

Metacognitive Awareness of Reading Strategies

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By

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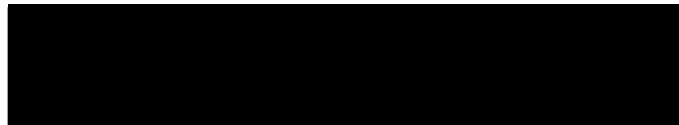
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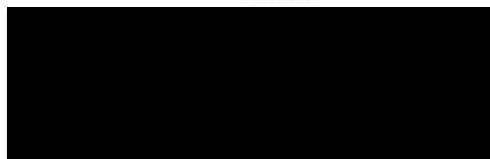
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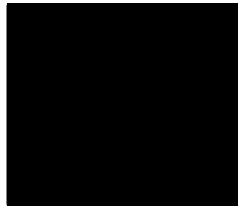
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To my parents

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Abstract

This study purported to investigate the relationship between the metacognitive awareness of strategy use within a sample of 115 non-native speakers of English and their reading comprehension ability. The results of the study indicated a negative correlation between the overall three strategy subscales (metacognitive, cognitive, and support strategies) of the inventory (the SORS) - that was used to measure metacognitive awareness of reading strategies- and reading comprehension ability. The relationship was found to lack statistical significance. There was also a negative correlation between two other subscales of the inventory (metacognitive strategies and support strategies) and reading comprehension ability. Yet, while no significance was reported in the correlation between the metacognitive strategies subscale and reading comprehension, a statistical significance of 0.019 was reported for the correlation between the support strategies subscale and reading comprehension. Moreover, a positive correlation was evident between the cognitive strategies subscale and reading comprehension ability. Finally, there was no statistical significance between gender and metacognitive strategy use. Based on those findings, specific educational implications for the sample participants were proposed. It is recommended that further research concerning the issue of Lebanese non-native speakers of English and their strategy use should be conducted.

Keywords: Reading comprehension; Metacognition; Metacognitive awareness, Reading strategies; English as a second language

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Chapter One

Introduction

Having metacognitive awareness of the cognitive and motivational processes during the act of reading is a function that has received much gravity in the field of reading comprehension (Pressley & Afflerbach, 1995; Guthrie & Wigfield, 1999; Alexander & Jetton, 2000; Pressley, 2000;). This is evident from the abundant research being generated concerning this topic (Mokhtari & Reichard, 2002).

In fact, metacognitive awareness is only one facet that constitutes metacognition, which is now a prominent term in Education (Çetinkaya & Erkin, 2002). Moreover, it is claimed that a positive relationship between reading comprehension and metacognition exists (Brown, Armbruster, & Baker, 1984; Baker & Brown, 1984; Bonds & Bonds, 1992). Attesting to that claim are studies conducted by various researchers (e.g., Bazerman, 1985; Pressley & Afflerbach, 1995) which indicate that text comprehension requires metacognitive processing in order to be successful; it does not occur sporadically. Other studies indicate that students who are high academic achievers tended to be better on metacognitive measures than students who are low academic achievers (Zimmerman & Martinez-Pons, 1990; Swanson, 1992; Klein, 1998). Indeed, it is also obvious within the literature that possessing metacognitive ability is what draws a dichotomizing line between skilled and unskilled readers (Mokhtari & Reichard, 2002). Adding to that, skilled readers are viewed as those who utilize a range of cognitive and metacognitive strategies while reading (Dole, Duffy, Roehler, & Pearson, 1991). The Committee on the Prevention of Reading Difficulties in Young Children (Snow,

Burns, & Griffin, 1998) states that the deficit of metacognitive strategies is one of the main factors that hinder children from becoming proficient readers.

Finally the scope of this research will be more specifically focused on one of the components that constitute metacognition, which happens to be the knowledge or awareness of cognition; it is also referred to in the literature as metacognitive awareness.

1.1 Purpose of Study:

The purpose of this study is to investigate the nature of the relationship between the reading comprehension abilities of a sample of Lebanese non-native English speakers and their self-perceived metacognitive strategy use.

1.2 Rationale and Significance:

This study is significant and worth investigating because there is a lack of large-scale quantitative research on Lebanese non-native speakers of English regarding the relationship between self-reported metacognitive strategy use and reading comprehension ability. In fact, the few studies that have been conducted in Lebanon, which are somehow related to the topic of metacognition and reading, have primarily focused on investigating the effects of metacognitive strategy interventions on reading (Shami, 2006; Demashikie, 2008; Harastani, 2008). They also happen to be unpublished Master's theses. Moreover, the following studies were based on experimental research (Demashikie, 2008; Harastani, 2008) with the exception of Shami (2006), whose study was based on qualitative research. Furthermore, the studies were performed on single grade levels with sample sizes of no more than 34 to 46 students. Hence, the following study will be the first

correlative study of its kind to exclusively focus on investigating the relationship between the actual awareness of metacognitive strategy-use and the reading comprehension of a substantial sample ($n= 117$) of Lebanese students who are non-native speakers of English.

1.3 Research Questions:

This study aims to answer the following research questions:

- 1) Does a relationship exist between metacognitive awareness of strategy use and reading comprehension ability within a sample of Lebanese students who are non-native speakers of English?
- 2) Does metacognitive awareness of strategy use distinguish between proficient and non-proficient readers?
- 3) Is metacognitive awareness of strategy use relative to grade-level?
- 4) Does metacognitive awareness differ across gender?

1.4 Expected Results:

The findings of this study are expected to demonstrate a positive correlation between reading comprehension ability and metacognitive awareness of strategies through statistical significance. The findings are also expected to show that metacognitive awareness of strategies does distinguish between proficient and non-proficient readers whereby the proficient readers will possess a metacognitive awareness of their strategies that is superior to the non-proficient readers. It is also expected that metacognitive awareness will increase across the ascending order of grades 7-10. Finally, it is expected that the females will display higher means on the overall scales of metacognitive awareness than the males.

1.6 Operational Definitions:

- Metacognition is defined by Baird (1990) as “the knowledge, awareness, and control of one’s own learning” (p. 184). It is composed of two defining components which are known as the knowledge of cognition and the regulation of cognition (Flavell, 1979; 1985; Baker, 1984; 1989; Baker & Brown, 1984; Paris, Cross, & Lipson, 1984; Jacob & Paris, 1987; Cross & Paris, 1988; Schaw & Dennison, 1994; Kuhn, 2000; Pareira-Laird & Deane, 1997; Schaw, 1997; Lin-Miao & Zabucky, 1998; Mokhtari & Reichard, 2002).
 - The knowledge of cognition which is also known as metacognitive awareness is thought of as the reader’s knowledge about his or her reading, the various reading tasks he or she may encounter, and the strategies he or she employs while reading (Paris, Lipson, & Wixson, 1983; Baker & Brown, 1984).
 - The regulation of cognition refers to self-control mechanisms that readers employ during the act of reading (Mokhtari & Reichard, 2002). These mechanisms involve planning, selecting, monitoring, evaluating, and debugging (Miller, 1991; Paris et al., 1994; Manning, Glasner, & Smith, 1996; Schaw & Dennison, 1994; Slife et al., 1994).
- Cognitive strategies, according to Van Den Broek and Kremer (2000), are both mental and behavioral activities that readers resort to in order to enhance their reading comprehension. Such activities can involve rereading, activating prior knowledge, and adjusting reading speed.

- Metacognitive strategies are defined as “self-monitoring and regulating activities that focus on the product and the process of reading, support readers’ awareness of comprehension, and assist in the selection of cognitive strategies as a function of text difficulty, situational constraints, and the reader’s own cognitive abilities” (Weisberg, 1988; Lories, Dardenne, & Yzerbyt, 1998; Van Den Broek & Kremer, 2000 as cited in Van Keer & Verhaeghe, 2005, p.292).
- Garner (1987) defines reading strategies as “generally deliberate, planful activities undertaken by active learners, many times to remedy perceived cognitive failure” (p.50).

Chapter Two

Literature Review

This chapter of the research project contains a review of the literature divided into five main sections. The first section of the literature review aims to define the term “metacognition.” Three definitions are proposed, starting chronologically from the earliest definition and leading on to a more recent one. The second section involves an overview of two theories of comprehension which are the Interactive Theory and the Transactional Theory. The works of two renowned theorists, Kintsch (1998) and Rosenblatt (1978), will be discussed in this section. The third section will cover a myriad of studies regarding the relationship of metacognitive strategies and reading comprehension. The fourth section will also present several studies that investigate proficient and non-proficient non-native speakers of English, and the relationship between their proficiency levels and their self-perceived strategy use. The fifth and last section of the literature review will cover the research techniques that are used to measure metacognition.

2.1 Defining Metacognition:

The earliest channels of research conducted on metacognition were led by researchers that followed similar trajectories (Pearson, 2009). The first channel of research was led by Flavell (1979) –who is known to be the inventor of the term metacognition (Imtiaz, 2004) –and his associates at Stanford. The second channel of research on metacognition was led by other researchers, among them are Jacobs and Paris (1987) at Nebraska and Michigan respectively (Pearson, 2009). A definition of

metacognition proposed by each of those researchers will be discussed in the following section.

Flavell (1981a) defines metacognition as “any knowledge or cognitive activity that takes as its object, or regulates, any aspect of any cognitive enterprise.” Further to that, metacognition was given such a name because in actuality it means “cognition about cognition” (Flavell, 1981a). Flavell, Miller, & Miller (1993) go on to highlight two aspects of metacognition, which are metacognitive knowledge and metacognitive monitoring and self-regulation.

Metacognitive knowledge involves all the knowledge and beliefs that a person gains through experience about the human mind and how it works in relation to cognition (Flavell, Miller, & Miller, 1993). Moreover, this definition suggests three subcategories that fall under the umbrella of metacognitive knowledge. Those three subcategories involve knowledge about persons, tasks, and strategies. Knowledge about persons includes “knowledge and beliefs about cognitive differences within people, cognitive differences between people, and cognitive differences among all people- that is, about universal properties of human cognition” (Flavell, Miller & miller, 1993). Knowledge about tasks includes two facets; first, the nature of the content involved in a cognitive task, and second, the nature of the task demands. Finally, knowledge of strategies involves understanding what strategies are best-suited to match various cognitive tasks (Flavell, Miller, & Miller, 1993).

As for the second category of metacognition which is metacognitive monitoring and self-regulation, it involves metacognitive strategies that usually develop in correspondence with metacognitive knowledge (Flavell, Miller, & Miller, 1993). Here, a distinction must be drawn between cognitive strategies and

metacognitive strategies. In fact, the whole point of using a cognitive strategy is to aid one in achieving a cognitive goal, while on the other hand, the whole point of using a metacognitive strategy is to supply one with information needed about the cognitive goal. Hence, a cognitive strategy is used to fulfill a cognitive goal, and a metacognitive strategy is there to monitor the achievement of this goal (Flavell, Miller, & Miller, 1993).

Jacobs and Paris (1987) offer another interesting definition of metacognition. They claim that metacognition is “any knowledge about cognitive states or processes that can be shared between individuals” (p. 258). The key aspect to consider in this definition –that was not highlighted in Flavell’s definition (1981a) –is that metacognition involves conscious awareness that can be expressed openly (Jacobs & Paris, 1987). Moreover, Jacobs and Paris (1987) go on to subdivide metacognition in much the same categories as Flavell and his colleagues did, yet they add more specific subcategories to the definition. Jacobs & Paris (1987) label the two categories of metacognition as self-appraisal of cognition and self-management of thinking. Self-appraisal according to Jacobs and Paris (1987) involves three subcategories that include declarative, procedural, and conditional knowledge. Declarative knowledge refers to “what is known in a propositional manner” (Jacobs & Paris, 1987, p. 259); hence declarative knowledge about reading means that one understands “*what* factors influence reading” (Cross & Paris, 1988). Next, procedural knowledge is the knowledge of *how* thinking processes work (Jacobs & Paris, 1987). Last but not least, procedural knowledge features an understanding of *when* to utilize certain strategies and *why* those specific strategies can influence reading.

The second category of metacognition in Jacobs and Paris's (1987) definition, self-management of thinking, involves "translating knowledge into action" (Jacobs & Paris, 1987, p. 259). It covers three processes: planning, evaluation, and regulation. Planning means "the selective coordination of a cognitive means to a cognitive goal" (Jacobs & Paris, 1987, p.259). The process of evaluation enables readers to make continuous assessments about their reading in terms of comprehension. Finally, regulation requires a reader to accommodate strategies in accordance to "changing task demands as well as to successes and failures" (Jacobs & Paris, 1987, p. 259). It is indeed the constant orchestration of strategies during the act of reading (Cross & Paris, 1988).

Finally a more recent definition of metacognition is proposed by Sheorey and Mokhatri (2001). They define metacognition as the "strategic awareness *and* monitoring of the comprehension process" (p.432). Moreover, they claim that metacognition is "the knowledge of the readers' cognition relative to the reading process and the self-control mechanisms they use to monitor and enhance comprehension" (p.432).

The three definitions that are explained in this section are very similar to one another, and they help to unveil the multi-facets of metacognition. However, the latter definition that is proposed by Sheorey and Mokhtari (2001) is the one that will be adopted in this study.

2.2 Theories of Reading Comprehension:

Two theories of reading comprehension will be discussed in the following section: the interactive theory and the transactional theory.

The interactive theory of reading comprehension entails two processes which are known as *top-down* and *bottom-up* processing. During top-down processing, a reader merges his background knowledge with the text itself and from there on makes predictions about the text; thus top-down processing is reader-based, and it does not require scrutinized reading (Burns, Roe, & Ross, 1996). Bottom-up processing engages the reader with the actual decoding of print. According to Burns, Ross, and Roe (1996) readers begin this process by sounding out individual letters within a word and then sounding out the entire word while making sense of it within the context of the sentence or phrase it belongs to. Bottom-up processing is a text-based process that works in conjunction with the top-down process to allow a reader to read and comprehend a text, thus yielding the interactive model (Burns, Ross, & Roe, 1996). Nevertheless, interactive models can vary in their concurrence when it comes to aspects such as the sort of processing that takes place, the kind of processing (parallel or consecutive processing), and the extent to which each process manipulates the reading act (Harris & Spray, 1985).

In Kintsch's (1998) interactive model of reading comprehension, three levels are identified. The first level entails a visual depiction of the actual text properties in terms of its exterior structure and wording (Wiley, Griffin, & Thiede, 2005). The second is known as the text-base, and it allows the information that was read to be processed into syntactic and/or semantic components. At last, the third level is known as the situation model; here the reader brings forth his/her prior knowledge, and thus the ideas within the text are combined together with the reader's prior knowledge. This creates the situation model which is the utmost level the reader can delve into (Wiley, Griffin, & Thiede, 2005).

The transactional theory of reading comprehension is the second model that will be inspected. Sigel (1984) explains that a transactional approach to reading comprehension requires the readers to move beyond the author's message and instead to construe their own interpretation of the text. Rosenblatt (1978), who happens to be the developer of the transactional theory, repudiates the dualism of the interactive theory. In her book entitled "The Reader, the Text, the Poem," Rosenblatt (1978) highlights the difference between the terms "interaction" and "transaction." She states that interaction is a process whereby individual components impact one another. This is contrary to transaction, which is a continuous process whereby components are all part of a whole reading situation, and they all act and shape each other (Rosenblatt, 1978).

Rosenblatt (1978) elaborates on the position the readers assumes in relation to the text they are engaged with. The transaction between the reader and the text is affected by the stance that the reader assumes while reading the text. The reader can assume one of two stances: an efferent stance or an aesthetic one. An efferent stance is one that the readers assume when they are on a quest to seek information from the text. While an aesthetic stance is a stance that the readers assume when they are on a quest to live out the "experience" of the text, which can stimulate the feelings, memories and background knowledge of the readers (Rosenblatt, 1994 as cited in Burns, Roe, & Ross, 1996).

The theories above are useful to this study because they shed light on different perspectives of how comprehension mechanisms can unfold as readers take part in the reading act.

2.3 Metacognition and Reading Comprehension:

Since reading comprehension happens to include several complex processes (Adams, 1990) apart from decoding skills, it thus requires the adequate vocabulary and metacognitive skills which can afford readers sufficient text comprehension (Boulware-Gooden et al., 2007). In fact, a plethora of research findings has revealed that providing students with instruction in metacognitive strategies can indeed advance their reading comprehension abilities (Paris & Oka, 1986; Cross & Paris, 1988). This also includes students with reading disorders (Gersten et al., 2001).

Çetinkaya & Erkin (2002) found in a study that a correlation existed between metacognition and reading comprehension in a sample of 111 Turkish sixth-graders who attended a school in Istanbul. Results of the study indicated that a correlation did exist between metacognition and reading comprehension.

Camahalan (2006) conducted a study examining how a metacognitive reading program would affect the reading achievement and metacognitive reading strategies of the participants involved. The sample of participants included 2 students in the second grade, and 2 others in the third grade. All participants were diagnosed with dyslexia. The results of this study concurred with those of Çetinkaya & Erkin's (2002), revealing that instruction in metacognitive strategies led to improvements in the reading achievement of the participating sample.

Boulware-Gooden et al. (2007) also attempted to study the impact of direct-instruction in metacognitive strategies on the reading comprehension achievement and vocabulary of 119 third-graders. This study involved participants belonging to two schools in the southern region of the United States, one of which was receiving the intervention program, while the other was chosen as the control group. Results of the study indicated that the intervention group had a 40% difference in gains in

vocabulary and a 20% difference in gains in reading comprehension when it was compared to the control group. Thus the intervention program greatly enhanced the vocabulary and reading comprehension achievement of the participants.

Similar results were reported in a study conducted by Çubukçu (2008), examining 130 ESL university students, 65 of which received a five-week training period involving a metacognitive instructional program. The remaining 65 students who received no training whatsoever were thus considered the control group. Results indicated that the experimental group achieved better results than the control group on reading comprehension and vocabulary measures.

Furthermore, Eilers & Pinkley (2006) investigated the effects of the explicit instruction of certain metacognitive strategies (using prior knowledge, predicting, and sequencing) on the reading comprehension of a sample first grade classroom. Results of the study also suggested that explicit instruction in metacognitive strategies greatly enhanced the reading comprehension of the students who received the instruction.

Song (1998) studied the effects of a strategy training program on reading comprehension. The program included training in four main strategies (summarizing, questioning, clarifying, and predicting). The study's sample involved 68 college students attending a university in Korea. The results indicated that the training program greatly improved the reading comprehension of the sample participants. The students who benefited the most, however, were those in the moderate and low reading proficiency groups. Finally, the strategy training program proved to be most effective in enhancing students' comprehension of main ideas within texts and making inferences. Yet, results indicated that the strategy training

program was not so effective in enhancing students' abilities to note details within texts.

Duncan-Malone and Mastropieri (1991) conducted a study that aimed to investigate the effects of training 45 students in grades 6, 7, and 8 in the summarization strategy. The students were divided into two groups. The first group was trained in the summarization strategy, and the second group was trained in the summarization strategy which included a component in self-monitoring. Results of the study indicated that both groups outperformed those who received traditional reading comprehension instruction.

2.4 Reading Comprehension and Strategy Use:

This section will focus on a review of several studies conducted on proficient and non-proficient readers who are non-native speakers of English, their reading proficiency levels, and their conceptions about their strategy use.

According to Sheorey and Mokhtari (2001) the last twenty years of reading research has focused on the behaviors of proficient readers during the reading act. This entails the strategies that proficient readers employ, how they employ them, and when they employ them. The research on proficient readers has been valuable in providing information on how to instruct non-proficient first and second language readers in order to enhance both their awareness and strategy use which in turn would increase their reading comprehension.

One of the earlier pioneer studies that dichotomized proficient and non-proficient readers was conducted in 1988 by Cross and Paris. The sample included 87 third-grade students and 84 fifth-grade students. 42 students in each of the third-graders and the fifth-graders served as the experimental group. The remaining

students from each grade level were treated as the control group. The main purpose of the study was to investigate the relationship between students' reading awareness and their reading ability. The experimental group of students received instruction on Informed Strategies for Learning (ISL). The results of the Pre-Test/Post-Test design indicated that poor readers within the experimental group did benefit from instruction in ISL. Results also indicated that the good readers had been previously using metacognitive strategies to aid their reading comprehension. Conclusively, the results of this study proved that proficient readers incorporated metacognitive strategies into their reading tasks. However the sample within the study encompassed native English speakers.

Anderson (1991) explored the individual differences in strategy use on a sample of students that were non-native speakers of English. His study included 28 university Spanish native speakers who were also ESL readers. Analysis of the results of the study showed that the use of the same reading strategies was reported by both proficient and non-proficient readers, yet it was evident that the proficient readers demonstrated more successful application of the strategies.

Fotovatian and Shokrpour (2007) conducted a study on 31 students who were studying English as a foreign language (EFL) at an Iranian university; their first language was Farsi. The purpose of the study was to investigate the differences in strategy use between proficient and non proficient readers. The scope of the comprehension strategies entailed three categories: metacognitive, cognitive, and socio-affective. Moreover, the study aimed to highlight the strategies that impacted reading comprehension one way or another. The results of the study indicated that proficient readers used comprehension strategies more frequently –and specifically metacognitive strategies –than non-proficient readers did. The non-proficient readers

did not possess the knowledge of appropriate metacognitive strategy use. Adding to that, the proficient readers were more familiar with an array of strategies, unlike the non-proficient readers who were only familiar with some. Further findings indicated that some strategies had a positive impact on the efficiency of reading comprehension (e.g. evaluation, elaboration, imagery, etc.), while other strategies had a negative impact on the efficiency of reading comprehension (e.g. being attentive to single words, looking up unknown words, and translation). Finally, it was evident that non-proficient readers appeared to depend more on their usage of bottom-up strategies, while the proficient readers depended on both top-down and bottom-up strategy use.

Those findings were similar to a study from the late 1980's conducted by Carrell (1989). In fact, Carrell examined the relationship between metacognitive awareness and reading strategies within the first language (L1) and second language (L2) of a sample of second language readers, as well as the relationship between metacognitive awareness and reading comprehension within the L1 and L2 of the same sample of second language readers. The sample consisted of two groups. The first was a group of 45 Spanish native speakers who were engaged in an ESL program at a university. The second group included 75 English native speakers who were learning Spanish as a second language. Results of the study showed that when reading in their L1, there was a negative correlation between local reading strategies and reading performance in both groups. Local reading strategies involved bottom-up strategies like syntactical structures, word meanings, sound-letter, and details within the text. Moreover, when it came to L2 reading, a difference in results between the ESL group and the Spanish L2 group was evident. The ESL group used more global strategies in L2 reading. Global strategies involve a top-down approach,

which entails using one's background knowledge, main idea identification, and recognizing text structure. The Spanish L2 group, however, exhibited more local strategies in their L2 reading. Carrell (1989) explains that the reason for this could be due to the fact that the Spanish L2 readers were contingent on bottom-up processing to facilitate decoding.

Yin and Agnes (2001) carried out a study on 30 ESL Singaporean readers. The sample included 14 proficient readers and 16 non-proficient readers in secondary school. The purpose of the study was to investigate the knowledge and use of metacognition during the reading act within the proficient and non-proficient readers. The results revealed that the proficient readers demonstrated better knowledge and awareness of metacognition. However, the results also indicated that there was no variation between the proficient and non-proficient readers in terms of metacognitive strategy use. Hence, despite the results signifying that the proficient readers had a superior knowledge of metacognition, it was evident that both proficient and non-proficient readers used metacognitive strategies in much the same way.

Moreover, Auerbach and Paxton (1997) claim that there is an existing relationship between the reading strategies used by ESL students and their perceptions of reading. Zhang (2002) investigated the relationship between readers' conceptualization of their EFL reading and their actual reading performance. The participants involved were 160 Chinese Mainland EFL readers. Findings suggested that there was a relationship between metacognitive awareness of strategies and EFL reading. Moreover, the participants had to report on four categories of strategies (Confidence, Effectiveness, Repair, and Difficulty). The results revealed that there was a significant difference between proficient readers and non-proficient readers in

the strategy use categories of “Effectiveness” and “Difficult” whereby an analysis of the results reflects the readers’ perceptions of which strategies are considered effective and which ones were difficult within the two categories.

Sheorey and Muktari (2001) investigated the differences in the self-reported strategy use of both native and non-native English speakers in relevance to academic reading material. The participants of the study included a sample of 150 English US native speakers and 152 ESL students. Both groups were college students. The necessary data was collected through the use of the Survey of Reading Strategies Inventory. Findings indicated that both groups demonstrated an awareness of nearly all the strategies within the survey. Moreover, both groups placed the same order of significance to the three subcategories of reading strategies within the survey. The order of significance was as follows: cognitive strategies, metacognitive strategies, and support strategies. Cognitive and metacognitive strategy use was greatly reported by ESL and English native speakers who were both high-reading-ability. The English high-reading-ability students placed more significance on support strategies than the English low-reading-ability students did. Moreover, both the ESL high-reading-ability and low-reading-ability students lent great significance to support strategies. Finally, unlike the ESL group, the females in the English native speakers group demonstrated a higher frequency of strategy use than the males.

Kolić-Vehovec and Bajšanski (2007) conducted a study on a sample of students who were bilingual, speaking both Italian and English. The participants belonged to the fifth through eighth grades in four Italian elementary schools. The purpose of the study was to investigate the comprehension monitoring, strategy use, and the reading comprehension abilities of the participants who had varying perceptions of their levels of proficiency in Italian. Results indicated that students

with highly perceived proficiency levels in Italian proved to have superior metacognitive reading skills when compared to the students who had lower perceived proficiency levels in Italian. Moreover, comprehension monitoring proved to be the most significant forecaster of reading comprehension ability in all the participants of the study.

Phakiti (2003) conducted a study examining the relationship between metacognitive and cognitive strategies and ESL test performance. The sample involved in the study consisted of 384 students who attended one of the main universities in northern Thailand. The findings of the study indicated that a positive correlation did exist between metacognitive and cognitive strategy use and students' reading test performance. Further to this, the sample was divided according to certain criteria into proficient test-taker, moderately proficient test-takers, and non-proficient test-takers. It was then indicated that the proficient test-takers reported using more metacognitive strategies than the moderately proficient test-takers. In addition, the moderately proficient test-takers reported using more metacognitive strategy use than the non-proficient test takers.

All the results of the aforementioned studies that are included in both this section and in the section on metacognition and reading comprehension offer a guiding framework that can help predict and explain the results of this study. The research trends indicated that there is a relationship between metacognition and reading comprehension and that instruction in metacognitive strategies enhances reading comprehension. It was also clear that there are differences between readers who are proficient and non-proficient non-native speakers of English and their strategy use. It appears that the proficient readers display more frequent and successful use of strategies than the non-proficient readers do. In addition, proficient

readers use a wider repertoire of reading strategies. Finally, proficient readers tend to be more reliant on top-down reading strategies, while non-proficient readers

2.5 Measuring Metacognition:

O'Neil and Abedi (1996) classified the techniques for measuring metacognition as being either domain-dependent or domain-independent. Protocol analysis is an integral domain-dependent methodology that includes think-alouds and interviews (Singhal, 2001). Think-alouds usually involve a reading task, whereby readers stop at certain points throughout the reading act to report on the reading strategies they are engaging in (Singhal, 2001). Data derived from protocol analysis is interpreted and analyzed according to specified models (O'Neil & Abedi, 1996). This data thus provides researchers with information about the latent processes that readers employ during the reading act (O'Neil & Abedi, 1996). In fact, Singhal (2001) reports that "think-alouds involve the overt, verbal expressions of the normally covert mental processes readers engage in when constructing meaning from texts." Domain-dependent techniques for measuring metacognition on the other hand, include rating scales that require subjects to "answer or self-report on statements about cognitive or affective processes" (O'Neil and Abedi, 1996).

According to Singhal (2001), protocol analysis is quite popular in the field of reading research; however, it does include its drawbacks. One of its disadvantages is the mere fact that participants are incapable of reflecting accurately on all the mental processes that usually occur sporadically, and so they often go unnoticed. Ericsson and Simon (1980) explain this phenomenon by stating that participants will only report on the final processes that they can retrieve from their own memory, since many of the other processes happen unconsciously. Furthermore, other factors such

as memory failure, inaccurate reports about strategy use, and difficulties in verbal expression can affect the validity of protocol analysis (Singhal, 2001). Due to all those difficulties, Gay (2001) asserts that “measuring metacognition has been cited as a challenge, difficulty, and criticism”.

In this study, metacognition will be measured by using a domain-dependent instrument, however, after reviewing the information above, it is important to keep in mind the drawbacks of self-report measures and how they can impact the results of the study.

Chapter Three

Methodology

3.1 Research Design

This quantitative study involves a correlational research design that will relate two variables: metacognitive awareness of strategy use and reading comprehension ability.

3.2 Sample

Table 1

Distribution of the sample by class groups and gender

	N	%
<i>Class</i>		
7 th grade	23	20.0
8 th grade	24	20.9
9 th grade	42	36.5
10 th grade	26	22.6
<i>Gender</i>		
Males	76	66.1
Females	39	33.9

A non-random convenience sample of 115 students in grades 7-10 who are non-native English speakers were selected from Delta School, a private educational institution located near Beirut city center. Table 1 describes the distribution of the sample across grade levels and according to gender. In 7th grade, 23 students constitute 20% of the entire sample. In 8th grade, 24 students constitute 20.9% of the sample. The largest group of the entire sample belongs to grade 9, which holds 42 students representing 36.5% of all participants. In 10th grade, 26 students constitute 22.6% of the entire sample. Moreover, a total of 76 males make up 66.1% of the

sample, and a total of 39 females comprise 33.9% of the sample. The distribution of gender in each grade level is further described in Table 2, which clearly reveals a gender majority of male students.

Table 2

<i>Distribution of class groups by gender</i>						
	Females		Males		Total	
	N=39	%	N=76	%	N=115	%
7 th grade	7	30.4	16	69.6	23	100
8 th grade	8	33.3	16	66.7	24	100
9 th grade	12	28.6	30	71.4	42	100
10 th grade	12	46.2	14	53.8	26	100

Rationale for the Sampling Technique:

This convenience sample was particularly selected due to its accessibility. Delta School granted the researcher permission to implement the following study on its student body. The selected participants consist of non-native English speakers, adequately serving the purpose of the study.

Validity of the Sampling Technique:

This non-random convenience sample cannot be generalized because it is not considered a valid representation of the population.

3.3 Instrumentation:

Two qualitative variables are measured and correlated in the following study. The first variable is reading comprehension, and the second variable is metacognitive awareness of strategy use.

Reading comprehension is measured by a norm-referenced, untimed reading screener entitled the *Reading-Level Indicator* (Williams, 2000). This instrument is made up of two sections: a sentence comprehension section and a vocabulary section. The screener is composed of a total of 40 multiple-choice items. It can also be group-administered and has two parallel forms that can be used in case of a Pre-Test/Post-Test design. The raw scores of this screener can be translated into grade-equivalents coefficients that indicate an examinee's reading ability in both the instructional and independent levels.

Metacognitive awareness will be measured by the *Survey of Reading Strategies* (SORS) (Sheorey & Mokhtari, 2001) self-report inventory, which measures the type and frequency of reading strategies that adolescent and adult readers use. It is especially designed to be used on readers who are non-native speakers of English. The SORS is made up of 30 items measured by a 5-point Likert scale. It involves reading strategies that fall under 3 subscales. These subscales are metacognitive reading strategies, cognitive strategies, and support strategies. The first two subscales are also termed as Global strategies and Problem-Solving strategies, respectively, in Mokhtari and Sheorey (2002). When the inventory is completed, the scores of all the items determined by the Likert scale are listed under their appropriate subscales and then added up. The average of each subscale is then derived. Next, the averages of all the subscales are added up, and the overall average is calculated, thus indicating –by the use of a key –the degree to which a reader uses reading strategies when reading academic material. According to Sheorey and Mokhtari (2001), each subscale of the SORS is briefly illustrated in a few words as follows:

1. Metacognitive strategies are those intentional, carefully planned techniques by which learners monitor or manage their reading. Such strategies include having a purpose in mind, previewing the text as to its length and organization, or using typographical aids and tables and figures (10 items).
2. Cognitive strategies are the actions and procedures readers use while working directly with the text. These are localized, focused techniques used when problems develop in understanding textual information. Examples of cognitive strategies include adjusting one's speed of reading when the material becomes difficult or easy, guessing the meaning of unknown words, and re-reading the text for improved comprehension (12 items).
3. Support strategies are basically support mechanisms intended to aid the reader in comprehending the text such as using a dictionary, taking notes, or underlining or highlighting the text to better comprehend it (six items) (p. 436).

Rationale for Instruments' Selection:

The following study selected instruments as such because both these instruments are seen as appropriate measures of the variables involved. Both these instruments are easy to administer and are quick to score. The instruments can actually be administered in the time frame of a single teaching session. Furthermore, the scores on these instruments are easy to interpret. Finally, the instruments serve the purpose of this study.

Reliability and Validity of Instruments:

Reading-Level Indicator

Reliability of the Reading-Level Indicator was achieved by using the split-half method, the alternate form method, and coefficient alpha. The highest reliability was for the youngest exam-takers, and it declined slowly across grade levels. In fact, coefficient alpha varied from .93 in 1st graders to .82 in 12th graders. Split-half values yielded were very close to those derived by coefficient alpha. As for the alternate form method, reported reliability varied from .94 for the youngest examinees to .81 in the oldest (Boyles, 2003).

Validity of the Reading-Level Indicator appears to be missing from the manual. There is no information provided about the instrument's criterion or predictive validity. Hence, the instrument falls short in providing the examiner with the actual reading levels of the examinees since there is no evidence on its validity (Boyles, 2003).

SORS

Internal reliability of the SORS was found to be .89, which demonstrates "a reasonable degree of consistency in measuring awareness and perceived use of reading strategies among non-native speakers of English" according to Mokhtari & Sheorey (2002).

Regarding the validity of the SORS, since this instrument was developed from the MARS (Metacognitive Awareness of Strategies Inventory), it is thus considered to be a valid instrument. The same items used in the MARS are used in the SORS, with the exception of two items that were replaced with two other items relating more to non-native speakers of English. According to Mokhtari and

Reichard (2002), “the psychometric data demonstrates that the instrument is a reliable and valid measure for assessing students’ metacognitive awareness and perceived use of reading strategies while reading for academic purposes.”

3.4 Ethics

Prior to the data-collection, an informed consent form was signed by the Head of the English Department in order to approve the implementation of the study at Delta School. The Head of the English Department signed the form after having read the proposal of the study and mutually agreed with the researcher on all the conditions that were to be taken into consideration. The researcher agreed to honor the school’s privacy by not revealing the names of the school, the staff members, and the students. Pseudonyms were agreed to be used instead.

Permission to use the instrument in the study was granted by one of its authors, Kouider Mokhtari.

3.5 Procedure for Data Collection:

Three phases were carried out for the completion of the procedure of the data collection:

- 1- **Training.** A training session was held to inform the examiners of the purpose of the study and train them on the actual test administration. The examiners were the English teachers of each participating grade level. It was the role of the researcher to train the examiners on how to administer the instruments by explaining what each instrument is and how it caters to the purpose of the study. Next, the researcher modelled a test-taking simulation to clearly demonstrate to each teacher the test administration

Students were also informed that those teaching techniques would improve their future performance in reading. Examiners also stressed that students were expected to be as honest as possible when rating themselves on the items of the SORS inventory.

- 4- **Scoring** of both instruments was carefully carried out by the researcher herself and then the scores were interpreted.

Chapter Four

Results and Discussion

4.1 Statistics

All analyses were performed using the *SPSS* program. Statistical significance was defined as two-sided $p \leq 0.05$. Appropriate nonparametric inferential tests were used. Moreover, group differences were estimated by using the Kruskal-Wallis analysis on continuous variables. Finally, Spearman coefficient was used to estimate the correlation between the two continuous variables.

4.2 Results

a. Descriptive Analysis and One-Way Analysis of Variance

Reading-Level Indicator

Table 3 shows the average scores for the **independent-reading level** across grades 7-10. The total average score for the independent-reading level of grades 7-10 is 4.8 with a standard deviation (SD) of 1.97. The table indicates that the lowest average independent-reading level was for grade 8 students, and it amounted to 4.1 with an SD of 1.32. The highest average independent-reading level was for grade 10 students, and it amounted to 5.5 with an SD of 2.31. Furthermore, grade 7 students had an average independent-reading level score of 4.3 with an SD of 0.97. Finally, grade 9 students had an average independent-reading level score of 5.1 and an SD of 2.29. There is statistical significance for the medians of the independent-reading level across grades 7-10 ($p = 0.024$).

Table 3

Characteristics of the Sample for the Independent-Reading Level by Class groups

	All grades (SD)	7 th grade	8 th grade	9 th grade	10 th grade	P value*
Independent- Reading Level	4.8 (1.97)	4.3 (0.97)	4.1 (1.32)	5.1 (2.29)	5.5 (2.31)	0.024

Note: Results are reported as mean (SD) –Statistics are done using Kruskal Wallis test; *Significant at < 0.05

Table 4 shows that there is no significant association between the independent-reading level of the Reading-Level Indicator and gender ($p=0.152$). Males have an independent-reading level of 5.0, and females have an independent-reading level of 4.4. This shows however that the males outperformed the females in their reading comprehension ability.

Table 4

Characteristics of the Sample for the Independent-Reading Level by Gender

	Males	Females	P value*
Independent- Reading Level	5.0 (2.1)	4.4 (1.5)	0.152

Note: Results are reported as mean (SD) –Statistics are done using Kruskal Wallis test; *Significant at < 0.05

SORS

Table 5 classifies the number of students who reported high, medium, and low means- which indicate the frequency of strategy use-across grade levels. It illustrates that out of 115 students, 12 students reported a low frequency of strategy use. This constitutes 10.4% of the entire sample. Furthermore, 30 students reported a high frequency of strategy use; these students constitute 26.1% of the entire sample. The majority of the participants ($n=73$) reported a medium frequency of strategy use; this majority constitutes 63.5% of the entire sample. Moreover, table 4.2 also

reports the number of students who reported high, medium, and low frequencies of strategy use within each grade level.

Table 5

Characteristics of the Sample for the Frequency of Strategy Use in the SORS by Class Groups

	All grades N=115	7 th grade N=23	8 th grade N=24	9 th grade N=42	10 th grade N=26
Low	12 (10.4)	2 (8.7)	2 (8.3)	6 (14.3)	2 (7.7)
Medium	73 (63.5)	11 (47.8)	20 (83.3)	28 (66.7)	14 (53.8)
High	30 (26.1)	10 (43.5)	2 (8.3)	8 (19)	10 (38.5)

Note: High (mean of 3.5 or higher), medium (mean of 2.5 to 3.4), and low (2.4 or lower)

Grade 7

In grade 7, 2 students reported a low frequency of strategy use, 11 students reported a medium frequency of strategy use, and 11 students reported a high frequency of strategy use.

Grade 8

In grade 8, 2 students reported a low frequency of strategy use, 20 students reported a medium frequency of strategy use, and 2 students reported a high frequency of strategy use.

Grade 9

In grade 9, 6 students reported a low frequency of strategy use, 28 students reported a medium frequency of strategy use, and 8 students reported a high frequency of strategy use.

Grade 10

In grade 10, 2 students reported a low frequency of strategy use, 14 students reported a medium frequency of strategy use, and 10 students reported a high frequency of strategy use.

Overall Strategy Subscale Averages across Gender and Grade Levels:

Table 6 shows no significant association between any component of the SORS and gender. The overall average of the three strategy subscales was 3.1 for males and 3.2 for females. Both these averages lie within the medium frequency of strategy use. Moreover, the average of the metacognitive strategies subscale was 2.9 for males and 3.1 for females. Both of these averages also indicate medium frequency of strategy use. The average of the cognitive strategies subscale for both males and female was equivalent to 3.6, which indicates a high frequency of cognitive strategy use. Furthermore, the average of the support strategies subscale was 2.7 for males and 2.9 for females. Both these averages indicate a medium frequency of strategy use.

Table 6

Characteristics of the Sample for the SORS by Gender

	Males	Females	P value*
Overall Subscales	3.1 (0.45)	3.2 (.56)	0.313
Metacognitive	2.9 (0.53)	3.1 (0.65)	0.370
Cognitive	3.6 (0.50)	3.6 (0.68)	0.957
Support	2.7 (0.69)	2.9 (0.69)	0.168

Note: Results are reported as mean (SD) –Statistics are done using Kruskal Wallis test; *Significant at < 0.05

Table 7 reflects on the overall averages of the strategy subscales across grade levels. It shows that the overall average of the three strategy subscales across grades 7-10 is 3.1 with an SD of 0.49. The overall average for the **metacognitive strategies** subscale across grades 7-10 is 3.0 with an SD of 0.57. The overall average of the **cognitive strategies** subscale across grades 7-10 is 3.6 with an SD of 0.56. This is in fact the highest average among all the strategy subscales. Moreover, the overall average of the **support strategies** subscale across grades 7-10 is 2.8 with an SD of 0.69. This is the lowest average across grades 7-10 among all the other strategy subscales. The averages of each subscale pertaining to each separate grade level are described below.

Grade 7

Grade 7 strategy subscale averages for metacognitive, cognitive, and support strategies are 3.2 with an SD of 0.62, 3.9 with an SD of 0.49, and 2.8 with an SD of 0.80 respectively. The overall strategy subscales average for grade 7 is 3.3 with an SD of 0.54.

Grade 8

Grade 8 strategy subscale averages for metacognitive, cognitive, and support strategies are 2.9 with an SD of 0.52, 3.4 with an SD of 0.56, and 2.7 with an SD of 0.50 respectively. The overall strategy subscales average for grade 8 is 3.0 with an SD of 0.37.

Grade 9

Grade 9 strategy subscale averages for metacognitive, cognitive, and support strategies are 2.9 with an SD of 0.53, 3.6 with an SD of 0.57, and 2.8 with an SD of 0.70 respectively. The overall strategy subscales average for grade 9 is 3.0 with an SD of 0.49.

Grade 10

Grade 10 strategy subscale averages for metacognitive, cognitive, and support strategies are 3.1 with an SD of 0.61, 3.7 with an SD of 0.48, and 2.8 with an SD of 0.78 respectively. The overall strategy subscales average for grade 10 is 3.2 with an SD of 0.52.

Table 7

Characteristics of the Sample for the Averages of the Subscales in the SORS by Class Groups

	All grades (SD)	7 th grade	8 th grade	9 th grade	10 th grade	P value*
Overall Subscales	3.1 (0.49)	3.3 (0.54)	3.0 (0.37)	3.0 (0.49)	3.2 (0.52)	0.134
Metacognitive	3.0 (0.57)	3.2 (0.62)	2.9 (0.52)	2.9 (0.53)	3.1 (0.61)	0.271
Cognitive	3.6 (0.56)	3.9 (0.49)	3.4 (0.56)	3.6 (0.57)	3.7 (0.48)	0.011
Support	2.8 (0.69)	2.8 (0.80)	2.7 (0.50)	2.8 (0.70)	2.8 (0.78)	0.815

Note: Statistics are done using Kruskal Wallis test; *Significant at < 0.05.

Comparison of Strategy Subscale Averages across Grades:

Grades 8 and 9 have equal averages of 3.0 for the overall strategy subscales, and this is the lowest average among the other grades. Grade 7 has the highest average of 3.2 for the overall strategy subscales. Moreover, grades 8 and 9 also have equal averages of 2.9 for the metacognitive strategies subscale, which is also the lowest average when compared to the remaining grades. Grade 7 has the highest average for the metacognitive strategies subscale when compared to the remaining grades. Grade 7 also has the highest average of 3.9 for the cognitive strategies subscale among the other grades. Furthermore, grade 8 has the lowest average of 3.4 across grades for the cognitive strategies subscale. Finally, all three grades 7, 9, and 10

Table 8

Correlation of the Subscales in the SORS with the Subgroups of the Independent-Reading Level

	Independent		Comprehensive	
	R	P value*	R	P value*
Overall Subscales	- 0.093	0.325	-0.094	0.320
Metacognitive	- 0.046	0.627	- 0.047	0.617
Cognitive	0.083	0.378	0.082	0.382
Support	- 0.218	0.019	- 0.219	0.019

* Spearman correlation; *Significant at < 0.05.

Much the same is observed for the relationship between the overall average of the metacognitive strategy subscale and the independent-reading variables. A Spearman correlation of -0.046 is reported, which signifies a very weak and negative correlation between the two variables. In this correlation, as the independent-reading level increases in value, the metacognitive strategy subscales decreases in value. There is no statistical significance between the two variables ($p=0.627$). Moreover, the correlation between the comprehension raw score and the overall average of the metacognitive strategy subscale is reported to be -0.047, which also indicates a very weak and negative correlation. This negative correlation shows that as the comprehension raw score increases the overall average of the metacognitive strategy subscale decreases. There is also no existing statistical significance between the two variables (0.617).

The correlation between the overall average of the cognitive strategies subscale and the independent-reading level indicates a correlation of 0.083. This is a very weak positive correlation, which signifies that as the independent-reading level increases, the overall average of the cognitive strategies subscale also increases in

value. This relationship is contrary to the other negative correlations described so far. There is also no statistical significance between the two variables ($p=0.378$). Furthermore, the correlation between the overall average of the cognitive strategies subscale and the comprehension raw score is 0.082, which again describes a very weak and positive correlation between the two variables. This reveals that as the comprehension raw score increases, the overall average of the cognitive strategies subscale also increases in value. There is no existing statistical significance between the two variables ($p=0.382$).

Finally, there appears to be a very weak and negative correlation (-0.218) between the overall average of the support strategies subscale and the independent-reading level, which has a statistical significance of 0.019. Furthermore, there is also a weak and negative correlation between the overall average of the support strategies subscale and the comprehension raw score which is -0.219 and has a statistical significance of 0.019.

4.3 Discussion

Metacognitive Awareness of Strategy Use and Reading Comprehension

The first research question in this study examines whether there is a relationship between metacognitive awareness of reading strategies and reading comprehension ability. The expected results predicted that similar to the results of other studies (Yin & Agnes, 2001; Zhang, 2002; Phakiti, 2003; Kolić-Vehovec & Bajšanski, 2007), there would be a positive relationship between metacognitive awareness of reading strategies and reading comprehension ability. The findings of this study, however, were contradictory to the findings of the aforementioned studies. Instead, they indicated that there was a weak and negative correlation

(0.093) between the overall average of the three strategy subscales (metacognitive strategies, cognitive strategies, and support strategies) and the independent-reading level of the sample participants. There was also no statistical significance ($p=0.325$). The same relationship was reported between the overall average of the three strategy subscales and the comprehension raw scores of the sample participants (-0.094), and there was also no statistical significance ($p=0.320$). Usually, the underlying premise that has been proven in past studies (Yin & Agnes, 2001; Zhang, 2002; Phakiti, 2003; Kolić-Vehovec & Bajšanski, 2007) demonstrates that the higher students' reading abilities, the more metacognitive awareness they would possess of their reading strategies, or vice-versa. Actually, Zhang (2000) claims that students who have better control over their metacognitive knowledge or awareness are more proficient in their reading comprehension. Yet, in this study, it was evident that as reading comprehension ability increased, awareness of metacognitive strategies decreased.

In exploring this phenomenon, it is important to keep in mind two factors. The first is that metacognitive awareness was assessed using a self-report inventory—the SORS. This means that the participants had to assess their own awareness or knowledge of their strategy use. The second factor is that the resulting means on the Reading-Level Indicator within each grade level showed that students' independent-reading levels were significantly below their actual grade levels (see Table 3). For instance, the mean of the independent-reading level for grade 7 was 4.3, which meant that the average independent-reading level of a 7th grader at Delta School was equivalent to that of a student reading independently at 3 months into the 4th grade. This indicates that students in the 7th grade have a comprehension level that is much lower than what it should be at their academic grade level.

After considering those two factors, one way to explain why students' increase in reading comprehension indicated a decrease in their metacognitive awareness of their strategy use is to revert back to an explanation proposed by Kruger and Dunning (1999). They claim that those who lack proficiency in a specific area tend to inflate their skills in that specific area. This happens because precise self-assessment in a specific area requires an individual to have the proficient skills in that area (Kruger and Dunning, 1999 as cited in Nelson & Manset-Williamson, 2006). In fact, being skilled in a particular area is a precondition to precise self-assessment. Hence, non-proficient skills in a particular area will yield poor performance and the incapability of accurate self-assessment. Kruger and Dunning (1999) attribute non-proficient students' overestimation of their skills to deficits in metacognition. This explanation can also justify why there was a negative correlation between students' independent-reading levels and their reported averages on the metacognitive strategies subscale, as well as the negative correlation between their independent-reading levels and their reported average on the support strategies subscale. Hence, because of their deficits in metacognition and their non-proficient reading comprehension, they overestimated the frequency of metacognitive strategy use as well as the frequency of support strategy use. Yet in the latter relationship, the overall average of the support strategies subscale significantly relates to the independent-reading level of the students ($p=0.019$).

Metacognitive Awareness in Proficient and Non-Proficient Readers

Another explanation for the above results also pertains to the second research question of this study, which speculates whether metacognitive awareness of strategy use distinguishes between proficient and non-proficient readers. When

closely analyzing the data collected for this study, it was evident that the majority of the participants who reported high overall averages of the three strategy subscales (mean of 3.5 and above) actually had independent-reading levels that were well below their actual grade levels (see Table 4.7 in the Appendix). In fact, 30 students constituting 26% of the entire sample reported high overall averages of the three strategy subscales. In contrast to those students, the participants within the sample whose independent-reading levels were well-above their actual grade levels (see Table 4.8 in the Appendix), reported low (mean of 2.4 or lower) to medium (mean of 2.5 to 3.4) overall averages on the three strategy subscales. However, those were only 5 participants who constituted 4.3% of the entire sample. Table 4.9 (see Appendix) illustrates the exception of the 9th grader who reported a high overall average on the three strategy subscales and an independent-reading level that was above his or her actual reading grade level. The majority of participants (n=69) reported medium frequency of strategy use, and their independent-reading levels were well below their actual grade levels; those students constitute 60% of the entire sample (see Tables 4.10 & 4.11 in the Appendix). Hence, nearly all the students with high independent-reading levels (proficient readers) reported medium to low frequency of strategy use, and the majority of students with low independent-reading levels (non-proficient readers) reported medium to high frequency levels. This data is contrary to data from other studies which reveal that proficient readers display more frequent and superior strategy use than non-proficient readers do (Phakiti, 2003; Fotovatian & Shokrpour, 2007; Kolić-Vehovec & Bajšanski, 2007). In fact, if the data of this study was to concur with the findings of the aforementioned studies, then all the students who had independent-reading levels that were well below their actual grade levels (non-proficient readers) would have reported low overall

averages of the three strategy subscales. Adding to that, all the students who had independent-reading levels that were well-above their actual grade levels (proficient readers) would have reported high overall averages of the three strategy subscales. Nonetheless, the only data that was consistent with the findings of the aforementioned studies (see Table 4.12 in the Appendix) indicated that 10 students out of the entire sample had independent-reading levels that were well below their academic grade levels, and they actually reported low overall averages of the three strategy subscales. These participants constitute 8.6% of the entire sample.

However, the inconsistent results of this study can be justified. Yin & Agnes (2001) claim that due to their poor comprehension, non-proficient readers use more reading strategies than proficient readers do in order to assist their text comprehension and make up for their poor reading subskills. Poor reading subskills include non-proficient readers' use of visual and phonological information, as well as the use of semantic and syntactic information during the reading act. This exact explanation can be used to justify the weak and negative correlation that exists between the overall average of the support strategies subscale and the independent-reading levels of the students, as well as the negative correlation between the overall average of the metacognitive strategies subscale and the independent-reading level of the students.

It is also possible to consider that since students were using a self-report instrument, they might not have been able to accurately trace their cognitive and metacognitive functioning. Pokay and Blumenfeld (1990) claim that self-report instruments infiltrate students' conceptualizations of what they do when they read, yet they do not infiltrate into the accuracy of their conceptualizations. Hence, there are probably many strategies that students employ while reading which they are not aware of and thus they fail to report them.

Furthermore, when scrutinizing the relationships between each individual strategy subscale and the students' independent-reading levels, a negative correlation is reported for all (metacognitive and support strategies) but one which is the cognitive strategies subscale. There was a weak and positive relationship between the cognitive strategies subscale and students' independent-reading levels, with no existing statistical significance. This means that as the independent-reading levels of the students increased, their average on the cognitive strategies subscale also increased. Hence, the more proficient readers reported higher frequency of cognitive strategy use than the non-proficient readers did. This somehow makes sense, since by definition cognitive strategies are both mental and behavioral activities that readers resort to in order to enhance their reading comprehension (Van Den Broek & Kremer, 2000). Thus, it is only logical that readers who have higher independent-reading levels (i.e. comprehend more) use cognitive strategies more frequently than non-proficient readers do.

Metacognitive Awareness across Grade Levels

The third research question in this study was posed to examine whether metacognitive awareness of reading strategies is relative to grade level. The expected results predicted that metacognitive awareness will increase across the ascending order of grades 7-10. This hypothesis stemmed from the underlying premise that proficient readers have more frequent and superior use of metacognitive reading strategies than non-proficient readers do (Phakiti, 2003; Fotovatian & Shokrpour, 2007; Kolić-Vehovec & Bajšanski, 2007). Thus, it is only logical to assume that as grade-levels escalate, reading proficiency increases, and metacognitive awareness of strategies will hence increase. In this sample the means

of the independent-reading levels demonstrated statistical significance across grade 7-10, yet they were well below what they are supposed to be at those academic grade levels (see Table 3). Hence, since the comprehension ability in each grade level was weak, the reported overall averages of the three strategy subscales were supposed to indicate low frequency of strategy use. Instead, the overall averages of the three strategy subscales across grades 7-10 lay in the medium frequency of strategy use (see Tables 5). This was explained earlier as either an overestimation of strategy use on the part of the students or the frequent need to use more reading strategies in order to overcompensate for their non-proficient reading.

Metacognitive Awareness of Strategy Use across Gender

The fourth research question of this study speculated whether metacognitive awareness of strategy use will vary across gender. The findings show no significant association between any component of the SORS and gender. The overall average of the three strategy subscales was 3.1 for males and 3.2 for females. Those means indicated that both genders display a medium frequency of strategy use. These findings are consistent with the results of the study conducted by Sheorey and Mokhtari (2001) who reported that despite other research that reveals that females display more frequent use of language learning strategies than males (e.g. Oxford & Nyikos, 1989; Oxford, 1993; Green & Oxford, 1995; Kaylani, 1996; Oxford et al., 1998; Sheorey, 1999; Sheorey & Mahar, 2001 as cited in Sheorey & Mokhtari, 2001) there was a lack of gender effect on their ESL sample. Sheorey and Mokhtari (2001) attributed those findings to the larger number of males within their sample. Similarly, in this study there was an uneven distribution of gender, whereby the males (n=79) outweighed the females (n=39).

Chapter Five

Conclusion

Auerbach and Paxton (1997) claim that metacognitive awareness is an essential component of successful reading. The aim of this study was to examine the relationship between the metacognitive awareness of strategy use and the reading comprehension of 115 non-native speakers of English at Delta School. The results of the study did not concur with the results of previous research (Yin & Agnes, 2001; Zhang, 2002; Phakiti, 2003; Kolić-Vehovec & Bajšanski, 2007). Instead, the findings revealed a weak and negative correlation between metacognitive awareness of strategy use and reading comprehension ability that lacked statistical significance.

What is interesting about those findings however is that they offer implications for future research in Lebanon. Moreover, they offer educational implications for the teachers at Delta School and other teachers of students who are also non-native speakers of English in Lebanon, the Arab world, and beyond. These educational implications are suggestive of what weaknesses teachers need to work on in order to improve their students' reading comprehension and metacognitive awareness of strategy use. For instance, the results of this study indicated a great weakness in the reading comprehension of the sample participant. There was also an overestimation of cognitive and metacognitive strategy use by the participants themselves. Teachers need to instruct their students on how and when to use cognitive and metacognitive reading strategies, for previous research reveals that instruction in metacognitive reading strategies improves reading comprehension (Paris & Cross, 1988; Anderson 1991; Song 1998; Camahalan, 2006; Eilers & Pinkley, 2006; Boulware-Gooden et al., 2007; Çubukçu, 2008). Furthermore, once

students are better informed and trained in metacognitive strategies, perhaps then they can report more accurate self-assessment of their strategy use.

5.1 Limitations of the Study:

One of the limitations of this study involves the convenience sample that participated in the investigation. The sample does not represent the entirety of grades 7-10 non-native English-speaking students in Lebanon. Hence, the results of the study cannot be generalized.

Furthermore, another limitation within the study is the use of a self-report inventory which only reflects the students' perceptions of their own strategy use, rather than their accurate perceptions of the ongoing processes of their cognition and metacognition. Sometimes, the abortive attempts of the participants to accurately self-report on their strategy use can impact the results of the study.

Another limitation of the study is that the participating English teachers were not interviewed about the strategies that they found most important and taught in their classrooms. This information would have opened a window of explanation as to why the findings of the study revealed strong statistical significance only for the relationship between the support strategies and reading comprehension ability. Moreover, it would have also offered an explanation as to why it was only the relationship between cognitive strategies and reading comprehension ability that showed a positive correlation positive.

5.2 Further Research:

More extensive research should be conducted on the topic of metacognitive awareness and reading comprehension in Lebanon. In fact, more random samples

should be selected in future studies, which would allow findings to be generalized onto the population of non-native speakers of English. Larger samples can also be recruited, which would increase the chances of achieving more significant results.

In addition, more research should be conducted on the types of strategies employed by non-native speakers of English who vary in levels of reading proficiency.

Furthermore, considering that most self-report inventories do not offer accurate perceptions of strategy use (Blumenfeld, 1990), research should work towards developing more reliable tools for measuring metacognitive awareness within readers.

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Appendix

Table 4.7

Students with the highest overall averages of the three strategy subscales of the SORS

	Grade Level	Reading-Level Indicator Independent-Level Equivalence	The SORS Overall Subscales Average
1	7	2.6	3.9
2		2.7	3.5
3		3.5	4.0
4		3.8	3.8
5		4.6	3.7
6		3.5	3.7
7		3.3	3.9
8		3.5	3.7
9		4.6	3.7
10		5.3	4.4
11		5.8	3.7
12	8	3.6	3.7
13		3.6	3.6
14	9	3.3	3.5
15		3.3	4.0
16		3.6	3.6
17		4.4	3.7
18		5.0	4.1
19		4.0	3.7
20		6.5	3.7
21	10	3.6	3.5
22		4.2	3.5
23		7.5	3.6
24		9.7	4.7
25		3.8	3.6
26		4.0	3.5
27		4.4	3.5
28		4.6	3.7
29		4.6	3.6
30		5.0	3.8

Table 4.8

Students with the highest independent-reading levels

	Grade Level	Reading-Level Indicator	The SORS
		Independent-Level Equivalence	Overall Subscales Average
1	9	11.4	3.4
2		>11.4	3.0
3		9.7	3.3
4	10	11.4	2.9
5		11.4	2.2

Table 4.9

Student with a high independent-reading level and a high overall average of the three strategy subscales of the SORS

	Grade Level	Reading-Level Indicator	The SORS
		Independent-Level Equivalence	Overall Subscales Average
1	9	11.4	3.5

Table 4.10

Students with low independent-reading levels and medium overall averages of the three strategy subscales of the SORS

	Grade Level	Reading-Level Indicator	The SORS
		Independent level equivalence	Overall subscales average
1	7	3.3	2.9
2		5.8	2.6
3		3.6	3.4
4		4.0	3.4
5		4.4	3.2
6		4.6	2.8
7		4.6	3.2
8		5.3	3.2
9		5.3	3.2
10		5.3	2.8
11		5.8	2.9
12	8	2.5	3.4
13		2.7	3.2
14		2.8	2.8
15		2.9	2.8
16		3.2	3.4
17		3.6	3.1
18		3.6	3.1
19		5.3	3.4
20		5.8	2.9
21		3.5	3.0
22		3.6	2.8
23		3.6	3.4
24		3.8	3.0
25		4.0	2.7
26		4.2	3.3
27		4.4	2.5
28		4.6	2.8
29		5.3	3.3
30		7.5	2.9
31		7.5	2.9
32	9	2.7	3.2
33		2.9	3.4
34		3.2	2.8
35		3.5	3.0
36		3.8	3.2
37		4.0	2.7
38		4.0	3.2
39		4.0	3.4
40		4.0	3.2
41		4.0	3.1
42		4.2	3.2

Table 4.11

Students with low independent-reading levels and medium overall averages of the three strategy subscales of the SORS

	Grade Level	Reading-Level Indicator	The SORS
		Independent level equivalence	Overall subscales average
1	9	4.4	3.2
2		4.4	3.4
3		5.3	3.3
4		5.8	2.9
5		3.3	2.8
6		3.5	2.9
7		4.0	3.3
8		4.2	3.0
9		4.4	3.1
10		4.6	3.3
11		4.6	2.7
12		5.3	2.9
13		7.5	3.0
14		7.5	2.9
15	10	4.4	3.1
16		4.6	3.1
17		5.0	3.3
18		5.3	3.4
19		7.5	3.2
20		7.5	2.7
21		3.0	2.7
22		3.3	3.3
23		3.8	2.8
24		4.2	2.5
25		5.3	3.0
26		6.5	2.9
27		6.5	3.1

Table 4.12

Students with low independent-reading levels and low overall averages of the three strategy subscales of the SORS

	Grade Level	Reading-Level Indicator	The SORS
		Independent-Level Equivalence	Overall Subscales Average
1	7	3.8	2.3
2		4.6	2.4
3	8	3.2	2.2
4		4.2	2.4
5	9	3.8	2.3
6		4.2	1.6
7		7.5	2.3
8		3.8	2.3
9		4.6	2.3
10	10	4.4	2.4