The collection gives him something to talk about with his aunt.

B. The collection helps form a connection with his dad

C. His best friend has a coin collection

D. Replacing the collection would be very expensive

5. **Based on paragraph paragraph 11, a reader can infer that Everett is a character who:**

A. makes quick decisions.

B. likes to annoy his friends.

C. enjoys surprising his friends.

D. wants to prove his innocence.

6. **"Silver flashed at him and his eyes suddenly stung" – This sentence in paragraph 12 suggests that Samuel's**

   A. feelings are hurt

   B. eyes are sensitive to light

   C. Coins are damaged

   D. Eyes are filling with tears

7. **Samuel learns the truth about his coin collection at:**

   A. His house

   B. Everett's house

   C. His aunt's house

   D. Mr. Bates' house

8. **An internal conflict in the story is that:**

   A. Samuel's favorite coins are missing.

   B. Samuel doesn't know how to ask Everett about the coins.

   C. Samuel takes the recipe to Mr. Bates.

   D. Samuel feels grateful after Everett's surprise.

9. **Based on the ending of the story, a reader can tell that in the future Samuel will:**

   A. be careful about blaming his friends.

   B. not want to continue his collection.

   C. not listen to the advice of his sister.

   D. find new friends who share his hobby.

10. Which statement BEST expresses the theme of the story?

A. Sharing interests helps keep families together

B. Friends should respect each other

C. Trust is an important part of friendship.

D. Advice from parents solves the problem

APPENDIX C

COMPREHENSION PRE-TEST (DESCRIPTIVE TEXT) AND ANSWER KEY

Read the following text. Then, answer the correct answer.

1. ...In summer the highways are dissolved into three wild rivers—the River of Rocks, which issues from the hills; the River of Meadows, which flows from the great lake; and the River of the Way Out, which runs down from their meeting-place to the settlements and the little world. But in winter, when the ice is firm under the snow, and the going is fine, there are no tracks upon the three broad roads except the paths of the caribou, and the footprints of the marten and the mink and the fox, and the narrow trails made by Luke Dubois on his way to and from his cabin by the rivers.

2. He leaned in the door-way, looking out. Behind him in the shadow, the fire was still snapping in the little stove where he had cooked his breakfast. There was a comforting smell of bacon and venison in the room; the tea-pot stood on the table half-empty. Here in the corner were his rifle and some of his traps. On the wall hung his snowshoes. Under the bunk was a pile of skins. Half-open on the bench lay the book that he had been reading the evening before, while the snow was falling. It was a book of veritable[1] fairy-tales, which told how men had made their way in the world, and achieved great fortunes, and won success, by toiling hard at first, and then by trading and bargaining and getting ahead of other men.

3. "Well," said Luke, to himself, as he stood at the door, "I could do that too. Without doubt I also am one of the men who can do things. They did not work any harder than I

do. But they got better pay. I am twenty-five. For ten years I have worked hard, and what have I got for it? This!"

4. He stepped out into the morning, alert and vigorous, deep-chested and straight-hipped. The strength of the hills had gone into him, and his eyes were bright with health. His kingdom was spread before him. There along the River of Meadows were the haunts[2] of the moose and the caribou where he hunted in the fall; and yonder on the burnt hills around the great lake were the places where he watched for the bears; and up beside the River of Rocks ran his line of traps, swinging back by secret ways to many a nameless pond and hidden beaver-meadow; and all along the streams, when the ice went out in the spring, the great trout would be leaping in rapid and pool. Among the peaks and valleys of that forest-clad kingdom he could find his way as easily as a merchant walks from his house to his office. The secrets of bird and beast were known to him; every season of the year brought him its own tribute;[3] the woods were his domain, vast, inexhaustible, free. ...

5. His hand-sledge[4] stood beside the door, and against it leaned the axe. He caught it up and began to split wood for the stove. "No!" he cried, throwing down the axe, "I'm tired of this. It has lasted long enough. I'm going out to make my way in the world."

6. A couple of hours later, the sledge was packed with camp-gear and bundles of skins. The door of the cabin was shut; a ghostlike wreath of blue smoke curled from the chimney. Luke stood, in his snowshoes, on the white surface of the River of the Way Out. He turned to look back for a moment, and waved his hand.

7. "Good-bye, old cabin! Good-bye, the rivers! Good-bye, the woods!"

—Henry Van Dyke

excerpted from “Wood-Magic”

The Blue Flower, 1902

Charles Scribner’s Sons

[1]veritable — authentic

[2]haunts — places frequented

[3]tribute — payment

[4]hand-sledge — sled

1. The first paragraph contributes to the passage by illustrating Luke’s

A. poverty

B. sadness

C. isolation

D. desperation

2. According to paragraph 2, Luke’s living quarters may best be described as

A. disorganized

B. elegant

C. insufficient

D. comfortable

3. The “book of veritable fairy-tales” (line 13) contributes to Luke’s realization that he

A. feels lonely and needs companionship

B. should remain living in the wilderness

C. deserves more reward for his efforts

D. understands nature better than most people

4. By using the phrase "throwing down the axe" (line 32), the author is conveying Luke's

A. nervousness

B. determination

C. indifference

D. satisfaction

5. The main reason why Luke leaves his current location is to

A. purchase more supplies

B. further his education

C. meet new people

D. pursue financial success

6. Paragraph 3→7 suggest that Luke's

A. work contributes to his happiness

B. solitude holds him back

C. hobbies help him to socialize

D. skills limit his opportun

APPENDIX D

COMPREHENSION PRE-TEST (PERSUASIVE TEXT) AND ANSWER KEY

Read the following text. Then, answer the correct answer.

State History or World Gardens?

Jacob Barone, Principal Sand Hill Middle School Richmond, VA 23274

Dear Mr. Barone:

1. I am writing on behalf of the seventh-grade class. The traditional seventh-grade spring field trip is to the State History Museum. This year, however, the seventh grade would like to request a change. The class is interested in going to the new World Botanical Gardens located in East Johnsonville. Although this would mean a two-hour bus ride, the benefits of the new field trip would make the extra time worthwhile. The garden hours are from 10:00 A.M. to 6:00 P.M. The class could leave school at 8:00 A.M. and arrive just as the gardens open. We would have time to explore the gardens, make notes about our favorite exhibits, eat lunch, and return to school by 4:00 P.M.
2. Many seventh-grade students have already visited the history museum. Since the museum is so close, students often go there with their families, with scouting troops, or with other groups. We have enjoyed the many interesting exhibits, but this year we are hoping to learn something new.
3. The purpose of the new field trip destination is to help students understand the different environments of our planet. The World Botanical Gardens contains the second-largest

walk-through Amazon rainforest exhibit in the country. Some of the other popular exhibits are the Giant Flowers, the Arid Deserts, and the Palm Trees Around the World.

4. Since seventh-grade students study plants and plant energy in science class, visiting the botanical gardens would be an appropriate and educational field trip. The information we could learn there would be an excellent way to supplement our science studies. We would observe plants growing in special displays that are similar to their natural habitats. Charts located near each display provide information about the plants. This information will help when learning about topics such as how food webs work and how plants respond to light. The botanical gardens also provide educational workshops and presentations to groups.
5. In addition, the field trip supports what we are studying in our English class. We are currently reading Which Way to the Amazon? This novel, which is set in a rainforest and based on scientific facts, describes the adventures of a fictional archaeological expedition searching for a lost city. The rainforest exhibit at the World Botanical Gardens would better help us understand the novel's setting.
6. Please consider this request for the seventh-grade field trip to World Botanical Gardens. Any increase in the traditional field trip expenses, such as the longer bus ride, could be offset by fundraisers such as bake sales and car washes. The class treasurer has suggested a "save the rainforest bake sale." A portion of the money raised could be donated to a foundation that helps preserve the Amazon rainforest. This way the fundraiser could also be a public service event.
7. If I can provide additional information, please let me know.
8. Thank you very much.

   Sincerely,

Robert Burns

Seventh-Grade Class President

Sand Hill Middle School

1. ***Which Way to the Amazon?*** **is in italics because it is**

   A. the name of a book

   B. a website about rainforests

   C. the title of an article

   D. a scientific journal

2. **Which word best describes the author's word choice in paragraph 4?**

   A. Sympathetic

   B. Triumphant

   C. Humorous

   D. Formal

3. **The writer uses the phrase "the seventh grade" instead of the pronoun "I" to**

   A. draw attention to the details of the field trip

   B. show that the students are united about the field trip

   C. encourage other students to write about the field trip

   D. tell that the teachers also support the field trip

4. **Based on the information in the letter, which of these is known?**

   A. The calendar date of the proposed field trip

   B. The cost of the proposed field trip

   C. The number of students going on the proposed field trip

   D. The length of time for the proposed field trip

5. Read this graphic organizer for the letter.

Problem	Students want a different destination for their field trip.
Solution	

Based on the letter, which idea belongs in the empty box?

A. Include reasonable educational benefits in the letter.

B. Include the names of supportive teachers in the letter.

C. Include an estimate of the total cost in the letter.

D. Include a student signature list in the letter.

6. Which sentence about the letter states a fact?

A. Charts are a helpful way to learn about plants.

B. The State History Museum has interesting exhibits.

C. The World Botanical Gardens is located in a different city.

D. A fundraiser is a good idea for benefiting the field trip.

7. The purpose of paragraph 7 is to suggest that the letter writer is

A. calm

B. helpful

C. happy

D. relieved

8. The purpose of the letter is to

A. compare the two proposed sites for the field trip

B. persuade the principal to change the field trip

C. express feelings about the value of the field trip

D. inform the principal about the new field trip

APPENDIX E

COMPREHENSION PRE-TEST (EXPOSITORY TEXT) AND ANSWER KEY

Read the following text. Then, answer the correct answer.

The Skunk Bear

1. In the cold, unforgiving climate of Alaska's wilderness, there is a creature feared by predators more than twice its size. With long, sharp claws and an unfriendly disposition, this compact animal demands respect. In the lonely territory inhabited by this creature, a cautious person will think twice before approaching. This animal may be related to the weasel and might look like a bear cub, but it's really a wolverine.

Features

2. The largest and strongest land-dwelling member of the weasel family, the wolverine shares several characteristics with bears. Like the bear, the wolverine walks on the soles of its feet, allowing it to tread easily through deep, soft snow. With amazingly powerful shoulders, teeth, and jaws, a wolverine can feed on frozen meat and even bite through bone. A wolverine can produce a strong, unpleasant scent when frightened or when marking its territory to warn away animals. It should come as little surprise that the wolverine has earned the nickname of "skunk bear."
3. The wolverine is viewed by many as an unattractive animal. However, it is well-equipped for harsh winters. Thick, glossy, dark-brown fur covers most of its body, with a silvery gray mask of fur around its face. Frequently, a light-colored stripe runs along the side of

the wolverine's body to the tip of its long, bushy tail. It has a heavy build and a rounded head, with small eyes and short, rounded ears. An adult male weighs between 26 and 30 pounds, and a female weighs between 17 and 22 pounds. Newborn wolverines, called "kits," normally weigh between 3 and 5 pounds. The kits are born in a protected cave and stay with their mothers for about 2 years.

Keeping Fed

4. Cold weather does not bother the hardy wolverine at all. In fact, wolverines prefer some of the coldest places in the world, including northern Canada, Alaska, and Siberia. Because of the frigid temperatures in these regions, food can be difficult to find. In the most extreme months, a wolverine can live on a small amount of food for a period of time.
5. When a wolverine does find food, it does not appear to be a picky eater. Its strong teeth and powerful jaws can chew through a grizzly's leftover meal, devouring anything from moose and caribou carcasses to elk and deer. A wolverine will eat squirrels, insects, or occasionally berries. People have repeated stories that wolverines have been known to sneak into cabins to find food, but these stories have never been confirmed. A wolverine locates food using its sense of smell and can detect live animals or carcasses far under the snow. It hunts day and night, doing whatever is necessary to find enough nutrition to remain strong and healthy.

Fight or Flight

6. Wolverines are fierce and difficult to observe. As a precaution, a wolverine may run away if it senses danger, reaching speeds of up to 25 miles per hour across the snow. If cornered, a wolverine uses its sharp teeth and claws for protection. It raises the hair on its back, sticks

up its tail, and emits a low growl. A wolverine can make itself appear to be a threat to larger animals. Reports claim that cougars and wolves will retreat from food when challenged by a wolverine.

The Future

7. While wolverines are not on the endangered species list, their population in some areas is dwindling. One reason for the decline is the decrease in the available food supply. To ensure a continuing food supply, wolverine populations in Alaska are monitored, and their habitats are protected. The wolverine, with its thick fur, quick speed, and powerful jaws, is perfectly suited for living in harsh, cold environments. Efforts such as those in Alaska will help to keep the wolverine population stable for many years to come.

    1. **Based on paragraph 3, the reader may *best* conclude that kits**

        A. are able to keep themselves warm

        B. know how to hunt immediately after their birth

        C. need their mothers for a long time

        D. are born knowing how to protect themselves

    2. **Read these sentences from paragraph 4.**

        Cold weather does not bother the hardy wolverine at all. In fact, wolverines prefer some of the coldest places in the world, including northern Canada, Alaska, and Siberia. In these sentences, the words "In fact" introduce —

        A. an effect

        B. a definition

        C. a contrast

        D. an example

3. **Which of these is the *best* summary of paragraph 5?**

   A. Wolverines can eat almost anything.

   B. Wolverines use sense of smell to find food.

   C. Wolverines have powerful jaws and strong teeth.

   D. Wolverines can go without food.

4. **In paragraph 7, the author's word choice communicates**

   A. amazement

   B. concern

   C. enthusiasm

   D. despair

5. **Paragraph 7 contains information that would be *most* useful in a report about**

   A. climate changes

   B. saving wildlife

   C. threats to animal habitats

   D. ways to survive cold weather

6. **Which section provides information about a wolverine's appearance?**

   A. Features

   B. Keeping Fed

   C. Fight or Flight

   D. The Future

7. **During the winter, wolverines**

   A. hibernate

   B. migrate

   C. eat less

   D. give birth

8. **Which statement from the article is an *opinion*?**

   A. Like the bear, the wolverine walks on the soles of its feet . . .

   B. The wolverine is viewed by many as an unattractive animal.

   C. Frequently, a light-colored stripe runs along the side of the wolverine's body .

   D. A wolverine will eat squirrels, insects, or occasionally berries.

9. **Read this chart.**

Cause:	
Effect:	The wolverine makes itself look larger by raising its tail and

Which of these belongs in the empty box?

   A. A wolverine survives on a small amount of food.

   B. A wolverine produces a strong odor.

   C. A wolverine feels trapped by an enemy.

   D. A wolverine smells prey beneath the snow.

10. **What is the main purpose of this article?**

   A. To entertain with a story about a family of wolverines

   B. To persuade readers to help protect wolverines

   C. To describe the protective instincts of wolverines

   D. To inform readers with facts about wolverines

APPENDIX F

COMPREHENSION POST-TEST (NARRATIVE TEXT) AND ANSWER KEY

Read the following text. Then, answer the correct answer.

A Gift from Dad

1. Travis laughed as he tore at the wrapping paper on his birthday present. He was so excited that he could hardly stand it! Finally, he would have the coolest pair of name-brand shoes on the planet. He had dropped virtually a million hints about the exact brand and color, and now he was eager to try on his new shoes and go play basketball.

2. Currently, all the guys on his basketball team were wearing the name-brand shoes of a popular basketball player, Chuck Hart. Although he was a great player, Hart was criticized in the press for his poor sportsmanship. Even his teammates occasionally complained about his bad attitude. In fact, Hart had been fined thousands of dollars because of his notorious behavior. Travis wasn't thinking about Hart's behavior; he had only anticipated seeing Hart's name on the side of the box. The first indication that something was wrong came as he ripped away the last remnants of paper. The name on the side of the box in his hands was not Hart's. His new shoes were the name-brand model of another player, Robert Ryann. Ryann played for a different team and was known for his work in the community.

3. "Ryann is an amazing player, isn't he?" asked Travis's dad. "He's always been one of my favorites."

4. Travis's hands froze; his heart stopped. It wasn't that the Ryann shoes weren't nice, but what would his friends think? Travis was a valuable member of the team; he could dribble quickly and pass well. He was a solid outside shooter and got along okay with his teammates. Still, he sometimes didn't fit in with the other guys on the team and had hoped that the Hart shoes would help.

5. "Well, come on, Travis. Open the box!" his dad said. "I got them on my last run down into Texas."

6. So that was it. His dad, a long-distance truck driver, had been misinformed by a salesman in Texas. Who knows? Maybe in Texas those shoes were really considered cool, but not here in Virginia. No, not here. They were the wrong shoes and he would be teased by the other players if he wore them. When he looked up into his dad's eyes, however, Travis knew he couldn't tell him.

7. What a dilemma, Travis thought. Wear the shoes and get laughed at by the guys, or don't wear the shoes and hurt Dad's feelings?

8. "Thanks, Dad. I was really hoping for shoes," Travis said as he pulled the shoes out of the box.

9. Before he knew it, Monday morning found Travis in the car while his dad drove him to school. He noticed that his dad was uncharacteristically silent, staring straight ahead instead of jabbering away or singing a song. Travis was too worried about what the other players would think to spend much time figuring out his dad's unusual behavior.

10. When they pulled up in front of his school, the situation was worse than Travis thought. His dad said, "Well, looks like all your buds are here. I'll just drop you off."

11. Travis nodded, trying to think of what to do. Seeing no alternative, he slowly opened the car door. Just then, his dad stopped him. “Hey, Travis, wait a minute, okay?” Travis slumped back in the seat and looked at his dad with expectant eyes.

12. “Look . . . ” his dad said hesitantly. “Travis, I know those aren’t the shoes you had hoped for, but I saw the name of the guy on the shoes that you wanted and made a choice. The guy whose name is on those shoes,” he said, pointing down at Travis’s feet, “is someone I admire, unlike the guy whose shoes you wanted. Do you know how often Ryann has found himself in trouble?”

13. “No,” Travis said.

14. “Never. He’s never talked back to his coach or started a fight, and he’s rarely even drawn a technical foul. He’s always one of the top scorers in the league and he’s a team player. You could’ve acted like a baby when you didn’t get the shoes you wanted, Travis, but you were polite and made the best of it. You have honor, Son—like the guy whose name is on these shoes. I’m hoping that someday, your name will be on the coolest pair of shoes I’ll ever see.”

15. When Travis looked down at his feet, he saw the shoes differently. His dad had used his mind and heart to give his son a thoughtful gift.

16. Would the guys laugh when they saw his shoes? Yes, they probably would, but now he felt like he was wearing shoes that stood for something. He nodded and opened the door. “Thanks, Dad. I’ll see you soon.”

17. As Travis headed toward his teammates, he felt comfortable in his new basketball shoes.

1. **Travis is disappointed with his shoes because they are the wrong —**

    A. color

    B. brand

    C. size

    D. design

2. **Chuck Hart is most known for his:**

    A. good sportsmanship

    B. community work

    C. basketball skills

    D. team spirit

3. **Travis thinks having Chuck Hart basketball shoes will:**

    A. improve his game

    B. impress his coach

    C. protect his feet

    D. help him fit in the team

4. **Which event begins the conflict in this story?**

    A. Travis wants to play basketball.

    B. Travis laughs at his friend.

    C. Travis is opening a present.

    D. Travis is talking to his dad.

5. **Which of these is the main conflict in this story?**

   A. Individual vs. individual

   B. Individual vs. nature

   C. Individual vs. technology

   D. Individual vs. self

6. **Travis's dad believes that**

   A. athletes are unimportant as role models

   B. athletes should receive special treatment

   C. sportsmanship should not be criticized

   D. character means more than style

7. **Dad thinks Travis and Robert Ryann are alike because:**

   A. Travis wants to be popular with his teammates

   B. Travis worries that his teammates will laugh at him

   C. Travis behaves respectfully even though he is disappointed

   D. Travis becomes angry when he receives the wrong shoes

8. **Which of the following is the best summary of paragraph 14?**

   A. Travis's father explains why he chose the Ryann shoes.

   B. Travis's father reveals the number of times Ryann has been in trouble.

   C. Travis's father is proud of the traits that Ryann and Hart have in common.

   D. Travis's father tells why he admires Hart as a player.

9. The reader can conclude that Travis's dad:

A. did not know which shoes Travis wanted

B. believes the Ryann shoes will help Travis play better

C. doesn't like Hart's behavior

D. thinks the Ryann shoe is a better made shoe

10. The author's purpose in writing this selection is to:

A. inform about different brand models

B. entertain and teach a lesson about having a positive attitude

C. persuade about the importance of respecting parents

D. introduce two famous basketball players

APPENDIX G

COMPREHENSION POST-TEST (DESCRIPTIVE TEXT) AND ANSWER KEY

Read the following text. Then, answer the correct answer.

The Bridge

1. In all years and all seasons, The Bridge was there. We could see it from the roof of the tenement where we lived, the stone towers rising below us from the foreshortened streets of downtown Brooklyn. We saw it in newspapers and at the movies and on the covers of books, part of the signature of the place where we lived. Sometimes, on summer afternoons during World War II, my mother would gather me and my brother Tom and my sister, Kathleen, and we'd set out on the most glorious of walks. We walked for miles, leaving behind the green of Prospect Park, passing factories and warehouses and strange neighborhoods, crossing a hundred streets and a dozen avenues, seeing the streets turn green again as we entered Brooklyn Heights, pushing on, beaded with sweat, legs rubbery, until, amazingly, looming abruptly in front of us, stone and steel and indifferent, was The Bridge.
2. It was the first man-made thing that I knew was beautiful. We could walk across it, gazing up at the great arc of the cables. We could hear the sustained eerie musical note they made when combed by the wind (and augmented since by the hum of automobile tires), and we envied the gulls that played at the top of those arches. The arches were Gothic, and provided a sense of awe that was quite religious. And awe infused the view

of the great harbor, a view my mother embellished by describing to us the ships that had brought her and so many other immigrants to America—the Irish and the Italians and the Jews, the Germans, the Poles, and the Swedes, all of them crowding the decks, straining to see their newfound land. What they saw first was the Statue of Liberty, and the skyline, and The Bridge. The Brooklyn Bridge. ...

3. There was a long time in my life when I didn't see much of The Bridge, except from the roof or the back window. The reason was simple: Trolleys were replaced by automobiles, and nobody I knew in our neighborhood owned a car. But then when I was sixteen, I got a job in the Brooklyn Navy Yard as a sheet-metal worker, and at lunchtime we would wander out along the cobblestone streets beside the dry docks, and from there we could look up at The Bridge. "Now the cats that built *that*," a black welder named Fred Thompson said to me one day, "they knew what they were *doin'*."

4. They certainly did. As I grew older, I came increasingly to see The Bridge as a monument to craft. It was New York's supreme example of the Well-Made Thing. All around us in the sixties, the standards of craft eroded. As aestheticians[1] proclaimed the virtues of the spontaneous, or exalted the bold gesture, or condemned form as an artistic straitjacket, I would cross The Bridge and wonder what they could mean. More than twenty men were killed in the construction of this thing, and others were ruined for life by accidents and disease suffered in its service. To those men, carelessness meant death, not simply for themselves, but for the human beings who would use what they were making. So they had no choice: They had to make it to last. And in doing so, in caring about detail and function and strength, they saw craft triumph into art. ...

5. Of course, it is the nature of all bridges that they travel in two directions. I know dozens of people who traveled west on The Bridge, wandered the world, and then made the long, wide circle home to Brooklyn. I don't know anybody who ever did that from the Bronx.

6. From the Manhattan shore, The Bridge still seems to whisper: "Come, travel across me. It's only 1,562 feet across the river, and over here, and beyond, lies Oz, or Camelot, or Yoknapatawpha County."[2] And from the Brooklyn side it speaks in plain, bourgeois[3] tones, with a plain, simple message: "Come home." ...

—Pete Hamill

excerpted from "Bridge of Dreams"

New York Magazine,

May 30, 1983

[1]aestheticians — specialists in the nature of beauty

[2]Oz, Camelot, Yoknapatawpha County — fictional places

[3]bourgeois — middle class

1. By referring to the Brooklyn Bridge as "The Bridge," the narrator communicates his

A. respect

B. disdain

C. arrogance

D. understanding

2. **The imagery used in paragraph 2 appeals to the reader's sense of**

   A. touch and sound

   B. smell and taste

   C. sight and sound

   D. sight and smell

3. **The narrator enriches the historical significance of The Bridge by referring to**

   A. immigration experiences

   B. construction materials

   C. musical notations

   D. political consequences

4. **Which phrase from the passage best signals that time has elapsed?**

   A. "I didn't see much of The Bridge"

   B. "But then when I was sixteen"

   C. "at lunchtime we would wander"

   D. "from there we could look up at The Bridge"

5. **The phrases "monument to craft" (paragraph 4) and "Well-Made Thing" (paragraph 4) are most closely related to which other phrase from the passage?**

   A. "proclaimed the virtues of the spontaneous"

   B. "condemned form as an artistic straitjacket"

   C. "To those men, carelessness meant death"

D. “caring about detail and function and strength”

6. According to the narrator, in addition to offering opportunities, The Bridge will

A. be maintenance free

B. be a tourist attraction

C. bring a traveler home

D. provide military security

APPENDIX H

COMPREHENSION POST-TEST (PERSUASIVE TEXT) AND ANSWER KEY

Read the following text. Then, answer the correct answer.

Rethinking Youth Sports to Prevent Kids' Head Injuries

1. Youth sports are important. Now girls, as well as boys, have an opportunity to be physically active and learn new skills. Whether participating in an individual or group activity, sports teach children and young adults that hard work and personal discipline will help them achieve their personal best. My family and I know firsthand the benefits that sports can offer. I enjoyed playing basketball and volleyball during high school and college. My son had fun participating in soccer and swimming. My daughter scored ice time being a hockey cheerleader.
2. With all the positive aspects associated with youth sports, these activities also come with some very real risks. Stories of athletes suffering traumatic brain injuries after playing hockey, football, soccer and other sports are becoming more common. A traumatic brain injury is a severe blow to the head, impairing the brain's normal functions. Symptoms can include confusion, motor dysfunction, dizziness, headaches and temporary amnesia. Repeated concussions or other head injuries could run the greater risk of damage to the brain and spinal cord. Public awareness about the seriousness of head injuries is growing.
3. We are already learning a lot about traumatic brain injuries from our returning Afghanistan and Iraq veterans. An estimated 40,000 men and women veterans have been diagnosed with

traumatic brain injuries from multiple concussions in combat. While the situations are vastly different, some of the consequences of repeated head injuries sustained in combat can be similar to those experienced by some athletes.

4. According to the American Association of Neurological Surgeons (AANS), roughly 446,788 sports-related head injuries were treated at U.S. emergency rooms in 2009. This number represents an increase of nearly 95,000 sports-related injuries from 2008. No longer can a soccer player or cyclist just "walk off" a bump to the head. A child who begins playing full-contact football at age 6 is at risk of brain injuries that could cause long-term cognitive damage.
5. As parents, coaches and policymakers, we must use what we know about head injuries and rethink how our youth can engage in sports safely. Some organizations and states are already working to reform the athletic programs in their schools and communities. Last year, Minnesota passed legislation aimed at reducing sports-related brain injuries in children by educating coaches, parents and young athletes about the symptoms and risks of head injuries. The new law also ensures students do not return to a sport before seeing a trained health professional.
6. Recently, the largest youth football league, Pop Warner, announced it will limit the amount of contact and collisions in practice to protect its 285,000 football players (ages 5-15) from potential repetitive brain trauma. This move responded to a recent study of second-grade football players that showed the average player suffers more than 100 head impacts during 5 games and 10 practices. Some of these head impacts were characterized as equivalent to those sustained in a car accident.
7. Young players rely on coaches, parents and health professionals to minimize risk through proper practice techniques, good supervision and immediate medical intervention. Pop

Warner's move to limit contact in practice should remind governing bodies that procedures, training methods and the rules of the game can be modified to ensure our youth participate safely.

8. Sports-related brain injuries are also receiving more public attention because of the willingness of professional athletes to speak out. For example, more than 2,000 retired NFL players filed a lawsuit against football helmet maker Riddell and the NFL for hiding information about dangers of concussions and the consequences of hits to the head.
9. Coaches, parents, athletes, health professionals, policymakers and the athletic community must come together for the best interests of our children. By taking what we already know, we can create opportunities for our children to participate in sports while keeping them healthy and safe. As a parent, watching your child compete should be a sense of pride, not a sense of fear.

McCollum represents Minnesota's 4th congressional district. She serves on the House Appropriations and Budget committees.

NFL is a registered service mark of the National Football League
Riddell is a registered trademark of the Ridemark Corporation

1. The author's purpose in lines 4 through 7 is to

A. give examples of the variety of sports available
B. emphasize the benefits of participating in sports
C. provide reasons for letting her family play sports
D. show a personal connection to the topic of sports

2. According to the article, why have injuries to veterans influenced studies of athletes with concussions?

A. Thousands of veterans have been diagnosed with traumatic brain injuries.

B. Repeated head injuries are potentially damaging to the brain or spinal cord.

C. Repeated head injuries sustained in sports and combat have similar outcomes.

D. Public awareness of the symptoms and seriousness of head injuries has been growing.

3. Read this sentence in paragraph 4

No longer can a soccer player or cyclist just "walk off" a bump to the head.

What does the phrase "walk off" suggest?

A. The injury is made worse by moving around.

B. The person needs to leave the playing area.

C. The person is not seriously injured.

D. The injury does not affect the legs.

4. Paragraph 5 supports the central idea that

A. progress is being made to make sports safer for kids

B. resistance to changes in youth sports is being overcome

C. children count on parents and coaches to keep them safe

D. a lack of training in treating brain injuries has inspired legislation

5. Which inference does paragraph 8 best support?

A. Older helmets do not protect athletes from head injuries.

B. The problem of head injuries is not confined to student athletes.

C. Professional athletes are reluctant to report head injuries during their careers.

D. Legal action is an effective way to discover information about the dangers of concussions.

6. Read this sentence from paragraph 9

By taking what we already knew, we can create opportunities for our children to participate in sports while keeping them healthy and safe.

Which lines best support the author's claim in this sentence?

A. "We are already learning a lot about traumatic brain injuries from our returning Afghanistan and Iraq veterans. An estimated 40,000 men and women veterans have been diagnosed with traumatic brain injuries from multiple concussions in combat." (lines 15 through 17)

B. "According to the American Association of Neurological Surgeons (AANS), roughly 446,788 sports-related head injuries were treated at U.S. emergency rooms in 2009."

C. "Recently, the largest youth football league, Pop Warner, announces it will limit the amount of contact and collisions in practice to protect its 285,000 football players (ages 5-15) from potential repetitive brain trauma. This move responded to a recent study of second-grade football players that showed the average player suffers more than 100 head impacts during 5 games and 10 practices."

D. "Sports-related brain injuries are also receiving more public attention because of the willingness of professional athletes to speak out. For example, more than 2,000 retired NFL players filed a lawsuit against football helmet maker Riddell and the NFL for hiding information about dangers of concussions and the consequences of hits to the head." (lines 44 through 48).

7. Which claim can be supported by evidence from the article?

A. Participating in youth sports can expose children to risks.

B. Limiting physical contact during practice keeps players safer during games.

C. The age that a child begins playing football is related to the incidence of head injuries.

D. Poorly made sports equipment accounts for increases in head injuries among professional athletes.

8. The purpose of the letter is to

E. express feelings about youth sports

F. compare the injuries caused by sports

G. persuade readers to become cautious about sport injuries

H. amuse readers with the dangers of sports

APPENDIX I

COMPREHENSION POST-TEST (EXPOSITORY TEXT) AND ANSWER KEY

Read the following text. Then, answer the correct answer.

Magnificent Divers

1. If you were a fish, one of the last birds you would want to see flying overhead is a hungry osprey. These majestic birds of prey average two feet in length and may have an incredible six-foot wingspan. These enormous predators are also equipped with long, sharp talons for snagging a meal swimming in the water below.

2. Ospreys, also known as fish hawks or fishing eagles, have short, hooked beaks and wings that taper to rounded tips. Their coloring ranges from white to dark brown. The white feathers on ospreys' heads look like little caps, and their wings include a mixture of white and dark brown feathers. Their chests, bellies, and chins are white, and their tails are marked with several white bands, or stripes. Ospreys in flight are easy to identify, thanks to their distinctive plumage, or feathers. Not surprisingly, these birds are related to eagles, hawks, and even vultures. They can live a long time; the average life span in the wild is 18 years. The oldest known osprey lived to be 25 years old.

3. Ospreys are designed to fly fast and dive at amazing speeds. Soaring one hundred feet above the water, their sharp eyes watch the surface carefully for any telltale signs of fish. Ospreys hover over the water and wait for some indication of activity. Once prey is spotted, the birds fold their wings to their sides and begin a steep dive, plunging nearly straight down at blazing

speeds. Usually, ospreys hit the water feet first, plunging completely underwater to catch their food. Water sprays in all directions as the birds reach underwater to grab a fish. They have been seen diving as much as three feet underwater to capture their prey! Once a fish has been snagged in its sharp claws, an osprey soars back up into the sky, pausing in flight just long enough to shake the water from its feathers before flying away to enjoy its meal. To help ospreys hold on to their catch, each of their feet has a unique reversible front toe.

4. Since their diet is almost entirely fish, ospreys make their homes near water. They live on islands and around bays, such as the Chesapeake Bay between Virginia and Maryland. The birds spend summers in Alaska, Canada, and northwestern parts of the United States. During the colder months, they stay in warmer places like the Caribbean and Central and South America. The Chesapeake Bay is home to the largest nesting population of ospreys in the world. Observers have counted as many as 2,000 pairs. The area has even been called "the osprey garden."

5. Like other birds, ospreys like to build their nests in high locations. In some coastal communities, they have built nests on top of electric power poles and towers. This is dangerous and can result in power failures. Some cities build nesting platforms for the big birds to use instead. In other regions, ospreys build nests high in trees or on rock cliffs. Osprey nests have even been found on channel markers and buoys on the water.

6. Ospreys use their nests repeatedly. When ospreys return to their nests, they spend time repairing them before laying their eggs. Most ospreys lay three eggs at a time. They are about the same size as chicken eggs and take approximately five weeks to hatch. If anything

threatening approaches the nest, the ospreys' usual call of cheep-cheep-cheep turns into an angry cheereek, cheereek. The call means "Get away immediately!"

7. When the eggs crack open, the chicks, which weigh only about two ounces, crawl out. In less than two months, these tiny birds will have grown enough to take their first flight. It will not be long before a new generation of ospreys is ready to imitate their parents and head out for a tasty meal.

8. With their beautiful coloring, threatening size, and natural ability to bolt out of the sky at high speeds, there is little doubt that ospreys are remarkable birds. Imagine these majestic birds soaring from the heights of the sky and plunging into the depths of the water. It is no surprise that this amazing scene draws attention from people who see it. Ospreys will continue to populate the skies for future generations.

1. **What is the main purpose of paragraph 2?**

   A. To compare ospreys to other birds

   B. To discuss the life span of ospreys

   C. To describe the appearance of ospreys

   D. To tell how ospreys protect their young

2. **The name "the osprey garden" in paragraph 4 gives the reader the impression of**

   A. fields of flowers eaten by ospreys

   B. colorful ospreys that look like flowers

   C. fields filled with flowers and ospreys

   D. ospreys living together as thickly as flowers

3. **Which of these best describes the author's word choice in paragraph 4?**

   A. Enthusiastic

   B. Cautious

   C. Factual

   D. Cheerful

4. **Paragraph 5 contains the most information about —**

   A. how ospreys cause power failures

   B. how people can help ospreys

   C. where ospreys like to build nests

   D. why ospreys like tall buildings

5. **In paragraph 6, the phrase "Get away immediately" tells the reader —**

   A. what people should do when they see an osprey

   B. what an osprey should do if it is near an electric pole

   C. what an angry bird call from an osprey means

   D. what people should do when an osprey nest is discovered

6. **Which word best expresses the author's view of ospreys?**

   A. Frightening

   B. Disruptive

   C. Intelligent

   D. Impressive

7. Which sentence is an opinion?

A. Soaring one hundred feet above the water, their sharp eyes watch the surface carefully for any telltale signs of fish.

B. They live on islands and around bays, such as the Chesapeake Bay between Virginia and Maryland.

C. It will not be long before a new generation of ospreys is ready to imitate their parents and head out for a tasty meal.

D. With their beautiful coloring, threatening size, and natural ability to bolt out of the sky at high speeds, there is little doubt that ospreys are remarkable birds.

8. Which sentence shows a cause-and-effect relationship?

A. Since their diet is almost entirely fish, ospreys make their homes near water.

B. During the colder months, they stay in warmer places like the Caribbean and Central and South America.

C. The Chesapeake Bay is home to the largest nesting population of ospreys in the world.

D. When ospreys return to their nests, they spend time repairing them before laying their eggs.

9. Which sentence from the article contains a comparison?

A. Usually, ospreys hit the water feet first, plunging completely underwater to catch their food.

B. Like other birds, ospreys like to build their nests in high locations.

C. When the eggs crack open, the chicks, which weigh only about two ounces, crawl out.

D. In less than two months, these tiny birds will have grown enough to take their first flight.

10. The main purpose of the article is to —

A. tell how ospreys hunt for food

B. explain how to identify ospreys

C. describe the way ospreys nest

D. provide information about ospreys

REFERENCES

Adams, M. J. (1990). *Beginning to read: Thinking and learning about print*. Massachusetts Institute of Technology.

Aebersold, J.A. & Field, M.L. (1997). *From reader to reading teacher: Issues and strategies for second language classrooms*. Cambridge University Press.

Afflerbach, P., Pearson, P. D., & Paris, S. G. (2008). Clarifying differences between reading skills and reading strategies. *The Reading Teacher, 61*, 364–373. https://doi.org/10.1598/RT.61.5.1

Aghaie, R., & Zhang, L. J. (2012). Effects of explicit instruction in cognitive and metacognitive reading strategies on Iranian EFL students' reading performance and strategy transfer. *Instructional Science, 40*(6), 1063-1081. https://doi.org/10.1007/s11251-011-9202-5

Ajideh, P., Zohrabi, M., & Pouralvar, K. (2018). The effect of explicit instruction of metacognitive reading strategies on ESP reading comprehension in academic settings. *International Journal of Applied Linguistics & English Literature, 7*(4), 77-86.

Akkakoson, S. (2013). The relationship between strategic reading instruction, student learning of L2-based reading strategies and L2 reading achievement. *Journal of Research in Reading, 36*(4), 422-450. https://doi.org/10.1111/jrir.12004

Akkakoson, S., & Setobol, B. (2009). Thai EFL students' use of strategies in reading English texts. *The Journal of KMUTNB, 19*(3), 329-342.

Al Fassi, M. (2004). Reading to Learn: Effects of combined strategy instruction on high school students. *The Journal of Educational Research*, *97*(4), 171-184.

Al-Kiyumi, O., Al Seyabi, F., & Hassan, A., (2021). An Empirical Study on the Effect of Instruction on Metacognitive Strategies on EFL Reading Comprehension: The Case of Foundation-Level Students in Oman. *International Education Studies, 4*(8)*,* 30-42.

Al-Sobhani, Y.A. (2013). Metacognitive reading strategies use by Yemeni EFL undergraduate university students. *Frontiers of Language and Teaching, 4,* 121-130.

Albazi, S., & Shukri, N. (2016). Evaluating the effect of metacognitive strategy training on reading comprehension of female students at KAU. *International Journal of Applied Linguistics & English Literature, 5*(3), 172. https://doi.org/10.7575/aiac.ijalel.v.5n.3p.172

Albazi, S., & Shukri, N. (2016). Evaluating the effect of metacognitive strategy training on reading comprehension of female students at KAU. *International Journal of Applied Linguistics & English Literature, 5*(3), 172-183. https://doi.org/10.7575/aiac.ijalel.v.5n.3p.172

Alderson, J. C. (2000). *Assessing reading.* Cambridge University Press.

Alderson, J.C. (1984). *Reading in a foreign language*. (Ed.) Longman.

Alexander, P. A. (2005). The path to competence: A lifespan developmental perspective on reading. *Journal of Literacy Research, 37*(4), 413–436. https://doi.org/10.1207/s15548430jlr3704_1

Alhaqbani, A. & Riazi, M. (2012). Metacognitive awareness of reading strategy use in Arabic as a second language. *Reading in a Foreign Language, 24*(2). 231– 255.

Aliakbari, M. & Mahjub, E. (2016). Proficiency Level and Metacognitive Reading Strategy Use of Iranian EFL Learners. *Journal of Applied Linguistics, 2*(1), 7-24.

Almasi, J.F. (2003). *Teaching strategic process in reading.* The Guilford Press.

Alsamadani, H. A. (2008). *The relationship between Saudi EFL college-level students use of reading strategies and their EFL reading comprehension*. (Dissertation). Ohio University.

Alsheikh, N.O. (2009). *The strategic reading of Arabic native speakers in English: An examination of the metacognitive reading strategies used by Arabic native speakers when reading academic texts in Arabic and English*. VDM Verlag Publisher.

Anderson, N.J. (1999). *Exploring second language reading*. Heinle & Heinle.

Andreassen, R., & Bråten, I. (2011). Implementation and effects of explicit reading comprehension instruction in fifth-grade classrooms. *Learning and Instruction, 21*, 520–537. https://doi.org/10.1016/j.learninstruc.2010.08.003

Anmarkrud, O., & Braten, I. (2009). Motivation for reading comprehension. *Learning and Individual Differences, 19*, 252-256.

Artelt, C., & Schneider, W. (2015). Cross-country generalizability of the role of metacognitive knowledge in students' strategy use and reading competence. *Teachers College Record, 117*(1), 1-32. https://doi.org/10.1177/016146811511700104

Askell-Williams, H., Lawson, M. J., & Skrzypiec, G. (2012). Scaffolding cognitive and metacognitive strategy instruction in regular class lessons. *Instructional Science, 40*(2), 413-443. doi:http://dx.doi.org.cupdx.idm.oclc.org/10.1007/s11251-011-9182-5

Bachman, L. (1990). *Fundamental considerations in language testing*. Oxford University Press.

Baker, L. (2015). Developmental differences in metacognition: Implications for metacognitively oriented reading instruction. In S. E. Israel, C. C. Block, K. L. Bauserman, & K. Kinnucan-Welsch (Eds.), *Metacognition in literacy learning:*

Theory, assessment, instruction, and professional development (pp. 61–79). Routledge.

Baker, L. & Brown, A. L. (1984). Metacognitive skills and reading. In P.D. Pearson, ed., *Handbook of Reading Research,* Vol. 1 (pp. 353-394). Longman.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. W. H. Freeman.

Bentahar, A. (2012). *Can ESL teachers teach reading metacognitive strategies?* Boise State University.

Bernhardt, E.B. (2005). Progress and procrastination in second language reading. *Annual Review of Applied Linguistics*, 25, 133-150.

Blachowicz, C., & Ogle, D. (2001). *Reading Comprehension, Strategies for Independent Readers*. The Guilford Press.

Block, C., Johnson, R., (2002). *Comprehension Process Instruction*. The Guilford Press.

Boulware-Gooden, R., Carreker, S., Thornhill, *A., &* Joshi, R. M. (2007). Instruction of metacognitive strategies enhances reading comprehension and vocabulary achievement of third-grade students. *The Reading Teacher, 61*(1), 70-77. https://doi.org/10.1598/RT.61.1.7

Brown, A. L. , Bransford, J. D. , Ferrara, R. A., & Campione, J. C. (1983) . Learning, remembering, and understanding. In J. H. Flavell & M. Markham (eds.) *Carmichael's Manual of Child Psychology. (Vol.3)* Wiley.

Brunning, H. R. Schraw, G. J. & Ronning, R. R. (1999). *Cognitive psychology and instruction* (3rd Ed.). Prentice-Hall.

Bui, Y. N., & Fagan, Y. M. (2013). The effects of an integrated reading comprehension strategy: A culturally responsive teaching approach for fifth-grade students' reading comprehension. *Preventing School Failure, 57*(2), 59-69.

https://doi.org/10.1080/1045988X.2012.664581

Butler, D.L. &Winne, P.H. (1995). Feedback and self-regulated learning: A theoretical Synthesis. *Review of Educational Research, 65*, 245–281.

Cain, K., & Oakhill, J. (2006). Profiles of children with specific reading comprehension difficulties. *British Journal of Educational Psychology, 76(*4), 683–696. https://doi.org/10.1348/000709905X67610.

Cain, K., & Oakhill, J. (2014). Reading comprehension and vocabulary: is vocabulary more important for some aspects of comprehension? *L'Année psychologique, 114*(4), 647–662. https://doi.org/10.4074 /S0003503314004035.

Calvo, M. G. (2005). Relative contribution of vocabulary knowledge and working memory span to elaborative inferences in reading. *Learning and Individual Differences, 15*(1), 53–65. https://doi.org/10.1016/j. lindif.2004.07.002.

Carell, P. (1998). *Interactive Approaches to Second Language Reading.* Cambridge University Press.

Carnine, D. & Silbert, J. (1979). *Direct Instruction Reading*. Merrill.

Carrell, P. L. (1987). ESP in applied linguistics: Refining research agenda implications and future directions of research on second language reading. *English for Specific Purposes, 6*(3), 233-244. https://doi.org/10.1016/0889-4906(87)90006-

Carrell, P. L. (1998). Can reading strategies be successfully taught? *Australian Review of Applied Linguistics, 21,* 1-20.

Carrell, P. L., Pharis, B. G., & Liberto, J. C. (1989). Metacognitive strategy training for ESL reading. *TESOL Quarterly, 23*(4), 647-678. https://doi.org/10.2307/3587536

Chamot, A. U., & O'Malley, J. (1994). *The CALLA handbook: Implementing the cognitive academic language learning approach.* Addison- Wesley.

Chomphuchart, N. (2006). *The effect of text genre on Thai graduate students' reading strategy use.* (Dissertation) State University of New York.

Chularut, P., & DeBacker, T. K. (2004). The influence of concept mapping on achievement, self-regulation, and self-efficacy in students of English as a second language. *Contemporary Educational Psychology, 29*, 248–263.

Ciborowski, J. (2001). *Textbooks and the students who can't read them: A guide to teaching content.* Brookline Books.

Clark, M. (1979). Reading in Spanish and English. *Language Learning, 29,* 121-150.

Cohen, A. D. , & Dornyei, Z. (2002). Focus on the language learner: Motivation, styles and strategies. In N. Schmitt (Ed.), *An Introduction to applied linguistics* (pp. 170-190). Arnold.

Cohen, A. D. (1998). *Strategies in learning and using a second language*. Addison Wesley Longman.

Cohen, A. D. (2007). Coming to terms with language learner strategies: Surveying the experts. In A.D. Cohen & E. Macaro (Eds.), *Language learner strategies: Thirty years of research and practice* (pp. 29-46). Oxford University Press.

Cohen, A. D. (2011). Second language learner strategies. In E. Hinkle (Ed.), *Handbook of research in second language teaching and learning,* (pp: 681–698). New York: Routledge.

Cox-Magno, N., Ross, P., Dimino, K., & Wilson, A. (2018). Metacognitive reading strategy and emerging reading comprehension in students with intellectual disabilities. *Journal of Educational Research and Practice, 8*(1), 195-209. DOI:10.5590/JERAP.2018.08.1.014

Cromley, J. G., & Azevedo, R. (2007). Testing and refining the direct and inferential mediation model of reading comprehension. *Journal of Educational Psychology, 99*(2), 311–325.

Cubukcu, F. (2008). Enhancing vocabulary development and reading comprehension through metacognitive *strategies. Issues in Educational Research, 18*(1), 1-11. https://doi.org/10.3316/aeipt.171077

Dabarera, C., Renandya, W. A. And Zhang, L. (2014) The impact of metacognitive scaffolding and monitoring on reading comprehension. *System, 42*(1), 462–473.

de Boer, H., Donker, A. S., Kostons, D. D., & van der Werf, G. (2018). Long-term effects of metacognitive strategy instruction on student academic performance: A Meta-analysis. *Educational Research Review, 24*, 98–115. https://doi.org/10.1016/j.edurev.2018.03.002

Dermitzaki, I., Andreou, G., & Paraskeva, V. (2008). High and low reading comprehension achievers' strategic behaviors and their relation to performance in a reading comprehension situation. *Reading Psychology, 29*(6), 471-492. https://doi.org/10.1080/02702710802168519

DeWaelsche, S. A. (2015). Critical thinking, questioning and student engagement in Korean university English courses. *Linguistics and Education*, *32*(B), 131-147. https://doi.org/10.1016/j.linged.2015.10.003

Dhieb-Henia, N. (2003). Evaluating the effectiveness of metacognitive strategy training for reading research articles in an ESP context. *English for specific purposes, 22,* 387-417.

Diebold, T. W. (2011). *Relationship between metacognitive strategy instruction and reading comprehension in at-risk fourth grade students* (Order No. 3445134). ProQuest Central; ProQuest Dissertations & Theses Global. (860327577).

Dignath, C., & Büttner, G. (2008). Components of fostering self-regulated learning among students. A meta- analysis on intervention studies at primary and secondary school level. *Metacognition and Learning, 3*(3), 231–264. https://doi.org/10.1007/s11409-008-9029-x

Dignath, C., & Veenman, M. (2021). The role of direct strategy instruction and indirect activation of self-regulated learning—Evidence from classroom observation studies. *Educational Psychology Review, 33*, 489–533. https://doi.org/10.1007/s10648-020-09534-0

Djamàa, S. (2016). Reading the book versus 'reading' the film: Cinematic adaptations of literature as catalyst for EFL students' critical thinking dispositions. *Journal of Language Teaching & Research*, *7*(2), 252-263. https://doi.org/10.17507/jltr.0702.03

Duffy, G. G. (1993). Teachers' progress toward becoming expert strategy teachers. *The Elementary School Journal, 94*(2), 109-120.

Duke, N. K. and PEARSON, P. (2002) 'Effective practices for devel- oping reading comprehension', in A. E. Farstrup, S. J. Samuels (Eds.) What Research Has to Say about Reading Instruction. Newark, DE: International Reading Association, Inc, pp. 205–242.

Duke, N. K., & Pearson, P. D. (2009). Effective practices for developing reading comprehension. *Journal of Education, 189*(1–2), 107–122.

Eilers, L. H., & Pinkley, C. (2006). Metacognitive strategies help students to comprehend all text. *Reading Improvement*, *43*(1), 13–29.

Eker, C. (2014). The effect of teaching practice conducted by using metacognition strategies on students' reading comprehension skills. *International Online Journal of Educational Sciences*, *6*(2), 269-280. doi:10.15345/iojes.2014.02.002

El Sanyoura, H. (2017). *Perceptions of the use of metacognitive strategies and their role in literal and higher order reading comprehension.* (Dissertation). American University of Beirut.

Elleman, A. M. (2017). Examining the impact of inference instruction on the literal and inferential comprehension of skilled and less skilled readers: a meta-analytic review. *Journal of Educational Psychology, 109*(6), 761–781.

Ellis, R. (2009). The differential effects of three types of task planning on the fluency, complexity, and accuracy in L2 oral production. *Applied Linguistics*, *30*(4), 474–509.

Eskey, D. (1973). A model program for teaching advanced reading to students of English as a foreign language. *Language Learning, 23*(2), 169-184.

Eskey, D. (1986). Theoretical foundations in Dubin, F., Esdey, D, & Grabe, W (Eds.). *Interactive approaches to second language reading*. Cambridge University Press.

Eskey, D.E. (2005). Reading in a second language. In: E. Hinkel (Ed.), *Handbook on second language learning and teaching*. (p: 563-579). Erlbaum,

Espin, C., Wallace, T., Lembke, E., Campbell, H., & Long, J. D. (2010). Creating a progress monitoring system in reading for middle-school students: Tracking progress toward meeting high-stakes standards. *Learning Disabilities Research & Practice, 25*(2), 60-75.

Estacio, M. J. M. (2013).Bilingual readers' metacognitive strategies as predictors of reading comprehension. *Philippine ESL Journal, 10,* 179-199.

Evans, N. W., Anderson, N. J., & Eggington, W. G. (Eds.). (2015). *ESL readers and writers in higher education: Understanding challenges, providing support*. Routledge.

Facione, P. A. (1990). *Critical thinking: A statement of expert consensus for purposes of educational assessment and instruction—The Delphi report.* California Academic Press.

Fahim, M., & Kamali, Z. (2011). The relationship between critical thinking ability of Iranian EFL learners and their resilience level facing unfamiliar vocabulary items in reading. *Journal of Language Teaching and Research*, *2*(1), 101–114.

Fan, H.C. (2009). *The effectiveness of metacognitive strategies in facilitating Taiwanese university learners in EFL reading comprehension* (Doctoral dissertation). ProQuest dissertation and theses database.

Fathi, J. & Afzali, M. (2020). The Effect of Second Language Reading Strategy Instruction on Young Iranian EFL Learners' Reading Comprehension. *International Journal of Instruction*, *13*(1), 475-488.

Flavell, J. H. (1976). Metacognitive aspects of problem solving. In L. B. Resnick (Ed.), *The nature of intelligence* (pp. 231-235). Lawrence Erlbaum.

Flavell, J. H. (1978). Metacognitive development. In J. M. Scandura & C. J. Brainerd (Eds.), *Structural/process theories of complex human behavior* (pp. 213-245). Sijthoff and Noordhoff.

Flavell, J. H. (1979). Metacognition and cognitive monitoring: A new area of cognitive-developmental inquiry. *American Psychologist, 34*, 906-911.

Flavell, J.H. (1987). *Speculations about the nature and development of metacognition.* Lawrence Erlbaum Associates.

Flavell, J. H. (2000). Development of children's knowledge about the mental world. *International Journal of Behavioral Development, 24,* 15–23. https://doi.org/10.1080/016502500383421

Freppon, P. (1999). A comparison of young children learning to read in different instructional settings. *Journal of Educational Research*, *92* (4), 206-218.

Gayo, E., Deaño, M., Conde, Á., Ribeiro, I., Cadime, I., & Alfonso, S. (2014). Effect of an intervention program on the reading comprehension processes and strategies in 5th and 6th grade students. *Psicothema, 26*(4), 464-470. https://doi.org/10.7334/psicothema2014.42

General Objectives (1997). In *Center of Research and Development.* Retrieved from: https://www.crdp.org/files/English%20language%20curriculum%202nd%20foreign%20language%20details%20og%20content%203rd%20year%20of%20each%20cycle.pdf

Gersten, R., Fuchs, L. S., Williams, J. P., & Baker, S. (2001). Teaching reading comprehension strategies to students with learning disabilities: A review of research. *Review of Educational Research, 71*(2), 279–320. https://doi.org/10.3102/00346543071002279

Ghaith, G. M. (2020). Foreign language reading anxiety and metacognitive strategies in undergraduates' reading comprehension. *Issues in Educational Research, 30*(4), 1310-1328. https://doi.org/10.3316/informit.606167839598214

Ghaith, G. M., & El-Sanyoura, H. (2019). Reading comprehension: The mediating role of metacognitive strategies. *Reading in a Foreign Language, 31*(1), 19-43.

Goh, C., (1997).Metacognitive awareness and second lan- guage listeners. *ELT Journal, 51*, 361-369.

Gough, P. B. (1972). One second of reading. In J. F. Kavanaugh & I.C. Maltingly (Eds.), *Language by ear and eye* (pp. 331-358). MIT Press.

Grabe, W. (1991). Current developments in second language reading research. *TESOL Quarterly, 25,* 3, 375-406.

Grabe, W. (2004). Research on teaching reading. *Annual Review of applied Linguistics, 24,* 44- 69.

Graesser, A. C. (2007). An introduction to strategic reading comprehension. In D. S. McNamara (Ed.), *Reading comprehension strategies: Theory, intervention, and technologies* (pp. 3–26). Erlbaum.

Graham, S., & Harris, K. (2000).The role of self-regulation and transcription skills in writing and writing development. *Educational Psychologist, 35*(1), 3-12.

Gredler, M. E. (2008). *Learning and instruction: Theory into practice*. Prentice Hall.

Greenfell, M., & Macaro, E. (2007). Claims and critiques. In A. D. Cohen & E. Macaro (Eds.), *Language learner strategies: Thirty years of research and practice* (pp. 9–28). Oxford University Press.

Guimba, W. D. & Alico, J. C. (2015). Reading anxiety and comprehension of grade 8 Filipino learners. *International Journal of Humanities and Social Sciences, 8,* 44-59. https://ijhss.net/index.php/ijhss/article/view/42

Gunstone, R. F., & Northfield, J. (1994). Metacognition and learning to teach. *International Journal of Science Education, 16*(5), 523-537.

Guthrie, J. T., Hoa, A. L. W., Wigfield, A., Tonks, S. M., Humenick, N. M., & Littles, E. (2007). Reading motivation and reading comprehension growth in the later elementary years. *Contemporary Educational Psychology, 32*, 282–313. https://doi.org/10.1016/j.cedpsych.2006.05.004

Guthrie, J. T., Wigfield, A., Barbosa, P., Perencevich, K. C., Taboada, A., Davis, M. H., Scafiddi, N. T., & Tonks, S. (2004). Increasing reading comprehension and

engagement through concept-oriented reading instruction. *Journal of Educational Psychology*, *96*(3), 403-423. https://doi.org/10.1037/0022-0663.96.3.403

Hartman, H. J. (2001). Developing students' metacognitive knowledge and skills. In H. J. Hartman (Ed.), *Metacognition in learning and instruction* (pp. 33–68). Kluwer Academic Publishers.

Hauck, M. (2005). Metacognitive knowledge, metacognitive strategies and CALL. In J. Egbert & G. Petrie (Eds.), *Call research perspectives* (pp. 65-86). Lawrence Erlbaum Associates

Houtveen, A. A. M. & Grift, W. J. C. (2007) Effects of metacognitive strategy instruction and instruction time on reading comprehension, *School Effectiveness and School Improvement,* 18(2), 173-190.

Hudson, T. (2007). *Teaching second language reading*. Oxford University Press.

Hughes, A. (1989). *Testing for language teachers*. Cambridge University Press.

Hustre, C.A. (2011).Belief about reading, metacognitive strategies and text comprehension among college students at a private university. *Philippine ESL Journal, 7,* 28-47.

Ikeda, M., & Takeuchi, O. (2003). Can strategy instruction help EFL learners to improve their reading ability? An empirical study. *JACET Bulletin, 37,* 49–60.

Israel, S. E. (2007). *Using metacognitive assessments to create individualized reading instruction*. International Reading Association.

Jabbour, K. (2013). Issues that restrain teachers from adapting student- centered instruction in lebanese school. *Tejuelo, 12*(2), 85-96.

Jacobs, J. E. & Paris, S.G. (1987). Children's metacognition about reading: Issues in definition, measurement and instruction. *Educational Psychologist*, *22*, 255-278. https://doi.org/10.1080/00461520.1987.9653052

Jafari, D., & Ketabi, S. (2012). Metacognitive strategies and reading comprehension enhancement in Iranian intermediate EFL setting. *International Journal of Linguistics, 4*(3), 1–14. doi:10.5296/ijl.v4i3.1684

Jafarigohar, M. & Behrooznia, S. (2012). The effect of anxiety on reading comprehension among distance EFL learners. *International Education Studies*, *5*(2), 159-174. https://doi.org/10.5539/ies.v5n2p159

Jiménez, R. T. (1997). The strategic reading abilities and potential of five low-literacy Latina/o readers in middle school. *Reading Research Quarterly*, *32*(3), 224-243.

Kärbla, T., Männamaa, M., & Uibu, K. (2020). Vocabulary and text comprehension levels: What should be considered in assessments? *Educational Psychology, 40*(7), 875-892. https://doi.org/10.1080/01443410.2019.1703172

Kärbla, T., Uibu, K., & Männamaa, M. (2020). Teaching strategies to improve students´ vocabulary and text comprehension. *European Journal of Psychology of Education, 36,* 553-572. https://doi.org/10.1007/ s10212-020-00489-y

Keene, E., & Zimmermann, S. (1997). *Mosaic of Thought*. Heinmann.

Kellerman, E. (1991). Compensatory strategies in second language research: A critique, a revision and some non-implications for the classroom. In R. Phillipson, E. Kellerman, L. Selinker, M. Sharwood-Smith, & M. Swain (Eds.), *Foreign and second language pedagogy research.* Multilingual Matters.

Kerbalaee Kamran, S. (2013). Does reading strategy use predict and correlate with reading achievement of EFL learners? *International Journal of Research Studies in Language Learning*, *2*(2), 29-38. https://doi.org/10.5861/ijrsll.2012.118

Koda, K. (2007). Reading and language learning: Cross-linguistic constraints on second language reading development. *Language Learning*, *57*(1), 1-44.

Koskinen, P., Brown, R., El-Dinary, P., Pressley, M., & Ogan, L. (1995). A transactional strategies approach to reading instruction. *International Reading Association*, *49*(3), 256-258.

Krashen, S. D. (1982). *Principles and practice in second language acquisition*. Pergamon Press.

Kuhn, D. (2000). Metacognitive development. *Current Directions in Psychological Science, 9,* 178-181.

Kummin, S., & Rahman, S. (2010). The relationship between the use of metacognitive strategies and achievement in English. *Procedia – Social and Behavioral Sciences, 7*, 145-150. http://dx.doi.org/10.1016/j.sbspro.2010.10.021

Lan, R., & Oxford, R. L. (2003). Language learning strategy profiles of elementary school students in Taiwan. *IRAL, 41*, 339-379.

Lee, J. A. (2018). *The impact of metacognitive strategies taught in a college level developmental education class on comprehension, metacognitive awareness and self-efficacy.* (Dissertation). ProQuest Dissertations & Theses Global.

Lee, K. (2003). The relationship of school year, sex and proficiency on the use of learning strategies in learning English. *Asian EFL Journal, 5*(4), 1-36.

Li, S., & Munby, H. (1996). Metacognitive strategies in second language academic reading: A qualitative investigation. *English for Specific Purposes, 15*(3), 199-216.

Linderholm, T., Everson, M. G., van den Broek, P., Mischinski, M., Crittenden, A., & Samuels, J. (2000). Effects of causal text revisions on more and less skilled readers' comprehension of easy and difficult texts. *Cognition and Instruction, 18*(4), 525–556. doi:10.1207/S1532690XCI1804_4

Lindsey, K. A., Manis, F. R., & Bailey, C. E. (2003). Prediction of first-grade reading in Spanish- speaking English-language learners. *Journal of Educational Psychology, 95,* 482–494.

Lipari, G. E. (2014). *Reading comprehension intervention: Metacognitive strategy instruction with sixth grade students.* (Dissertation). ProQuest Dissertations & Theses Global.

Macaro, E. (2001). *Learning strategies in foreign and second language classrooms*. Continuum.

Macaro, E. (2003). *Teaching and learning a second language.* Continuum.

Madhumathi, P. & Ghosh, A. (2012). Awareness of reading strategy use of Indian ESL students and the relationship with reading comprehension achievement. *English Language Teaching, 5*(12), 131-140.

Magno, C. (2010). The role of metacognitive skills in developing critical thinking. *Metacognition and Learning, 5*(2), 137-156.

Malcolm, D. (2009). Reading strategy awareness of Arabic-speaking medical students studying in English. *System, 37*, 640–651.

McCormick, C. B. (2003). Metacognition and learning. In I. B. Weiner (Series Ed.), W. M. Reynolds & G. E. Miller (Vol. Eds.), *Handbook of psychology: Educational psychology,* Vol. 7 (pp. 79-102). John Wiley & Sons, Inc.

McCown, M., & Thomason, G. (2014). Informational text comprehension: Its challenges and how collaborative strategic reading can help. *Reading Improvement, 51*(2), 237-253.

McLeod, B. & McLaughlin, B. (1986). Restructuring or automaticity? Reading in a second language. *Language Learning, 36*(2), 109-123.

McNamara D. S., Kintsch, E., Songer, N., & Kintsch, W. (1996). Are good texts always better? Interactions of text coherence, background knowledge, and levels of understanding in learning from text. *Cognition & Instruction, 14,* 1-43.

McTavish, M. (2008). The use of metacognitive strategy during engagement with reading narrative and informational genres. *Canadian Journal of Education, 31*(2), 405- 430.

Medina, A. L., Hancock, S. D., Hathaway, J. I., Pilonieta, P. P., & Holshouser, K. O. (2021). The influence of sustained, school-based professional development on explicit reading comprehension strategy instruction. *Reading Psychology, 42*(8), 807–835. https://doi.org/10.1080/02702711.2021.1939820

Meniado, J.C. (2016). Metacognitive Reading Strategies, Motivation, and Reading Comprehension Performance of Saudi EFL Students. *English Language Teaching, 9*(3), 117-129.

Miyamoto, A., Pfost, M., & Artelt, C. (2019). The relationship between intrinsic motivation and reading comprehension: Mediating effects of reading amount and metacognitive knowledge of strategy use. *Scientific Studies of Reading, 23*(6), 445–460. https://doi.org/10.1080/10888438.2019.1602836

Mohseni, F., Seifoori, Z., & Ahangari, S. (2020). The impact of metacognitive strategy training and critical thinking awareness-raising on reading comprehension. *Cogent Education, 7*(1), 1-22. https://doi.org/10.1080/2331186X.2020.1720946

Mokhtari, K. & Reichard, C. (2002). Assessing students' metacognitive awareness of reading strategies. *Journal of Educational Psychology, 94*(2), 249-259. https://doi.org/10.1037/0022-0663.94.2.249

Mokhtari, K., & Sheorey, R. (2002). Measuring ESL students' awareness of reading strategies. *Journal of Developmental Education*, *25*(3), 2–10.

Moore. T. (1982). *Understanding language*. Macmillan.

Muhid, A., Amalia, E. R., Hilaliyah, H., Budiana, N., & Wajdi, M. (2020). The effect of metacognitive strategies implementation on students' reading comprehension achievement. *International Journal of Instruction, 13*(2), 847-862. https://doi.org/10.29333/iji.2020.13257a

Muñiz-Swicegood, M. (1994). The effects of metacognitive reading strategy training on the reading performance and student reading analysis strategies of third grade bilingual students. *Bilingual Research Journal, 18*(1-2), 83-97. https://doi.org/10.1080/15235882.1994.10162659

National Reading Panel. (2000). *Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction*. Washington, D.C.: U.S. Department of Health and Human Services.

Noushad, P. P. (2008). *Cognitions about cognitions: The theory of metacognition*. ERIC.

Nouwens, S., Groen, M. A., & Verhoeven, L. (2016). How storage and executive functions contribute to children's reading comprehension. *Learning and Individual Differences, 47,* 96–102.

Nunan, D. (1996). Learner strategy training in the classroom: An action research study. *TESOL Journal, 6*(1), 35.

O'Malley, J. M., & Chamot, A. U. (1990). *Learning strategies in second language acquisition.* Cambridge University Press.

O'Reilly, T., & McNamara, T. S. (2007). The impact of science knowledge, reading skill, and reading strategy knowledge on more traditional "high-stakes" measures of high school students' science achievement. *American Educational Research Journal, 44*(1), 161–196.

Obeid, H. W. (2001). *Effect of training in think-alouds on the reading comprehension of EFL students.* (Dissertation) American University of Beirut.

Othman, Y., Mahamud, Z., & Jaidi, N. (2014). The effects of metacognitive strategy in reading expository text. *International Education Studies, 7*(13), 102-111.

Oxford, R. (1990). *Language learning strategies: What every teacher should know*. Heinle & Heinle.

Oxford, R. L., & Leaver, B. L. (1996). A synthesis of strategy instruction for foreign language learners. In R. L. Oxford (Ed.), *Language learning strategies around the world: Cross-cultural perspectives* (pp. 227–246). University of Hawaii Press.

Palinscar, A. S., & Brown, A. L. (1984). Reciprocal teaching of comprehension- fostering and comprehension-monitoring activities. *Cognition and Instruction*, *1*(2), 117–175. https://doi.org/10.1207/s1532690xci0102_1

Paris, S. G., Cross, D.R. & Lipson, M.Y. (1984). Informed strategies for learning: A program to improve children's reading awareness and comprehension. *Journal of Educational Psychology, 6,* 1239-1252

Paris, S. G., Lipson, M.Y., & Wixson, K.K. (1983). Becoming a strategic reader. *Contemporary Educational Psychology, 8,* 293-316.

Paris, S. G., Wasik, B.A., & Turner, J.C. (1996). The Development of strategic readers. In R. Barr, M.L. Kamil, P.B. Mosenthal, & P.D. Pearson (EDs.), *Handbook of Reading Research,* Vol. 6 (pp: 609-633). Longman.

Paris, S. G., & Winograd, P. W. (1990). How metacognition can promote academic learning and instruction. In B. J. Jones & L. Idol (Eds.), *Dimensions of thinking and cognitive* instruction, 1, (pp: 15–51). Lawrence Erlbaum Associates.

Pearson, P. D., & Cervetti, G. N. (2017). The roots of reading comprehension instruction. In S. E. Israel (Ed.), *Handbook of research on reading comprehension* (pp. 12–56). The Guildford Press.

Pearson, P.D. (1979). Basic Processes and Instructional Practices in Teaching Reading. New York: *University Education Quarterly*, 10 (2).

Pečjak, S., Podlesek, A., & Pirc, T. (2011). Model of reading comprehension for 5th grade students. *Studia Psychologica, 53*(1), 53-67.

Pei, L. (2014). Does metacognitive strategy instruction indeed improve chinese EFL learners' reading comprehension performance and metacognitive awareness? *Journal of Language Teaching and Research, 5*(5), 1147-1152. https://doi.org/10.4304/jltr.5.5.1147-1152

Perfetti, C. A., Hart, L. (2002). The lexical quality hypothesis. In L. Vehoeven, C. Elbron, & P.Reitsma (Eds.), *Precursors of functional literacy* (pp. 189-213). John Benjamins.

Phakiti, A. (2003). A closer look at the relationship of cognitive and metacognitive strategy use to EFL reading achievement test performance. *Language Testing, 20*(1), 26-56. https://doi.org/10.1191/0265532203lt243oa

Phakiti, A. (2006). Modeling cognitive and metacognitive strategies and their relationships to EFL reading test performance. *Melbourne Papers in Language Testing, 1*, 53-95.

Pinto, C. M. (2009). *A study of seventh grade students' reading comprehension and motivation after explicit instruction in self -assessment and metacognitive reading strategies.* (Dissertation). ProQuest Dissertations & Theses Global.

Pressley, M. (2000). What should comprehension instruction be the instruction of? In M. L. Kamli, P.B. Mosenthal, P.D. Pearson, & R. Barr (eds.) *Handbook of Reading Research*, Vol. 3. Lawrence Erlbaum Associates.

Pressley, M. (2002). Metacognition and self-regulated comprehension. In A. E. Farstrup & S. J. Samuels (Eds.), *What research has to say about reading instruction* (pp. 291-309). International Reading Association.

Pressley, M., & Afflerbach, P. (1995). *Verbal protocols of reading: The nature of constructively responsive reading*. Lawrence Erlbaum.

Pressley, M., & Allington, R. (1999). What should reading instructional research be the research of? *Issues in Education, 5,* 1–35.

Pressley, M., & Gaskins, I. W. (2006). Metacognitively competent reading comprehension is constructively responsive reading: How can such reading be developed in students? *Metacognition and Learning, 1*, 99–113. https://doi.org/10.1007/s11409-006-7263-7

Pressley, M., & Harris, K. R. (1990). What we really know about strategy instruction. *Educational Leadership, 48*, 31–34.

Pressley, M., & Harris, S. (2006). Cognitive strategies instruction: From basic research to classroom instruction. In P. Alexander, & P. Winn (Eds.), *Handbook of educational psychology* (pp. 265-286). Lawrence Erlbaum.

Pressley, M., El-Dinary, P. B., Gaskins, I., Schuder, T., Bergman, J. L., Almasi, J., et al. (1992). Beyond direct explanation: Transactional instruction of reading comprehension strategies. *The Elementary School Journal*, 513-555.

Pressley, M., Graham, S., & Harris, K. (2006). The state of educational intervention research as viewed through the lens of literacy intervention. *British Journal of Educational Psychology, 76,* 1-19.

Pressley, M., Wharton-McDonald, R. (1997). Skilled comprehension and its development through instruction. *School Psychology Review*, *26* (3), 448-466.

Pressley, M., Wharton-McDonald, R., Mistretta-Hampston, J., & Echevarria, M. (1998). Literacy instruction in 10 fourth-grade classrooms in upstate New York. *Scientific Studies of Reading, 2*(2), 159–194. https://doi.org/10.1207/s1532799xssr0202_4

Pretorius, E. J., & Lephalala, M. (2011). Reading comprehension in high-poverty schools: How should it be taught and how well does it work? *Per Linguam, 27(2),* 1–24. doi: 10.5785/27-2-105

Psaltou-Joycey, A., & Kantaridou, Z. (2009). Foreign language learning strategy profiles of university students in Greece. *Journal of Applied Linguistics, 25*, 107-127.

Randi, J., Grigorenko, E. L., & Sternberg, R. J. (2005). Revisiting definitions of reading comprehension: just what is reading comprehension anyway? In Susan E. Israel, Cathy C. Block, Kathry. L. Bauserman, & Kathryn Kinnucan-Welsch (Eds.) Metacognition in Literacy Learning. Theory, Assessment, Instruction, and Professional Development (pp. 19–40). Lawrence Erlbaum Associates.

Reutzel, D. R., Smith, J. A., & Fawson, P. C. (2005). An evaluation of two approaches for teaching reading comprehension strategies in the primary years using science information texts. *Early Childhood Research Quarterly, 20*(3), 276. https://doi.org/10.1016/j.ecresq.2005.07.002

Reutzel, R., Camperell, K., Smith, J. (2002). Hitting the Wall. *Improving Comprehension Instruction*. Jossey-Bass

Roe, B. D. & Smith, S. H. (2012). *Teaching reading in today's elementary schools*. Houghton Mifflin Company.

Roe, B.D., Smith, S.H. & Burns, P.C. (2009). *Teaching reading in today's elementary schools.* Houghton Mifflin Harcourt Publishing Company.

Routman, R. (2003). *Reading With Meaning*. Heinmann.

Routman, R. (2014). *Read, Write, Lead: Breakthrough Strategies for Schoolwide Literacy Success.* ASCD.

Rubin, J., Chamot, A. U., Harris, V., & Anderson, N. J. (2007). Intervening in the use of strategies. In A. D. Cohen & E. Macaro (Eds.), *Language learner strategies: Thirty years of research and practice* (pp. 141–160). Oxford University Press.

Rumelhart, D.E. (1977). Toward an interactive model of reading in Dornic, S. (Ed.), *Attention and Performance*, (pp: 573-603). Academic Press.

Saba 'Ayon, N. (2012). *Lebanese English as a foreign language teachers' conceptions of teaching and their practice in Lebanese public high schools*. (DPhil Thesis). University of Sussex.

Sáiz-Manzanares, M. C., & Montero-García, E. (2014). Metacognition, self-regulation and assessment in problem-solving processes at university. *Metacognition: Fundaments, applications, and trends* (pp. 107-133). Springer International Publishing. https://doi.org/10.1007/978-3-319-11062-2_5

Salataki, R. & Akyel, A. (2002). Possible effects of strategy instruction on L1 and L2 reading. *Reading in a Foreign Language*, *14*, 1-17.

Samuels, S.J. & Kamil, M.L. (1988). Models of the reading process. In Carrell, P. Devine, J. & Eskey, D.(Eds.) *Interactive Approaches to Second Language Reading* (pp.22-36). Cambridge University Press.

Saricoban, A. (2002). Reading strategies of successful readers through the three phase approach. *The Reading Matrix, 2*(3).

Schoenfeld, A. (1987). *Cognitive science and mathematics education*. Erlbaum Association.

Schraw, G. (1998). Promoting general metacognitive awareness. *Instructional science, 26*(1-2), 113-125.

Schraw, G., & Dennison, R. (1994). Assessing metacognitive awareness. *Contemporary Educational Psychology, 19,* 460–475. doi:10.1006/ ceps.1994.1033

Schraw, G., & Gutierrez, A. P. (2015). Metacognitive strategy instruction that highlights the role of moni- toring and control processes. In A. Pena-Ayala (Ed.), *Metacognition: Fundaments, applications, and trends* (pp. 3–16). Springer.

Schunk, D. H., & Zimmerman, B. J. (2007). Influencing children's self-efficacy and self-regulation of read- ing and writing through modeling. *Reading & Writing Quarterly, 23*(1), 7–25. https://doi.org/10.1080/10573560600837578

Shaaban, K. A. (2014). Assessment of critical thinking skills through reading comprehension. *International Journal of Language Studies, 8*(2), 117-140.

Sheorey, R. & Baboczky, E.S. (2008). Metacognitive awareness of reading strategies among Hungarian college students. In: K. Mokhtari & R. Sheorey (Eds.), *Reading strategies of first- and second language learners: See how they read.* (pp: 161–173). Christopher-Gordon Publishers.

Sheorey, R., Kamimura, Y. & Freirmuth, M.R. (2008). Reading strategies of the users of English as a library language: The case of Japanese ESP students. In: K. Mokhtari & R. Sheorey (Eds.), *Reading strategies of first- and second language learners: See how they read.* (pp: 175–184) Christopher-Gordon Publishers,

Shouman, H. F. (2006). *The effect of strategy instruction on reading comprehension and students' awareness of reading strategies*. (Dissertation) American University of Beirut.

Smith, F. (2004). *Understanding reading.* Mahwah, NJ: Lawrence Erlbaum.

Snow, C. (2002). *Reading for understanding: Toward and R&D program in reading comprehension*. RAND.

Stanovich, K. (1980). Toward an interactive-compensatory model of individual differences in the development of reading fluency. *Reading research Quarterly, 16,* 32-71.

Sun, Y. S. (2003). A study of the effects of two text structures on Taiwanese EFL junior high school students' strategy use. (Dissertation). National Cheng Kung University.

Swanson, P N., & De La Paz, S. (1998). Teaching effective comprehension strategies to students with learning and reading disabilities. *Intervention in School and Clinic, 33* (4), 1-16.

Tavakoli, H., Koosha, M., (2016).The effect of explicit meta- cognitive strategy instruction on reading comprehension and self-efficacy beliefs: The case of Iranian university EFL students. *PortaLinguarum, 25*, 119-133.

Tawarik, O., Ikhsanudin, I., Wajdi, M., Latip-Yusoph, S., Mindanao State University, Marawi City, Philippines, Universitas Tanjungpura Pontianak, & Politeknik Negeri Bali. (2021). Effect of CALLA metacognitive strategy instruction on reading comprehension and reading awareness. *Journal of Applied Studies in Language, 5*(2), 309-319. https://doi.org/10.31940/jasl.v5i2.309-319

Taylor, A., Stevens, J.R., & Asher, J.W. (2006). The effects of explicit reading strategy training on L2 reading comprehension: A meta-analysis. In J.M. Norris & L. Ortega, *Synthesizing research on language learning and teaching* (pp.213-244). John Benjamins Publishing.

Tennent, W. (2015). *Understanding reading comprehension: processes and practices*. SAGE.

Urban, M., Urban, K., & Nietfeld, J. L. (2023). The effect of a distributed metacognitive strategy intervention on reading comprehension. *Metacognition and Learning.* https://doi.org/10.1007/s11409-023-09334-1

Van Keer, H. (2004). Fostering reading comprehension in fifth grade by explicit instruction in reading strategies and peer tutoring. *British Journal of Educational Psychology*, *74*(2), 37-70. https://doi.org/10.1348/000709904322848815

van Keer, H., & Verhaeghe, J. P. (2005). Effects of explicit reading strategies instruction and peer tutoring on second and fifth graders' reading comprehension and self-efficacy perceptions. *The Journal of Experimental Education, 73*(4), 291–329.

Vandergrift, L. (2003). Orchestrating strategy use: Toward a model of the skilled second language listener. *Language Learning, 53*(3), 463-496. https://doi.org/10.1111/1467-9922.00232

Vandergrift, L., (2002). It was nice to see that our predictions were right: Developing metacognition in L2 listening comprehension. *The Canadian Modern Language Review, 58*, 555-575.

Verhoeven, L. & Leeuwe, V. (2008). Prediction of the development of reading comprehension: A longitudinal study. *Applied Cognitive Psychology, 22*(3), 407–423. DOI:10.1002/acp.1414.

Verhoeven, L., van Leeuwe, J., & Vermeer, A. (2011). Vocabulary growth and reading development across the elementary school years. *Scientific Studies of Reading, 15*(1), 8–25. https://doi.org/10.1080 /10888438.2011.536125.

Voss, J. F., & Silfies, L. N. (1996). Learning from history text: The interaction of knowledge and comprehension skill with text structure. *Cognition and Instruction, 14*(1), 45-68. https://doi.org/10.1207/s1532690xci1401_2

Vrettou, A. (2009). Language learning strategy employment of EFL Greek-speaking learners in junior high school. *Journal of Applied Linguistics, 25,* 85-106.

Vygotsky, L. S. (1986). *Thought and language.* The MIT Press.

Vygotsky, L.S. (1978). *Mind in Society.* Harvard University Press.

Whitaker, C., Gambrell, L., Morrow, L. (2004). *Reading Comprehension Instruction for All Students.* The Guilford Press.

Whitmore, K. F., Martens, P., Goodman, Y., & Owocki, G. (2005). Remembering critical lessons in early literacy research: A transactional perspective. *Language Arts*, *82*(5), 296-307.

Winograd, P. & Hare, V.C. (1988). Direct instruction of reading comprehension strategie: The nature of teacher explanation. In C.E. Weinstein, E.T. Goetz & P.A. Alexander, eds., *Learning and Study Strategies: Issues in Assessment Instruction and Evaluation* (pp. 121-139). San Diego: Academic Press.

Zare, P. (2013). Exploring reading strategy use and reading comprehension success among EFL Learners. *World Applied Sciences Journal, 22*(11), 11-19.

Zhang, D., & Goh, C.C. (2006). Strategy knowledge and perceived strategy use: Singaporean students'awareness of listening and speaking strategies. *Language Awareness, 15*(3). http://dx.doi.org/10.2167/la342.0.

Zhang, L. J. (2008). Constructivist pedagogy in strategic reading instruction: Exploring pathways to learner development in the English as a second language (ESL) classroom. *Instructional Science*, *36*(2), 89–116.

Zhang, L. J. (2010a). A dynamic metacognitive systems account of Chinese university students' knowledge about EFL reading. *TESOL Quarterly, 44*, 320–353.

Zhang, L. J., Gu, P. Y., & Hu, G. (2008). A cognitive perspective on Singaporean bilingual children's use of reading strategies in learning to read in English. *British Journal of Educational Psychology, 78,* 245–271.

Zhang, L.J. & Wu, A. (2009). Chinese senior high school EFL students' metacognitive awareness and reading-strategy use. *Reading in a Foreign Language, 21*, 37– 59.

Zhao, X., & Zhu, L. (2012). Schema theory and college English reading teaching. *English Language Teaching, 5*(11), 111-117. https://doi.org/10.5539/elt.v5n11p111

Zhou, J., Jiang, Y., & Yao, Y. (2015). The investigation on critical thinking ability in EFL reading class. *English Language Teaching*, *8*(1), 83-94. https://doi.org/10.5539/elt.v8n1p83

Zimmerman, B. J., & Pons, M. M. (1986). Development of a structured interview for assessing student use of self- regulated learning strategies. *American Educational Research Journal, 23*(4), 614-628.

Zuledwi, W., Ratmanida, R., & Marlina, L. (2018). The relationship of students' metacognitive reading strategies awareness and reading comprehension: The case of the sixth semester students of English department, University of Negeri Pandang, (UND). *Journal of English Language Teaching*, *7*, 399–413.