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Metacognitive Awareness and Strategy Use in Academic English Reading among Adult English as a Second Language (ESL) Students

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The University of Southern Mississippi

**METACOGNITIVE AWARENESS AND STRATEGY USE IN ACADEMIC
ENGLISH READING AMONG ADULT ENGLISH AS A SECOND
LANGUAGE (ESL) STUDENTS**

by

Yuko Iwai

**Abstract of a Dissertation
Submitted to the Graduate Studies Office
of The University of Southern Mississippi
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy**

May 2009

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2009

The University of Southern Mississippi

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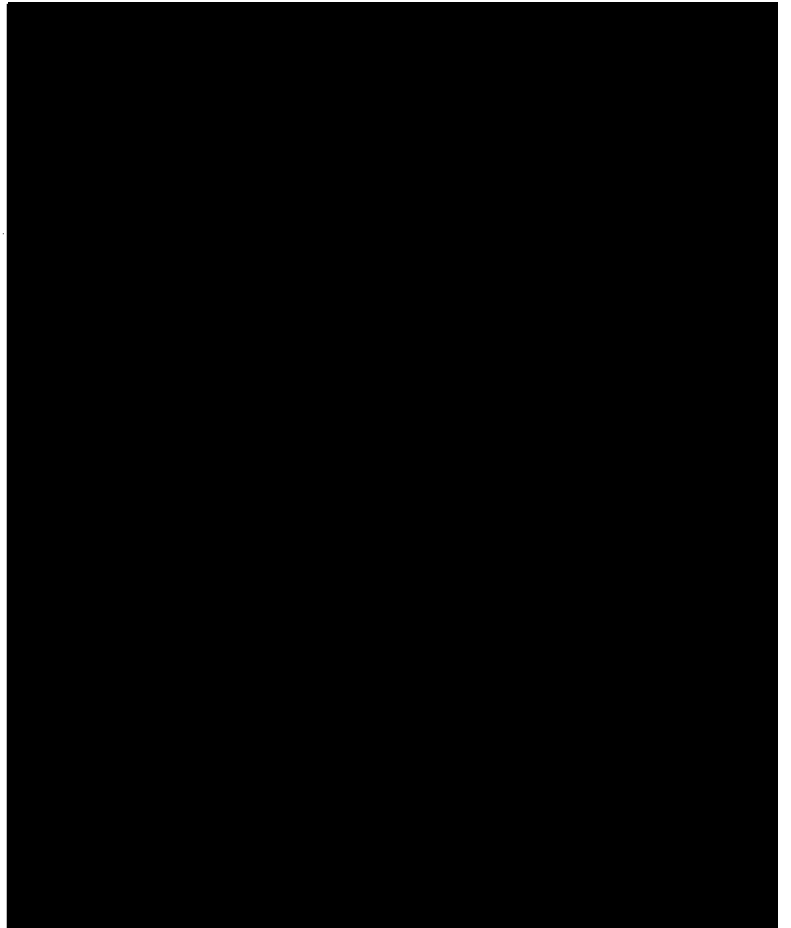
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Approved:



May 2009

ABSTRACT

METACOGNITIVE AWARENESS AND STRATEGY USE IN ACADEMIC ENGLISH READING AMONG ADULT ENGLISH AS A SECOND LANGUAGE (ESL) STUDENTS

by Yuko Iwai

May 2009

This mixed method research study explored the role of metacognitive awareness in reading among adult English as a Second Language (ESL) students of various academic levels enrolled in a university in the southeastern part of the United States of America while engaged in academic reading. In addition, this study examined metacognitive reading strategies employed by those students.

In the quantitative portion of the study, 98 students responded to the Survey of Reading Strategies (SORS) instrument and a background information questionnaire. The SORS measured metacognitive awareness and use of reading strategies. In the qualitative portion of the study, six students (two English Language Institute [ELI], two undergraduate, and two graduate) participated in semi-structured interviews, including examinations of their academic reading materials.

The quantitative results showed that the ELI students reported the most frequent use of metacognitive reading strategies, compared to the undergraduate and graduate students as measured by the SORS. Analysis of the data showed no positive correlations between the students' academic performance measured by grade point averages (GPAs) and their scores of overall and sub-scales on the SORS. The analysis did not show any

relationships between the students' self-rated English reading proficiency and their scores on the overall and sub-scales on the SORS.

The qualitative results suggested that participating students at different academic levels were aware of metacognitive reading strategies when engaged in academic reading. Key reading strategies used by these students included adjusting reading speed and selecting strategies for different purposes, using prior knowledge, inferring text, marking text, focusing on typographical features, and summarizing. When encountering challenges in reading comprehension, the students interviewed said they used context clues, re-read, and depended on supportive resources. In addition, examination of reading strategies in first language (L1) and second language (L2) reading indicated that the participants used similar strategies in both L1 and L2 reading. Reading speed, use of dictionaries, and languages used for monitoring were identified to be different. Based on the findings, implications for students, teachers, and researchers to improve reading strategies were discussed. Recommendations for further research were also given.

ACKNOWLEDGEMENTS

I would like to express my sincere gratitude to Dr. Hollie Filce, my committee chairperson. She always kept the process flowing in a timely, professional manner. Her constant encouragement and insight made what seemed impossible – possible. I am also thankful to Dr. J.T. Johnson, who inspired me to pursue the statistical world. I learned so much about how to conduct quantitative research from him. My special gratitude also goes to Dr. David Daves, Dr. Rose Jones, and Dr. Anne Sylvest, other committee members. They continuously encouraged and supported me. I am also very thankful to Dr. Ellen Ramp, who supported me academically and in many other ways. Dr. Perrin Lowrey, Dr. Beth Richmond, and Dr. Kathleen York also enhanced my knowledge on reading and education. I would also like to extend my gratitude to Dr. Miguel Mantero at The University of Alabama, who gave me insight and developed my foundation on English Language Learners.

I wish to acknowledge Dr. Kouider Mokhtari at Iowa State University and Dr. Ravi Sheorey at The Oklahoma State University, the authors of the Survey of Reading Strategies (SORS). They granted permission for me to use their instrument in this study. I am also grateful to the Baptist Student Union (BSU), the English Language Institute (ELI), the International Programs, the International Student and Scholar Services (ISSS), and Dr. Jalynn Roberts for their contribution to my research.

I am indebted to my parents. There are no words to express my appreciation for their invaluable support. Finally, my sincerest gratitude goes to my husband, Shuma. This research could not have been completed without his patience, encouragement, and support.

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LIST OF ABBREVIATIONS

EFL...English as a Foreign Language

ELI...English Language Institute

ELL...English Language Learners

ESL...English as a Second Language

GLOB...Global Reading Strategies

L1...First Language

L2...Second Language

PROB...Problem Solving Strategies

SORS...Survey of Reading Strategies

SUP... Support Strategies

TOEFL...Test of English as a Foreign Language

CHAPTER I

INTRODUCTION

Reading ability strongly influences student success in all areas of academic learning (Koda & Zehler, 2008). Learners develop their understanding of subject area content largely through reading textbooks, articles, and research materials. Whether it is a first or second language, students need to develop reading proficiency for their academic achievement. This study explored two aspects of reading: metacognitive awareness and use of strategies when reading academic English materials among adult English as a Second Language (ESL) students at a university in the southeastern United States. This chapter presents an overview of the study and is organized according to the following sections: (a) background, (b) theoretical framework, (c) statement of the problem, (d) purpose of the study, (e) research questions, (f) hypotheses, (g) guiding questions, (h) delimitations, (i) limitations, (j) assumptions, (k) definitions of the terms, and (l) summary.

Background

Speaking the English language is considered a significant skill needed to communicate with others in today's global society. With such a demand for English language competence, the population of those learning English as a second language has increased (August, 2008; Fitzgerald, 1995a). Those learning English as a second language are a diverse group including children from non-English speaking families (Kindler, 2002; Klein, Bugarin, & Beltranena, 2004), adolescents and adults from other countries who come to attend a university (Institute of International Education [IIE], 2008a), and others. These English language learners present challenges to those charged

with helping them master the English language due to limited English proficiency and different social and cultural contexts (August, 2006; Birch, 2007; Pintozzi & Valeri-Gold, 2000).

Prevalence of School-aged English as a Second Language (ESL) Learners

Klein, Bugarin, and Beltranena (2004) report that the number of children who are 5 to 24 years old and speak languages other than English at home in the United States increased from 6.3 million in 1979 to 13.7 million in 1999. According to the National Clearinghouse for English Language Acquisition & Language Instruction Educational Programs (NCELA) (2007), the enrollment of limited English proficient students in public schools increased approximately 57 % between the 1995-1996 academic year and the 2005-2006 academic year. The total population of these limited English proficient students in the United States made up approximately 10.3 % of the total student enrollment through pre-kindergarten to grade 12 (NCELA, 2007). Because these children are learning other subject areas while attempting to learn English, these students present a significant challenge to the educational system.

Prevalence of Post-secondary English as a Second Language (ESL) Learners

Adolescent or adult non-native speakers of English students often enter English-speaking countries for academic purposes. The Institute of International Education (IIE) (2008a) reports that the population of international students enrolled in post-secondary institutions in the United States were as follows: 48,486 in the 1959-1960 academic year; 134,959 in the 1969-1970 academic year; 286,343 in the 1979-1980 academic year; 386,851 in the 1989-1990 academic year; 514,723 in the 1999-2000 academic year; and 623,805 in the 2007-2008 academic year. These statistics reflect tremendous growth in

this population. The IIE (2008b) also reports that approximately 61 % of international students are Asian; with 94,563 students coming from India (15.2% of the total international population), 81,127 students (13.0 % of the total international population) coming from the People's Republic of China, and 69,124 students (11.1 % of the total international population) coming from the Republic of Korea (South). These international students learn their academic content areas in the U. S. colleges and universities in English as a Second Language (ESL).

Importance of Reading in the Academic Setting

Regardless of the age of the learner, reading is the key component for academic success of non-native English speaking students because they are required to read various textbooks or materials for getting information and learning (Sheorey & Mokhtari, 2008a). Reading is an essential part of learning content areas in U. S. higher education. Across academic majors, the ESL students' learning is closely tied to their ability to read and understand written materials across participants. When they study, read textbooks, do research, and take examinations, students are required to read and comprehend the content of a variety of academic materials. In other words, reading and learning are interrelated in education (Sheorey & Mokhtari, 2008a). It is significant for ESL students to improve English reading abilities since reading is used across all subject matter (Anderson, 1999; Koda & Zehler, 2008).

Learning Challenges of English as a Second Language (ESL) Students

Because English is not their first language, non-native speakers of English attending schools and universities in the United States experience differences in learning academic content beyond those challenges experienced when learning in their native

languages. Christian (2006) points out that students with limited English proficiency experience particular challenges in developing their English reading abilities. Based on a study of 41 state educational agencies, Kindler (2002) reports that only 18.7 % of students with limited English proficiency met the state standards in English reading comprehension. Research also demonstrates that ESL students struggle with learning the subject matter due to their insufficient vocabulary (García, 1991; Jiménez, García, & Pearson, 1995; Koda, 2004; Laufer, 1997; Levine & Reves, 1990).

Use of Metacognitive Strategy in Reading

The term *metacognition* means one's awareness of cognitive processing (Flavell, 1976). Since its origin in the 1970s, the concept of metacognition has been the focus of educational research (Schmitt, 2005). Brown, Armbruster, and Baker (1986) assert that "[m]etacognition plays a vital role in reading" (p. 49). Moreover, whether it is in the native language or the second language, metacognition plays a significant role in improving reading comprehension (Baker & Brown, 1984; Flavell, 1979; Flavell, Miller, & Miller, 2002; Mokhtari & Reichard, 2002; Pressley, 2002; Sheorey & Mokhtari, 2001). Teaching a variety of metacognitive strategies in reading, including setting purposes before reading, monitoring to check whether one understands textbooks, and re-reading to confirm meanings of unclear parts in the texts while reading, and evaluating one's performance after reading, is considered an effective way for students to develop their reading comprehension (Israel, 2007).

Several researchers have investigated the significance of metacognition in reading among native English speaking learners. These studies focused on metacognitive awareness and/or use of reading strategies in relation to learners' (a) reading proficiency

(e.g., advanced versus less advanced learners) (Baker & Brown, 1984; Pressley & Afflerbach, 1995), (b) gender (Jacobs & Paris, 1987), (c) age (Baker, 2008a; Baker & Brown, 1984; Garner, 1987; Myers & Paris, 1978), (d) text types, (e.g., narrative text, and expository text) (Best, Rowe, Ozuru, & McNamara, 2005; Zabucky & Ratner, 1992), and (e) motivation (Paris & Oka, 1986; Pintrich & Zusho, 2002; Wade, Buxton, & Kelly, 1999; Wolters, 2003).

While much of the research on metacognition has been conducted with native English speakers, research on metacognition for ESL students has also been investigated. Results from these studies indicate that a lack of strategies for addressing reading weaknesses further inhibits ESL learners when studying academic subjects in English. Less skillful learners are unlikely to know what to do when they encounter unfamiliar words or when they do not understand sentences in reading materials (Devine, 1993). These learners are most likely to be limited in the following areas: knowing multiple reading strategies (declarative knowledge), knowing how to use the strategies (procedural knowledge), and knowing how to evaluate reading performance (conditional knowledge) (Baker, 2005; Baker & Brown, 1984; Mokhtari & Reichard, 2002; Paris & Jacobs, 1984; Paris & Winograd, 1990). Researchers pay attention to metacognitive strategies in reading and state that more proficient non-native English speaking learners tend to employ different strategies and recognize their usefulness (Fitzgerald, 1995b; Hosenfeld, 1977; Jiménez, García, & Pearson, 1996; Mokhtari, Reichard, & Sheorey, 2008). Furthermore, those expert learners are most likely to depend on the English language rather than their native language (Upton, 1997; Zhang, 2001). More competent students focus on top-down strategies or holistic reading approaches (e.g., activating readers' prior

knowledge, inferring the text) rather than bottom-up strategies (e.g., decoding) (Zhang, 2001). Cultural backgrounds and schemata also influence non-native English speakers' reading comprehension (Fitzgerald, 1995b; Mokhtari & Reichard, 2004).

Reading is considered one of the essential components for academic success. This is problematic for the ever-increasing number of students whose first languages are those other than English (Mokhtari & Sheorey, 2008). Researchers and educators continue to investigate learning issues and characteristics of these groups. Learning subject-matter knowledge in English, which is not their first language, is problematic for this group of students (Grabe & Stoller, 2002). Limitations in English vocabulary, inadequate knowledge of reading strategies, and/or application of those strategies are some of the challenges the ESL students experience (Birch, 2007; Hudson, 2007; Jiménez, García, & Pearson, 1996). Because of the strong relationship between metacognition and reading comprehension, it is important to develop metacognitive reading strategies and awareness in order to improve one's reading comprehension (Anderson, 2005, 2008; Carrell, Pharis, & Liberto, 1989; Mokhtari & Sheorey, 2008).

Theoretical Framework

The concept of metacognition is related to cognitive studies. This study focuses on metacognitive awareness and use of reading strategies among adult ESL college students in the United States and is grounded in the cognitive theories of Jean Piaget, a Swiss psychologist and developmental scholar. Theoretical foundations for this study can also be found in the work of John Hurley Flavell, an American developmental psychologist.

Jean Piaget's study of children's cognitive development is well known. Piaget contributed to the discovery of the nature of knowledge (Flavell, Miller, & Miller, 2002). Piaget (1955) also created the theory of cognitive development, in which children's four cognitive developmental phases are described. Piaget identified birth to 2 years as the first cognitive developmental phase, the sensorimotor stage. During this stage, infants understand the world by their exploration. The second phase of cognitive development, 2 to 7 years, was identified as the preoperational stage. In this period, children use some tools, such as gestures and words, instead of motor actions in order to think about objectives and events (Flavell, Miller, & Miller, 2002). The third stage, 7 to 11 years, was identified as the concrete operational phase. During this stage, children think logically about concrete objects and events. The last period, after 11 years, is identified as the formal operational stage. Children in this phase develop abstract reasoning with language. Piaget's arguments are that cognitive development plays a fundamental role for human beings and that language cannot be separated from cognitive development.

McCormick (2003) points out that Flavell's notion of metacognition is related to the formal operational stage in Jean Piaget's framework of cognitive development. Influenced by Piaget's cognitive development theory, Flavell starts to develop the concept of metacognition around 1971. The term metacognition first appeared in 1976 in an article by Flavell entitled "Metacognitive Aspects of Problem Solving." In this article, Flavell (1976) defines metacognition as "one's knowledge concerning one's own cognitive processes and products or anything related to them" (p.232). Flavell further explains that metacognition is "the active monitoring and consequent regulation and orchestration of these processes in relation to the cognitive objects or data on which they

bear, usually in the service of some concrete goal or objective” (1976, p.232). Flavell’s model is the foundation for research in the field of metacognition today.

The works of both Piaget and Flavell serve as a basis for the study of metacognition across multiple groups. Metacognitive awareness is also critical to second language acquisition. This study explored these concepts as they apply to metacognitive awareness and use of strategies for adult ESL students.

Statement of the Problem

Metacognition is a key element for reading comprehension for all students. More research indicates that advanced native English-speaking readers are more likely to have metacognitive awareness and to apply a variety of reading strategies while reading academic texts than do less advanced readers (Baker, 2008a; Baker & Brown, 1984; Blackowicz & Ogle, 2008; Block & Israel, 2004; Mokhtari, Reichard, & Sheorey, 2008; Pressley & Afflerbach, 1995). Likewise, metacognition is considered an essential component for ESL students’ reading abilities (Anderson, 2005, 2008; Carrell, Gajdusek, & Wise, 1998; Mokhtari & Sheorey, 2008). However, there is little research in metacognitive awareness and strategy use among ESL students. One of the challenging issues these students face is to expand English skills (Grabe, 2002a). As a result, there is the need to examine metacognitive awareness and strategy use in this population and develop effective methods for ESL learners in reading (Pintozzi & Valeri-Gold, 2000).

With the demand for English language, the number of non-native English speakers who read materials and information in English is growing (Sheorey & Mokhtari, 2008a). Thus, researchers, educators, and teachers need to consider investigating reading strategies that would effectively fit these learners (Sheorey & Mokhtari, 2008a). Some

ESL students may not even be aware of the importance of metacognitive strategies. They may not know how to employ these strategies. Exploring characteristics and elements of reading among the learners who are non-native speakers of English will contribute to research in second language reading.

Next, the focus on metacognitive awareness and reading strategies for non-native English speakers in this study is intended to inform those seeking to help these students improve reading comprehension. “[I]t is difficult to imagine how, without a solid proficiency in reading, students can accomplish their academic objectives” (Sheorey & Mokhtari, 2008a, p. 1). This study may be helpful to determine effective reading strategies for these groups. It is anticipated that the findings of this study may provide classroom teachers and faculty at institutions of higher education with guidance for better classroom reading instruction for non-native English speaking students. Exploring the role of metacognition in reading and a relationship between the first and second languages in reading strategies may aid these educators in improving their teaching approaches and pedagogies. This may enhance the ESL students’ reading comprehension as well as academic achievement in English-speaking countries.

Finally, there is little research that looks at ESL students’ reading strategies and awareness with the measurement of the Survey of Reading Strategies (SORS) instrument, which had recently been developed by Mokhtari and Sheorey (2002). This instrument has not been thoroughly tested. More research on ESL students’ metacognitive awareness and use of strategy by using the SORS instrument needs to be conducted so that conclusions from those studies may be accepted with more certainty (Anderson, 2005).

Purpose of the Study

The purpose of this study was to explore the role of metacognitive awareness in reading among adult ESL students of various academic levels enrolled in a university in the southeastern part of the United States of America while they are engaged in school-related material reading. In addition, this study examined the use of metacognitive reading strategies employed by those students. These topics were evaluated both quantitatively and qualitatively.

Research Questions

The central research questions that were examined in this mixed method research study were as follows:

1. What role does metacognitive awareness have in academic English reading for adult ESL students enrolled in a university in the southeastern part of the United States of America?
2. How does use of reading strategies impact academic success for adult ESL students enrolled in a university in the southeastern part of the United States of America?

Hypotheses

Null hypotheses were established for the quantitative research methods design.

The following null hypotheses were examined in this study:

1. There are no differences in the overall score of the Survey of Reading Strategies (SORS) or any of its three sub-scales (Global Reading Strategies, GLOB; Problem Solving Strategies, PROB; and Support Strategies, SUP) among three levels of English as a Second Language students (non-degree seeking students at

the English Language Institute, undergraduate students, and graduate students) enrolled in a university in the southeastern part of the United States of America.

2. There are no relationships between the overall score of the Survey of Reading Strategies (SORS) or any of its three sub-scales (Global Reading Strategies, GLOB; Problem Solving Strategies, PROB; and Support Strategies, SUP) and academic performance as measured by grade point average (GPA) of adult ESL students enrolled in a university in the southeastern part of the United States of America.
3. There are no relationships between adult ESL students' self-rated academic English reading proficiency and their metacognitive reading awareness and strategies as measured by the overall score of the Survey of Reading Strategies (SORS) or any of its three sub-scales (Global Reading Strategies, GLOB; Problem Solving Strategies, PROB; and Support Strategies, SUP).

Guiding Questions

This study had the following guiding questions for the qualitative research design:

1. To what extent are three levels of adult ESL students (non-degree seeking students at the English Language Institute, undergraduate students, and graduate students) enrolled in a university in the southeastern part of the United States of America aware of their metacognitive reading strategies?
2. What reading strategies do three levels of adult ESL students (non-degree seeking students at the English Language Institute, undergraduate students, and graduate students) enrolled in a university in the southeastern part of the United States of America use while reading academic English materials?

3. What reading strategies do three levels of adult ESL students (non-degree seeking students at the English Language Institute, undergraduate students, and graduate students) enrolled in a university in the southeastern part of the United States of America use while experiencing difficulties in academic English materials?
4. How are metacognitive reading strategies used by adult ESL students when reading academic English materials influenced by those strategies they use when reading academic materials in their first language?

Delimitations

The following were delimitations of the study:

1. Participants in this study were delimited to adult ESL English Language Institute (ELI), undergraduate, or graduate students enrolled in a university in the southeastern part of the United States of America.
2. The numbers of participants in the ELI, undergraduate, and graduate student groups were different because of the large differences in enrollment of the fall 2008 semester between those student categories.
3. The number of participants in this study was 98.
4. Participants in this study were volunteers.
5. The Survey of Reading Strategies (SORS) instrument was administered in English, which is not the first language of the adult ESL students enrolled in a university in the southeastern part of the United States of America.
6. Semi-structured interviews were conducted in English (except a case of the participant whose native/first language is Japanese) which is a second language of

the participants. This was limited to express thoughts, experiences, and opinions of the participants' reading of English academic materials.

Limitations

The following were potential limitations of the study:

1. The results of this study regarding academic English reading metacognitive awareness and strategies among adult ESL students in the United States may not necessarily generalize to non-native English speaking students in different contexts. Moreover, participants' ethnicity varied, depending on the school's demographic information in the 2008 fall semester.
2. Participants, adult ESL students who come from a variety of cultural and linguistic backgrounds and who are enrolled in a university in the southeastern part of the United States of America, were categorized into one ESL group. This may limit the findings of this study and restrict generalizability.
3. The participating undergraduate and graduate students all have certain levels of academic competence that may be presumed because they have met entrance criteria into the university. Therefore, the findings of this study may not be generalizable to the population at large.

Assumptions

The following assumptions were made in this study:

1. The participants are from contexts in which languages other than English are used for communicative tools, come to the United States of America to pursue academic degrees at a university, and study their content areas in English as a Second Language.

2. Participants' academic English proficiency improves as students move from the English Language Institute (ELI) toward the undergraduate and graduate levels.
3. The participants honestly responded to the Survey of Reading Strategies (SORS) instrument.
4. The participants understood the content of the questions of semi-structured interviews and provided their honest and accurate responses.

Definitions of the Terms

The following definitions were provided to clarify terms that were used in this study:

Academic reading is reading school-related materials, such as textbooks, journal articles, and class notes, for academic purposes, including homework assignments or examinations (Mokhtari & Sheorey, 2002).

English as a Foreign Language (EFL) "is used in contexts where English is neither widely used for communication, nor used as the medium of instruction" (Carter & Nunan, 2001, p. 2). Teaching and learning English in Japan, for example, illustrates English as a Foreign Language.

English as a Second Language (ESL) refers to "situations in which English is being taught and learned in countries, contexts and cultures in which English is the predominant language of communication" (Carter & Nunan, 2001, p. 2). A non-native English speaker who is learning English in the United States of America indicates that he or she is learning English as a Second Language.

English Language Learners (ELL) are people whose native languages are other than English and whose English proficiency is still developing (August & Shanahan, 2008).

First language (L1) refers to a language that is one's native language. The terms first language and native language was used interchangeably in this study.

Global Reading Strategies (GLOB) is a category of reading strategies used in the Survey of Reading Strategies (SORS) instrument. Strategies in this category are "those intentional, carefully planned techniques by which learners monitor or manage their reading, such as having a purpose in mind, previewing the text as to its length and organization, or using typographical aids and tables and figures" (Mokhtari & Sheorey, 2002, p.4).

Metacognition is defined as "one's knowledge concerning one's own cognitive processes and products or anything related to them" (Flavell, 1976, p. 232).

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

Native language is "the first language that a child learns" and "the primary language, the mother tongue, or the L1 (first language)" (Gass & Selinker, 2001, p. 5).

Problem Solving Strategies (PROB) is a category of reading strategies used in the Survey of Reading Strategies (SORS) instrument. Strategies in this category include "the actions and procedures that readers use while working directly with the text...; examples include adjusting one's speed of reading when the material becomes difficult or easy,

guessing the meaning of unknown words, and rereading the text to improve comprehension” (Mokhtari & Sheorey, 2002, p.4).

Reading is “ ‘a complex system deriving meaning from print’ that requires an understanding of how speech sounds are related to print, decoding (word identification) skills, fluency, vocabulary and background knowledge, active comprehension strategies, and a motivation to read” (McShane, 2005, p. 7).

Reading comprehension is defined as a process of constructing meaning from the written language. It involves the reader, the text, and the context.

Reading skills are defined as “*automatic actions* that result in the decoding and comprehending of texts with speed, efficiency, and fluency, usually without the reader’s awareness of the components or controls involved” (Afflerbach, Pearson, & Paris, 2008, p. 15). They are tactics that are mastered and unintentionally used by the reader to comprehend reading.

Reading strategies are defined as “*deliberate, goal-directed attempts to control and modify* the reader’s efforts to decode text, understand words, and construct meanings out of text” (Afflerbach, Pearson, & Paris, 2008, p. 15).

Second language (L2) is defined as a language that is learned or is being learned after the first language is learned (Stern, 1983).

Support Reading Strategies (SUP) is a category of reading strategies used in the Survey of Reading Strategies (SORS) instrument. Strategies in this category are “basic support mechanisms intended to aid the reader in comprehending the text such as using a dictionary, taking notes, underlining, or highlighting textual information” (Mokhtari & Sheorey, 2002, p.4).

The Survey of Reading Strategies (SORS) is an instrument that measures “adolescent and adult ESL students’ metacognitive awareness and perceived use of reading strategies while reading academic materials such as textbooks” (Mokhtari & Sheorey, 2002, p.2).

Test of English as a Foreign Language (TOEFL) is a standardized English language test for non-native English speakers developed and conducted by Educational Testing Service (ETS).

Summary

With the increased need for English language proficiency in the 21st century, learning English has become essential (Hinkel, 2005). Because of this, the number of people who are learning English has grown (Hinkel, 2005). In the United States, elementary and secondary schools have increased numbers of English as a Second Language (ESL) students (August, 2006; Christian 2006). Similarly, American institutions of higher education are also experiencing a larger enrollment of ESL students (IIE, 2008a). Those ESL students learn subject matters in English, and some of them struggle to develop their English language proficiency (Klingner, Hoover, & Baca, 2008; Pintozzi & Valeri-Gold, 2000).

Research shows that reading is a significant element for academic success (Sheorey & Mokhtari, 2008a). Particularly, the role of metacognition in reading is necessary. Researchers began to study metacognition in reading for both native and non-native English speakers in the 1970s (Anderson, 2005; Baker, 2008a; Hosenfeld, 1979). However, there is still a need to explore metacognitive awareness and use of strategies in reading for ESL students since metacognitive reading contributes to their reading

comprehension. Consequently, with the fact that reading is tied to all subject matter, developing their reading comprehension supports their academic success.

This study explored the role of metacognition among adult ESL students (non-degree seeking students at the English Language Institute, undergraduate students, and graduate students) enrolled in a university in the southeastern part of the United States of America when they are involved in academic English reading. This study consists of five chapters. Chapter 1 has given an overview of the study. Chapter 2 provides a comprehensive review of literature relating to second language reading as well as the role of metacognition in reading English both as a first and second language. Chapter 3 presents the research methodology using a triangulation mixed methods design. Results of the quantitative and qualitative research designs are presented in Chapter 4. Finally, discussion and conclusions of the study, including implications and recommendations for further studies, are addressed in Chapter 5.

CHAPTER II

REVIEW OF LITERATURE

Introduction

Prior to the 1970s, scientists fervently engaged in the concepts of cognitive and metacognitive abilities, which thereafter became the key elements for understanding the development of human learning (Block & Pressley, 2007). In order to understand the nature of the study on metacognitive reading strategies among adult English as a Second Language (ESL) students in the United States, this chapter first examines second language acquisition including definitions, theories, and factors affecting second language acquisition. This chapter next looks at second language reading by examining meanings of reading as well as characteristics of ESL students in second language reading. Another section on metacognition and its relationships to reading is presented which investigates historical background, concepts of metacognition, metacognitive strategies in reading, and previous research on reading strategies for native and non-native English speakers. Finally, studies on self-evaluation on academic learning are summarized.

Second Language Acquisition

Before exploring the concept of metacognition as it relates to adult ESL students, second language acquisition must be discussed. Three key theories in second language acquisition are presented followed by an explanation of variables that influence second language acquisition. By understanding second language acquisition in general, a framework may be given for examination of metacognition in adult ESL learners.

Definitions of Second Language Acquisition

Second language acquisition is a complex phenomenon (Ellis, 1994). Doughty and Long (2003, p. 3) explained second language acquisition as follows:

The scope of second language acquisition (SLA) is broad. It encompasses basic and applied work on the acquisition and loss of second (third, etc.) languages and dialects by children and adults, learning naturalistically and/or with the aid of formal instruction, as individuals or in groups, in foreign, second language, and lingua franca settings.

Ellis (1986) also stated that second language acquisition can be a subconscious or conscious process where people learn a language other than a native language in either a natural or classroom setting. Second language acquisition may occur either in natural settings, where the target language is used as a communication tool, or instructional settings, such as the classroom (Ellis, 1986, 1994). Gass and Selinker (2001) explained that second language acquisition is the study of how learners develop systems of new languages. Taken collectively, these researchers present a holistic picture of second language acquisition that includes not only acquisition of second languages, but also the contexts of such acquisition (natural or taught) and purpose (such as communication or other uses). These definitions are useful frameworks in which to explore theories relating to acquisition of a second language.

Theories of Second Language Acquisition

The study of second language acquisition was not formally established until the late 1960s (Pica, 2005). According to Pica (2005) and Nunan (2001), the formal study on second language acquisition was first conducted by Corder (1967). Corder examined

learners' errors as a way to understand learning processes (Ellis, 1994). Studies of Selinker (1972) and of Richards (1974) also became the key for the field of second language acquisition because of their focus on interlanguage between first and second languages. Since that time, scholars and researchers started to focus on how one acquires languages other than the first language.

There are three major theories in second language acquisition: the behaviorist theory, the innatist theory, and the interactionist theory. The first theory, the behaviorist theory, is rooted in behaviorism which focuses on conditioned behavior (VanPatten & Williams, 2007). Based on the views of B. F. Skinner (1974) and Thorndike (1917), behaviorists point out that people learn by repeated practices (de Bot, Lowie, & Verspoor, 2005; Johnson, 2004). In other words, learners acquire a second language when they have a lot of repetition through drills and imitations. The stimulus-response relationship also plays a significant role in learning. Learners receive a stimulus, such as a reward or punishment, in order to get a better response in their development. Errors are to be corrected immediately (Peregoy & Boyle, 2001).

Moreover, from the perspectives of behaviorists, learners might sound out a word without much cognitive processing. As a result, learners could identify a word but would tend to fail to understand its meaning. All learning is viewed as the acquisition of new behavior or a process of habit construction with the learning environment as the important element (VanPatten & Williams, 2007). From a behavioral approach, classroom instruction is teacher-centered. Students passively receive the structured instruction and practice skills. The behaviorist theory supports bottom-up strategies, such as decoding, phonics instruction, and grammar pattern drills. Teachers emphasize

students' observable and measurable performances. Teachers focus only on students' outcomes, not their processes (Peregoy & Boyle, 2001).

The second theory in second language acquisition is the innatist theory, which dominated in the 1960s and 1970s (Brown, 2000; VanPatten & Williams, 2007). Some researchers and educators reject behavioral approaches (VanPatten & Williams, 2007) and insist that people need to learn naturally and more meaningfully. From the linguistic perspective, Norm Chomsky (1957, 1965) emphasized a human, innate system and insisted that humans have hard-wired capacities for language acquisition. Chomsky's view includes physiological orientation. From the psycholinguistic perspective, Kenneth Goodman (1965, 1967) viewed reading as a meaning-making process, which is the opposite concept of the behaviorist theory.

Peregoy and Boyle (2001) summarized studies of Dulay and Burt (1974a, 1974b), stating that learners acquire second languages in a similar way that people acquire a first language. These innatist theorists hold that people learn naturally in a rich literacy environment where they are immersed in opportunities to read various printed materials. Second language students learn naturally from teachers, books, and friends and will naturally acquire their second language without any conscious effort. Learners' motivation is considered an important element. Errors are not to be corrected because second language learners will naturally correct their errors themselves an error is made. In an innatist model, students are encouraged to use top-down reading strategies, including inferring and focusing on text structures. The classroom instructional environment is student-centered with students encouraged to enjoy reading and to appreciate learning. With this holistic approach, teachers are encouraged to use authentic

assessments, such as portfolios. Teachers focus on the processes of students' learning and processes rather than on outcomes. The cognitive theory influences this natural learning perspective (Brown, 2000).

Stephen Krashen, one of the major scholars of the innatist theory, is highly associated with the Monitor Theory, which was developed during the 1970s and 1980s (Nunan, 2001; VanPatten & Williams, 2007). Krashen (1982) developed five hypotheses in Monitor Theory. First, Krashen distinguishes acquisition from learning, which is called the acquisition-learning hypothesis. Acquiring a second language is a subconscious process, whereas learning the second language is a conscious process (Krashen, 1982). According to Krashen, conscious learning cannot become subconscious acquisition (Nunan, 2001; O'Malley & Chamot, 1990).

Second, Krashen (1982) described that the monitor hypothesis is a conscious process of learning and contributes to second language acquisition to a limited degree. As one learns, the learned system acts like an editor or monitor by polishing the output and making corrections (Gass & Selinker, 2001; Lightbown & Spada, 2006). According to Krashen (1982), the monitor system works when learners meet three conditions: learners need to have enough time to consciously think about the language, learners must focus on how to produce correct language, and learners need to know the rules of the language.

The third hypothesis of Krashen's Monitor Theory is the natural order hypothesis. Krashen (1982) claimed that people acquire syntactic rules in certain orders. In the process of second language acquisition, some elements of language or grammatical rules

are to be acquired earlier and others are to be acquired later. Krashen (1982) pointed out that this order is not necessarily the same as the order of learning a first language.

The fourth hypothesis is the input hypothesis, which is the key component in Krashen's Monitor Theory (Peregoy & Boyle, 2001). People acquire a second language when they understand the language a little beyond the current level of the learners. Krashen designated the learners' current acquired language level as "i," which stands for input, and identifies language that is just above the learners' current language level as "+1" (Lightbown & Spada, 2006; Peregoy & Boyle, 2001).

Krashen's (1982) fifth hypothesis in the Monitor Theory is the affective filter hypothesis. Language acquisition is related to learners' affective factors including motivation, anxiety, feelings, needs, and self-confidence (Lightbown & Spada, 2006). Learners acquire language when the affective filter, which prevents them from learning even when their input is comprehensible, is low.

Some researchers (e.g., Gass & Selinker, 2001; Gregg, 1984; Long, 2007; McLaughlin, 1978; Odlin, 1986) are critical of Krashen's Monitor Theory. According to the researchers, Krashen's conceptual explanation was still ambiguous (e.g., unclear distinction between conscious learning and subconscious acquisition, weakness in focusing on only input, and difficulties of testability in the monitor hypothesis). However, other scholars state that Krashen's theory led second language researchers to investigate the second language acquisition more cautiously, resulting in increased research in unexplored areas (Brown, 2000; Gass & Selinker, 2001).

The third theory in second language acquisition is the interactionist theory emerged in the 1980s and remains a widely-accepted theory among researchers in second

language acquisition (Brown, 2000). The interactionist theory is based on constructivism, influenced by views of Piaget and Vygotsky. Interactionist theorists hold that learners acquire second languages through interactions, emphasizing communication as well as comprehension input (Ellis, 1986). This theory combines some parts of the behaviorist with parts of the innatist theory. Long (1985), a key theorist of the interactionist theory, insists that both input and interaction are key for language acquisition. Other researchers also insist that conversational interaction is of significance for second language acquisition (Gass, 1997; Pica, 1994). Thus, classroom instruction should focus on communication. Teachers are encouraged to use authentic learning materials, yet skill practices are taught as necessary. Errors are not to be corrected if the errors do not prevent communication, but teachers can sometimes correct learners' errors with explicit instruction. The social contexts are also essential elements for learners in the interactionist theory.

In summary, three major theories of the behaviorist, innatist, and interactionist are presented. The behaviorist theory is based upon the views of Skinner, which stresses conditioned learning (VanPatten & Williams, 2007). The innatist theory emphasizes natural and holistic learning (Lightbown & Spada, 2006). The interactionist theory values constructing meaning through interactions, which was advocated by Vygotsky. These theories are foundation of learning and second language acquisition (Brown, 2000). With the foundation, learners' characteristics which may influence second language acquisition are to be discussed.

Factors that Contribute to Second Language Acquisition

Understanding second language acquisition requires an examination of some learner characteristics that affect second language acquisition. These factors include the age and gender of the second language learner, motivation to learn another language, personality characteristics, and aptitude for languages. These factors are presented and explored.

Age is one factor (Butler & Hakuta, 2004) in second language acquisition, as children, adolescents, and adults do not necessarily acquire a second language in the same manner. Many researchers believe that children learn languages better than adults (Cook, 2001; Gass & Selinker, 2001). However, adults also benefit from more developed cognitive abilities as compared to children (Ellis, 1986). Gender is another factor that affects learners' second language acquisition. Some studies suggest that females are better second language learners than males (Ellis, 1994; Gu, 2002; Nyikos, 2008; Sunderland, 2000). However, there needs to be more research that focuses on gender in relationship to other factors, such as learning strategies, age, and ethnicity (Ellis, 1994). Motivation also influences learners' language acquisition (Dörnyei, 2006; Gass & Selinker, 2001; Lightbown & Spada, 2006; Ushioda, 2008). There are two types of motivation: intrinsic and extrinsic motivation. Intrinsic motivation comes from personal interests and inner needs of the learner. Learners have extrinsic motivation when they are influenced by outside sources, such as getting rewards or jobs. In addition to motivation, Gass and Selinker (2001) demonstrated that certain personality variables can be predictors of better language performance. Extroverted learners are sociable people, whereas introverted learners are shy people. Some researchers argue that extroverts learn

languages better than introverts (Dewaele, 2004), yet others point out that no correlation was found between personality and language performance (Lightbown & Spada, 2006). Other traits which may influence second language acquisition may include self-esteem, empathy, and anxiety (Lightbown & Spada, 2006). Learners with different personal characteristics benefit from various learning styles and tasks (Gass & Selinker, 2001). Aptitude also impacts second language learning (Gass & Selinker, 2001). In fact, aptitude is a very consistent predictor for second language learning (Dörnyei & Skehan, 2003; Skehan, 1989). Aptitude in second language acquisition refers to a certain ability that a person possesses for language learning (Ellis, 1986).

In summary, several factors, including age, gender, motivation, personality, and aptitude of learners, are discussed. These learners' characteristics may influence second language acquisition. Having general concepts of second language acquisition, the review of literature continues to present research on second language reading.

Second Language Reading

Within the broader category of Second Language Acquisition is the finer issue of second language reading. When looking at how individuals learn to read, there are some common features between first and second language reading. However, reading in second language requires several different conditions compared to first language reading (Fitzgerald, 1995b; García, 2000). This section attempts to define the development of reading skills in general as well as reading comprehension in particular. The section also describes characteristics of reading that English as a Second Language (ESL) students experience when learning to read in a second language.

Definitions of Reading

Research on reading was essential among early psychologists (Rumelhart, 2004). For example, Edmund Burke Huey (1908) was one of the greatest scholars in the early twentieth century. Huey (1908) viewed reading as a meaning-making process with psychological, linguistics, and social dimensions (Reed & Meyer, 2007). Since then, definitions of reading have been changed along with different theoretical views over time (Cummins, Stewart, & Block, 2005; Harris & Hodges, 1995).

Like language acquisition, reading was strongly impacted by behaviorism until the 1950s (Thorndike, 1922). Reading was considered conditioned behavior. After the domination of behaviorism, the innatist theory influenced the concept and instruction of reading (Alexander & Fox, 2004). The innatist theory was based on cognitive psychology. According to Goodman (1967, p. 127), reading is “a psycholinguistic game” which requires interactions with thought and language.

After the period of the holistic view of reading, constructivists emphasized sociocultural and constructive concepts (e.g., Vygotsky, 1978, 1986). The interactive model of reading was emphasized (Eskey, 2005). Scholars stressed reading for constructing meanings from reading materials (Carrell & Grabe, 2002; McShane, 2005; Ruddell & Unrau, 2004; Urquhart & Weir, 1998). For example, Ruddell and Unrau (2004) defined reading as “a meaning-construction process that enables us to create carefully reasoned as well as imaginary worlds filled with new concepts, creatures, and characters” (p. 1462). Carrell and Grabe (2002), scholars in the field of second language reading, used Urquhart and Weir’s (1998, p. 22) definition of reading, which is “the process of receiving and interpreting information encoded in language form via the

medium of print.” McShane (2005, p. 3) also discussed that reading is “a complex system of deriving meaning from print.” These definitions have commonalities including meaning-making processes from information which provide a basis upon which to explore the elements of reading.

Both McShane (2005) and Armbruster, Lehr, and Osborn (2003) described fundamental elements required for reading as phonemic awareness, phonics, fluency, and vocabulary. However, McShane (2005) viewed that reading strategies and affective factors (e.g., motivation) were also needed for reading development. Beyond this technical level, Armbruster, Lehr, and Osborn (2003) cite the importance of valued reading comprehension within the development of reading skills. An exploration of reading comprehension is critical, especially within the context of second language reading.

Definitions of Reading Comprehension

By understanding the meaning and key elements of reading, the concept of reading comprehension can be explored. Summarizing the report of the RAND Reading Study Group (2002), Snow and Sweet (2003, p. 1) clarified reading comprehension as follows:

the process of simultaneously *extracting* and *constructing* meaning....figuring out how print represents words and engaging in the translation of print to sound accurately and efficiently (extracting), at the same time formulating a representation of the information being presented, which inevitably requires building new meanings and integrating new with old information (constructing meaning).

According to Snow and Sweet (2003), three dimensions are involved in comprehension: the reader, the text, and the activity. These three elements work simultaneously, not in isolation. They further state that the process of reading comprehension involved in these three elements both influence and is influenced by the sociocultural context of the developing reader.

Importance of Reading Comprehension

Reading comprehension is essential for learning across subjects, as students are required to construct meaning in texts for better academic performance (Koda & Zehler, 2008). Learners have difficulty achieving academically without comprehending much of what is written in the reading materials. Educators, teachers, and scholars assume that reading comprehension leads students' academic success, which can be measured by such variables as test scores and grade point average (GPA) (Dreher & Singer, 1985; Otero, Campanario, & Hopkins, 1992; Taraban, Rynearson, & Kerr, 2000).

Some studies investigate relationships between students' reading abilities and academic achievement. Arbona, Bullington, and Pisecco (2001) conducted a study with 79 Turkish undergraduate and graduate students at universities in the United States ranging in age from 19 to 34. The study revealed a relationship between GPA and speaking-reading proficiency in English, with students with higher levels of English proficiency having higher GPAs. The finding of García-Vázquez, Vázquez, López, and Ward (1997) was similar to in that English reading proficiency of Hispanic English as a Second Language (ESL) students in grades 6 to 12 in the United States was correlated to GPAs and standardized test scores.

Taraban, Rynearson, and Kerr (2000) went beyond English proficiency and GPA to examine relationships between reading strategies and academic achievement among freshman university students in the United States. In this study, a questionnaire about reading strategies, scores on the reading section on a standardized test, and the student's GPA were used. The questionnaire comprised of 35 items, including skimming, guessing, summarizing, and identifying key information in a text. The study indicated that students with higher GPAs used more reading strategies than did students with lower GPAs. In addition, a correlation between GPA and the reading test scores was found.

Taken collectively, these studies suggest a need to more fully examine the relationship of English proficiency and English reading strategies in the context of academic achievement of ESL students. An exploration of characteristics of reading in both the learner's first and second languages may provide more depth to such an examination. Likewise, this examination will yield key factors for future research in the fields.

Characteristics of Second Language Reading

Research indicates key differences between first language (L1) and second language (L2) reading (Grabe, 2002b; Grabe & Stoller, 2002). Experiences in learning English as a second language (ESL) for non-native English speakers have also been studied and reported (Devine, 1993; Koda, 2007). These concepts are presented and explored below.

Comparing first language (L1) reading to second language (L2) reading. There are some differences between first language (L1) reading and second language (L2) reading. First, while L1 reading involves one language, L2 reading is engaged in two languages

for cognitive processing (Carrell & Grabe, 2002; Koda, 2004). Particularly, because these languages are inherently diverse, there are some linguistic differences (e.g., lexical, grammar, and discourse) between the two languages that impact reading in the second language (Grabe & Stoller, 2002). L2 learners use prior literacy knowledge from literacy experience in L1 for information processing (Koda, 2004) which is a phenomenon not necessary for L1 learners who have literacy background knowledge only in their first language upon which new learning may build (Koda, 2004). In addition, L2 readers may transfer words, phrases, or sentences from L1 to L2 or vice versa, but any translation is unnecessary in L1 reading.

There are also some individual and experiential differences between L1 and L2 reading (Grabe & Stoller, 2002). Carrell and Grabe (2002) state that L2 readers tend to have a variety of purposes for learning L2, such as learning L2 for business success, accommodation to the L2 cultures and contexts, entering universities and colleges, and/or leisure (e.g., travel). Third, social and cultural contexts are different between L1 reading and L2 reading (Carrell & Grabe, 2002; Grabe & Stoller, 2002). Even though Koda (2004) saw using background knowledge while reading in L2 as advantages for L2 learners, Carrell and Grabe (2002) pointed out that different social and cultural background knowledge can sometimes work negatively for L2 reading. Sociocultural distance may intrude upon L2 learners' reading comprehension.

Although there are some common elements that differentiate L1 reading from L2 reading among Koda (2004), Carrell and Grabe (2002), and Grabe and Stoller (2002), there are some different arguments among the scholars. For example, Koda (2004) pointed out novice L1 learners have already built fundamental linguistic bases before the

formal literacy instruction. However, L2 learners receive L2 reading training before acquiring the adequate linguistic knowledge. Grabe and Stoller (2002) included additional different elements between L1 and L2 reading, such as amount of time for reading in L1 and L2, different levels of L1 reading proficiencies, multiple types of reading materials in L2, and structures of learning organizations.

Issues of second language reading. There are several characteristics that influence the second reading development for non-native English speakers. First of all, second language readers have culturally different background knowledge and/or schemata (Eskey, 2005; Jiménez, García, & Pearson, 1996). Borrowing descriptions from Rumelhart (1980), Carrell and Eisterhold (1998) define background knowledge as knowledge acquired in the past and schemata as knowledge structures acquired in the past. Koda (2007) states that schemata consist of generalized information acquired from diverse learning situations and show relationships among the component elements.

Singhal (1998) categorized schemata in the following three variables: content/background schema, formal/textual schema, and linguistic/language schema. Content/background schema is knowledge about the content (Carrell, 1987a). Formal/textual schema is knowledge about the formal and rhetorical organizations among different types of reading materials (Carrell, 1987a). Linguistic/language schema involves the decoding process for recognizing words and focuses on how the words fit together in a sentence (Singhal, 1998). Previous research shows that having rich schemata on a subject matter is related to better reading comprehension (Carrell, 1987a; Hudson, 2007; Singhal, 1998).

For content schema or background knowledge, Steffensen and Joag-Dev (1984) investigated the impact of cultural content schemata among American native English speakers and Indian students learning English as a second language (ESL). Both groups read two types of English passages on the topic of weddings, one Indian oriented and one Western oriented. The study showed that both groups recalled and understood the contents that described their own native cultural weddings better than the passages about other cultural weddings. The findings of Carrell (1987a) and of Johnson (1981) also concurred with the study by Steffensen and Joag-Dev (1984).

Textual/formal schema also contributes to second language reading (Koda, 2004; Carrell, 1992). Familiarity of the text structure of the English language (e.g., cause and effect, question and answer, and compare and contrast) facilitates L2 readers in understanding English passages (Carrell, 1984a, 1984b; Eskey, 2005). Carrell (1984a) examined the impact of text structures for different cultural groups. Arabic students recalled from informational texts in the comparison and contrasting organization the best. The next most remembered passage structure for the Arabic students was cause and effect. By contrast, Asian students recalled text passages well in the organizations of problem solving and of cause and effect.

In the area of linguistic/language schema, Singhal (1998) states that L1 linguistic characteristics may influence L2 readers' interpretation on the English texts. For example, the Finnish language uses less demonstrative formats than English. Finnish texts rarely indicate text structures, while English texts have specific indicators of when a new section begins or what to expect in the following sentence or section. French texts

tend to have more theoretical and abstract components than the English texts. Arabic is different from English in that the Arabic language is written from right to left.

Vocabulary is another factor that contributes to successful second language reading (Fitzgerald, 1995b; Koda, 2007). Inadequate English lexical knowledge adversely influences non-native English speaking readers' reading proficiency (August, Carlo, Dressler, & Snow, 2005; Levine & Reves, 1990). Carrell and Grabe (2002) argued that ESL readers need to have sufficient size of vocabulary so that the readers can develop vocabulary knowledge by inferring from contexts and by referring to dictionaries, and that the learners benefit from effective instructions on different vocabulary strategies. Qian (2002) conducted a study on the relationship between vocabulary knowledge and reading comprehension with 217 ESL students. Qian (2002) found that vocabulary depth and size were significantly related to the participants' English reading performance.

Another issue of second language reading is the level of second language proficiency. Alderson (1984) posed a question of whether difficulties of learning foreign language are due to "a reading problem" or "a language problem" (p. 1). Some researchers explain that reading in second or foreign language depends on learners' first language (L1) proficiency (Cummins, 1979, 1991). The point is that readers' development of the second or foreign language can be determined by the reading ability in the native language rather than the second or foreign language. Once one acquires literacy skills in the first language, some foundations can also be used when learning L2 (Bernhardt & Kamil, 1995). This position is called the linguistic interdependence hypothesis.

Other researchers discuss that in order to read in a second language, one is required to have adequate linguistic knowledge in a second language (Bernhardt & Kamil, 1995). Even proficient L1 readers cannot process L2 reading without knowing the basic linguistic knowledge in L2. This position is well known as the linguistic threshold hypothesis (Koda, 2004), whose foundation is based on Clarke's (1980) short-circuit hypothesis and Yorio's (1971) argument. In the studies conducted by Bernhardt and Kamil (1995) and by Carrell (1991), the results demonstrated that L2 reading proficiency, rather than L1 reading proficiency, predicted the participants' L2 reading ability.

In summary, this section provided previous literature review on characteristics of second language reading. Particularly, comparison between first language (L1) reading and second language (L2) reading and some issues that may influence second language reading are discussed. With understanding unique characteristics of second language learners, the next section further examines reading with regard to the concept of metacognition.

Metacognitive Reading

Metacognition is a critical component of reading, particularly for ESL learners (Mokhtari & Sheorey, 2008; O'Malley, & Chamot, 1990). In order to understand what metacognition is, how it applies to the reading process, and what impact it has for reading among ESL learners, a historical background of metacognition is presented. This is followed by a description of the nature of metacognition and discussion of the role of metacognitive strategies in reading.

Historical Background

Early educators, such as John Dewey (1910), Edmund Burke Huey (1908), and Edward Lee Thorndike (1917), already discussed the role of awareness of cognitive processes in their early works (Baker & Beall, 2009; Baker & Brown, 1984; Brown, Armbruster, & Baker, 1986). However, the term metacognition was not introduced until the work of Flavell in 1976. Metacognition is related to Piaget's and Vygotsky's cognitive theory and gestalt theory which was developed in Germany (Ormrod, 2008). Jean Piaget and Lev Semynovich Vygotsky studied children's cognitive processing, and their studies became important in the fields of psychology and education (Byrnes, 2008; Flavell, Miller, & Miller, 2002; Woolfolk, 2008).

Piaget's theory holds that children's thinking processes can change from time to time as children grow and continuously try to make sense of the world and construct knowledge (Tracey & Morrow, 2006). Piaget (1955) formed the theory of cognitive development with four stages: the sensorimotor stage (0-2 years), the preoperational stage (2-7 years), the concrete operational phase (7-11 years), and the formal operational stage (11 years - adult). While Piaget focused on maturation as an indispensable condition for learning with cognitive development occurring before learning, Vygotsky stated that learning from interactions with others can guide this development (Blanck, 1990; Slavin, 1997). Vygotsky emphasized human cognitive development and learning in the social and cultural contexts (Kozulin, Gindis, Ageyev, & Miller, 2003; Moll, 1990).

Furthermore, cognitive theory as promoted by Vygotsky embraces information processing theory, which focuses on attention, memory, and learning strategies (Ormrod, 2008). Information-processing theorists pay more attention to how people store and

retrieve knowledge in their minds. In other words, unlike Piaget's theory which stresses human developmental stages, the information-processing theorists are interested in cognitive changes in one's processing (Flavell, Miller, & Miller, 2002). Schema theory is strongly related to the information-processing theory.

As to the concept of metacognition, Schwartz and Perfect (2002) stated that Hart's (1965) and Flavell's (1979) work had significant basis in the research of metacognition. Hart (1965, 1967) focused on how accurately people can judge their "feeling-of-knowing" experiences. On the other hand, Flavell was more interested in people's abilities to reflect on cognitive processing (Schwartz & Perfect, 2002). Influenced by Piaget, Flavell developed a concept of metacognition around the early 1970s (Flavell, 1971).

The Nature of Metacognition

Examining the nature of metacognition can help understand how learners gain new knowledge and skills. Definitions of metacognition are presented to guide this understanding. Flavell's model of cognitive monitoring is next presented followed by key elements of metacognition.

Definitions of metacognition. Metacognition literally can be described as thinking about thinking (Anderson, 2002, 2005; Hacker, 1998). Metacognition is a person's ability to reflect on what is known and is not a simple process of recalling, describing events or activities (Anderson, 2008). According to Baker and Brown (1984), metacognition is knowledge of and monitoring of one's thinking and learning processes.

The term metacognition was first introduced by Flavell (Schmitt, 2005). Flavell (1976, p. 232) defines metacognition as "one's knowledge concerning one's own

cognitive processes and products or anything related to them.” Metacognition is “the active monitoring and consequent regulation and orchestration of these processes in relation to the cognitive objects or data on which they bear, usually in the service of some concrete goal or objective” (Flavell, 1976, p.232). Flavell (1979) also described metacognition basically as “knowledge and cognition about cognitive phenomena” (p. 906). This cognitive phenomenon is associated self-regulation with cognitive monitoring (Griffith & Ruan, 2005).

Elements of metacognition. Flavell (1979) proposed a model of cognitive monitoring, in which there were four subdivisions: metacognitive knowledge, metacognitive experiences, goals (or tasks), and actions (or strategies). Humans use and interact with these four categories’ enterprises in metacognitive processes. Furthermore, based upon Flavell’s (1978) model, researchers identified knowledge of cognition and regulation of cognition as the two dimensions of metacognition (Baker & Brown, 1984). These dimensions became a focus among scholars (Paris & Winograd, 1990) and provide a useful base upon which to understand how metacognition influences learning.

The first dimension of metacognition, knowledge of cognition, involves declarative knowledge, procedural knowledge, and conditional knowledge (Jacobs & Paris, 1987; Paris, Lipson, & Wixson, 1983). Declarative knowledge is the knowledge people have about themselves and about learning strategies which influence cognitive process (McCormick, 2003). Declarative knowledge in reading means simply knowing strategies, such as skimming, summarizing, and inferring (Carrell, Gajdusek, & Wise, 1998). Procedural knowledge is one’s awareness of thinking process (Jacobs & Paris, 1987). Procedural knowledge refers to knowing or reflecting on how to actually perform

the reading strategies (Winograd & Hare, 1988). Conditional knowledge is learners' abilities to select and employ specific reading strategies appropriately in various contexts and to evaluate the effectiveness of the strategies (Carrell, Gajdusek, & Wise, 1998; Jacobs & Paris, 1987; Winograd & Hare, 1988). In order to have conditional knowledge, learners need to know when and where to apply declarative and procedural knowledge (Schreiber, 2005).

The second dimension of metacognition, regulation of cognition, is the ability to monitor and regulate cognitive and metacognitive processes. Summarizing arguments of various scholars, regulation of cognition is concerned with planning before activities or tasks (e.g., reading), checking and monitoring learning process during the activities, and reflecting on the effectiveness of learners' approaches after the activities (Baker & Brown, 1984; Carrell, 1987b; Carrell, Gajdusek, & Wise, 1998; Flavell, Miller, & Miller, 2002; Hacker, 1998; Hudson, 2007; Israel, Block, Bauserman, & Kinnucan-Welsch, 2005).

Metacognitive theories and processes can help to illuminate not only the process of learning, but also the learner's awareness of those processes. By examining the nature of metacognition and the evolution of metacognitive theories, an investigation of how these theories and their underlying elements and dimension impact the development of reading skills can be undertaken. The impact of metacognition on reading English both as a first and second language are presented in the following section.

Metacognitive Strategies in Reading

After examining metacognition in general, this particular section focuses on the role of metacognition in the field of reading. This section describes types of metacognitive strategies in reading, which is an essential component for developing

students' reading comprehension (Houtveen & van de Grift, 2007). These descriptions may facilitate the understanding of the research on the effectiveness of metacognitive strategies in reading.

Reading strategies can be classified in three classes of metacognition: planning, monitoring, and evaluating strategies (Anderson, 2008; Israel, 2007; Pressley & Afflerbach, 1995; Schraw, 1998). Planning strategies are those approaches used before reading. Activating learners' background knowledge to get prepared for reading is an example of a planning strategy (Almasi, 2003; Israel, 2007). Other planning strategies include examining a title, pictures, illustrations, headings, or subheadings for previewing would help readers grasp the overview of the text. Readers may also preview the general information in the text and its structure (Almasi, 2003; Paris, Wasik, & Turner, 1991). Learners may check whether their reading material has a certain text structure, such as cause and effect, question and answer, and compare and contrast. Moreover, setting the purposes for reading can be also categorized as a planning strategy (Paris, Wasik, & Turner, 1991; Pressley, 2002).

Monitoring strategies occur during reading. They help readers with reading comprehension. Some examples of monitoring strategies are understanding meaning of vocabulary, self-questioning, reflecting on whether they understood what they have read so far, summarizing, and inferring the main idea of each paragraph as they are reading (Israel, 2007; Pressley, 2002). Readers also may identify and focus on key information or key words, including *but*, *however*, *on the other hand*, *in addition*, *also*, and *in conclusion* in the textbook. Determining which part of the passage can be emphasized or ignored based on the purpose of the task is another monitoring strategy (Hudson, 2007).

Evaluating strategies are to be employed after reading. There are a variety of strategies readers may apply. For example, after reading, learners may think about how to use the information they have just read for other situations. The readers may replace themselves with the author, a narrative, or main character of the textbook and have better perspectives of the situation.

All three groups of metacognitive reading strategies presented (planning/pre-reading, monitoring/during reading, and evaluating/post-reading) require metacognitive processing. While many researchers differentiate metacognitive strategies by time (e.g., before, during, and after reading), Anderson (2003a) pointed out that different metacognitive reading strategies sometimes work simultaneously rather than separately. According to Anderson, learners need to effectively manipulate a variety of reading strategies in order to become expert readers.

Research on Metacognitive Strategies in Reading

With understanding different types of metacognitive strategies in reading, a description of the impact of this concept on reading development in particular way should be explored. There is a growing body of studies on metacognitive strategies in reading for native and non-native English speaking learners. While significant studies on metacognitive strategies in reading for native English speakers have been reported, there are a smaller number of studies focusing on metacognition in reading for non-native English speakers. This section focuses on previous studies on the effectiveness of metacognitive strategies in reading with native English speakers followed by studies with non-native English speakers.

Studies on native English speaking learners. Winograd and Hare (1988) presented a review of the literature summarizing several studies conducted to investigate the effectiveness of students' metacognitive strategies through teachers' explicit instruction on reading comprehension skills. The studies included in the meta-analysis were examined based upon three metacognitive dimensions of declarative, procedural, and conditional knowledge. In some studies examined, learners in middle and high schools benefited from learning different reading strategies (declarative knowledge), how to use the strategies (procedural knowledge), and when and where to employ the strategies (conditional knowledge) (Adams, Carnine & Gersten, 1982; Baumann, 1984; Garner, Hare, Alexander, Haynes, & Winograd, 1984; Hare & Borchardt, 1984). Other studies showed that teaching only declarative and procedural knowledge was even effective for students' reading development (Hansen & Pearson, 1983; Patching, Kameenui, Carnine, Gersten, & Colvin, 1983). In addition, studies conducted by Adams, Carnine and Gersten (1982) and by Hare and Borchardt (1984) illustrated the advantages of teaching the importance of evaluating reading performance to the students, which is another part of conditional knowledge. Taken collectively, the literature examined by Winograd and Hare (1988) showed that learners who were systematically trained utilizing different metacognitive reading strategies developed reading comprehension. Further, they found that all studies focusing on explicit teaching of metacognitive strategies positively impacted the students' reading comprehension skills.

Similar to the findings of all studies above, Boulware-Gooden, Carreker, Thornhill, and Joshi (2007) demonstrated the effectiveness of teaching metacognitive reading strategies to third graders in the United States. In their study, strategies such as

self-questioning, summarizing, clarification, identifying main ideas, and inferring, were taught. After the five-week intervention, the results of a post-test illustrated that students who received an explicit instruction showed a forty percent increase in vocabulary over students in the comparison group. In addition, the reading comprehension achievement among the participants in the intervention group indicated a twenty-percent gain in reading comprehension compared to another control group. These findings are supported by other researchers who show the positive relationship between teaching metacognitive reading strategies and students' reading proficiency (Anderson, 2008; Cummins, Stewart, & Block, 2005; Lubliner & Smetana, 2005; Pressley, 2002; Pressley & Gaskins, 2006).

Still other studies examined how learners would use metacognitive strategies differently for two specific types of reading: reading for study versus reading for entertainment (Lorch, Lorch, & Klusewitz, 1993; Mokhtari & Reichard, 2008; Narvaez, van den Broek, & Ruiz, 1999; van den Broek, Lorch, Linderholm, & Gustafson, 2001). Studies conducted by both Lorch, Lorch, and Klusewitz (1993) and by Narvaez, van den Broek, and Ruiz (1999) concluded that students used more metacognitive strategies during reading for academic purposes, such as examinations and assignments, than reading for fun or entertainment. In the study of Lorch, Lorch, and Klusewitz (1993), post-secondary students read for academic reading more slowly and less enjoyably than non-academic reading. The participants were more engaged in various reading strategies, including re-reading, thinking, and focusing on key information during reading school materials than during reading non-school related materials. More frequent use of metacognitive strategies was also found in academic reading than in non-academic reading in the study of Narvaez, van den Broek, and Ruiz (1999).

Mokhtari and Reichard (2008) used the Metacognitive Awareness of Reading Strategies Inventory (MARSIS) to see any differences between reading for study and for fun among 11th-grade students. The results of study conducted by Mokhtari and Reichard (2008) were similar to the findings of Lorch, Lorch, and Klusewitz (1993) and of Narvaez, van den Broek, and Ruiz (1999). The students reported using metacognitive strategies more frequently in academic reading than in entertainment reading. More specifically, the participants used Global Reading Strategies (GLOB), such as setting goals for reading, and Support Strategies (SUP), such as reading text aloud, for academic purposes more frequently than for entertainment purposes. However, there was no significant difference between academic and non-academic reading with the Problem Solving Strategies (PROB), including inferring vocabulary. Furthermore, gender or students' reading levels did not relate to the use of metacognitive strategies for different reading purposes. This work is significant in that it examines the types of reading strategies employed, giving more information about the strategies employed and when.

Unlike the results of previous studies which examined relationships between academic reading and strategy use as compared to non-academic reading and strategy use, van den Broek, Lorch, Linderholm, and Gustafson (2001) analyzed the data using more variables including metacognitive strategies (e.g., inferences, associations, and monitor) and memory (e.g., text recall). For example, they found college students who read for fun demonstrated a higher frequency in monitoring than did the students who read for academic goals. Moreover, the students who read for enjoyment indicated more connection to personal lives than did the participants who read for study. Yet, it should be noted that van den Broek, Lorch, Linderholm, and Gustafson (2001) found that the

students who read for academic reasons used explanatory and predictive inferences more often than did the students who read for non-academic reasons (as did Lorch, Lorch, and Klusewitz). Students reading for academic purposes also engaged in paraphrasing and repetition in order to understand the content of the passage and the intention of the author more often than did those reading for enjoyment. The study of van den Broek, Lorch, Linderholm, and Gustafson (2001) also revealed that the readers with a study purpose had a better memory for the content of the expository text.

All four studies in previous sections focused on the use of metacognitive reading strategies with different purposes (academic and non-academic reading). The studies can be associated with the statement of Rosenblatt (1978) who was an advocator of aesthetic and efferent reading stances. Rosenblatt argued that various goals of reading influence participants' reading engagements (Alexander & Fox, 2004), and the studies described in this part demonstrated the impact of certain goals on readers' strategy use.

In addition to researching purpose for reading as a key factor of reading metacognition as described above, the concept of self-regulation has been examined (Hacker, 1998; Pintrich, Wolters, & Baxter, 2000; Schreiber, 2005; Wolters, 2003). Pintrich defines self-regulation as "active, goal-directed self-control of behavior, motivation, and cognition for academic tasks by an individual student" (1995, p.5). Self-regulated learning is monitoring one's comprehension and evaluating abilities on his/her own. Students who use self-regulated strategies are most likely to succeed in academic performance (Pintrich & Zusho, 2002). Hartman (1994) implied that self-regulation of comprehension was strongly related to the interpretation of text, which was later supported by the studies of Schreiber (2005) and of Zimmerman and Schunk (2001). In

Hartmen's study, 8 reading-proficient high school students read five passages silently, reported back with a think-aloud task, and answered 23 reading comprehension questions. The results indicated that these participants monitored, controlled, and evaluated the process of reading (Hacker, 2004). Moreover, Isaacson and Fujita (2006) conducted a study to see relationships between metacognitive knowledge monitoring and self-regulated learning among 84 undergraduate students in the United States. The study revealed that academically successful students were able to identify abilities in academic performance and demonstrated metacognitive awareness and strategies more than were less successful students. The study implied that more metacognitive awareness and use of the strategies lead to academic achievement. Westby (2004) stated that expert readers tend to use various metacognitive strategies in reading, such as guessing, identifying main ideas, and focusing on text structures, than do novice readers.

With debating the developmental differences in metacognitive strategies, Piaget (1955) pointed out that age relates to children's cognitive developmental stages. Many scholars argue that the older learners are and the more proficient readers are, the more essential metacognitive strategies are for reading comprehension (Baker, 2005, 2008a, 2008b; Baker & Brown, 1984; Garner, 1987; Israel, 2007; McCormick, 2003; Mokhtari, Reichard, & Sheorey, 2008; Oakhill & Cain, 2006; Peverly, Brobst, & Morris, 2002; Pressley & Afflerbach, 1995; Pressley & Gaskins, 2006). For example, Myers and Paris (1978) asked questions about metacognitive awareness, tasks, purposes, and strategies in reading to 2nd and 6th grade students. They found that older students were able to identify reading strategies and also to use multiple strategies, including using a dictionary and rereading. On the other hand, younger students were not aware of reading strategies

and focused on more local or bottom-up strategies, such as decoding, rather than global or top-down strategies. Block and Israel (2004) agreed with the findings of Myers and Paris, showing that struggling readers use less metacognitive strategies.

Studies on non-native English speaking learners. With a general understanding of the impact of metacognitive strategies in reading for native English speakers, a review of the literature shows a shift to similar research focusing on metacognitive strategies for non-native English speaking students. Researchers seek to understand metacognitive awareness and use of reading strategies among non-native English speaking readers as compared to native English speaking learners (Block, 1992; García, Jiménez, & Pearson, 1998; Jiménez, García, & Pearson, 1995, 1996; Mokhtari & Reichard, 2004; Pardon & Waxman, 1988; Sheorey & Mokhtari, 2008b). Studies show that both native and non-native English speaking readers demonstrated metacognitive awareness and used a variety of reading strategies (García, Jiménez, & Pearson, 1998; Jiménez, García, & Pearson, 1995, 1996; Mokhtari & Reichard, 2004; Sheorey & Mokhtari, 2008b). Further, they show that readers, whether in a first language or a second/foreign language, employ different reading strategies and are aware of those reading techniques. A more in-depth examination, however, shows some differences between the two groups in specific reading strategies.

In Sheorey and Mokhtari's (2008b) study, there were 150 native English-speaking students and 152 English as a Second Language (ESL) students. The participants completed the earlier version of the Survey of Reading Strategies (SORS) inventory developed by Sheorey and Mokhtari (2001) which includes 28 items about perceived academic reading strategy use and metacognitive awareness. Both groups of native

English speakers and of ESL students reported relatively similar frequency of use of Global Reading Strategies (GLOB) and Problem Solving Strategies (PROB). However, use of Support Reading Strategies (SUP) was significantly different between the two groups. The ESL readers depended on the Support Reading Strategies more frequently than did the native English readers.

Mokhtari and Reichard (2004) examined metacognitive awareness and engagement of reading strategies while reading in English for school-related materials. The study involved 141 native English-speaking college students in the United States and 209 non-native English learning college students in Morocco. All students were considered as proficient readers in English. The Metacognitive Awareness of Reading Strategies Inventory (MARSİ) was used to compare significances between the two groups. The study revealed that both groups showed a moderate to high level of strategy use and metacognitive awareness while reading in English for academic purposes. Additionally, the Moroccan students' mean scores of the total, Global Reading Strategies (GLOB), Problem Solving Strategies (PROB), and Support Reading Strategies (SUP) on the MARSİ were higher than the US students' mean scores of all four categories. The finding indicated that Moroccan students tended to be engaged in reading strategies more frequently than did the native English speakers when reading in English.

In 1998, García, Jiménez, and Pearson summarized two studies they previously conducted (Jiménez, García, & Pearson, 1995, 1996). In the studies, Jiménez, García, and Pearson compared proficient bilingual Spanish and English students to successful monolingual English students. All students read one fiction and two non-fiction English passages. Additionally, bilingual students read two fiction and two non-fiction passages

in Spanish. Think-alouds, interviews, background knowledge assessment, and passage retellings were used to understand the students' reading experiences and metacognitive awareness while reading. The study illustrated that readers in both groups of monolingual and bilingual students used Global Reading Strategies (GLOB), such as using prior knowledge and inferring from contexts, and Support Reading Strategies (SUP), such as drawing conclusions. However, from the analysis of the overall performance, the Spanish-English speakers monitored for reading comprehension more often than did the native English speakers.

Furthermore, Sheorey and Mokhtari (2008b) and Jiménez, García, and Pearson (1995, 1996) examined metacognitive awareness and use of reading strategies based upon students' English proficiencies. Higher proficient readers in both groups of native English speaking and of ESL students were aware of and deployed metacognitive reading strategies, including Global Reading Strategies (GLOB), Problem Solving Strategies (PROB), and Support Reading Strategies (SUP), while lower proficient readers in both groups appeared not to be aware of or use the different reading strategies (Sheorey & Mokhtari, 2008b).

Jiménez, García, and Pearson (1995, 1996) also compared successful bilingual Spanish and English students to struggling bilingual learners. Similar to the findings of Sheorey and Mokhtari (2008b), Jiménez, García, and Pearson (1995, 1996) found that the struggling bilingual students did not use different metacognitive strategies that were used by the successful bilingual students. While successful bilingual readers used strategies such as monitoring comprehension, using background knowledge, asking questions,

using context clues, inferring from contexts to understand the messages of a text, and translating across languages, struggling bilingual readers did not use these strategies.

In addition, upon encountering difficulty in understanding the content or unknown vocabulary in English during reading, low-performing bilingual readers did not try to change the previous interpretation even when they knew the interpretation was not appropriate (Jiménez, García, & Pearson, 1996). This was also found in the study of Block (1992). The findings imply that the struggling learners could identify problems, such as monitoring, but they were unable to solve the problems because of the unfamiliarity of what to do with the problems. This implication coincides with Baker's (1985) argument in that evaluation and regulation for comprehension are different processes (Hudson, 2007). In other words, successful readers can identify and apply different useful strategies (Mohamed, Chew, & Kabilan, 2006), whereas less successful readers are struggling in utilizing effective strategies (Jiménez, 2000; Riches & Genesee, 2006).

Other studies (Upton, 1997; Zhang, 2001) supported the argument that expert readers tend to use more reading strategies than do novice readers. This is similar to the findings of Jiménez, García, and Pearson (1995, 1996) and of Sheorey and Mokhtari (2008b). Upton (1997) focused on the differences of English reading processes and perspectives between less advanced and advanced Japanese learners from ages 20 to 36 years old who were learning English in the United States. From the analysis of the think-aloud protocol and the interview, the findings illustrated that less advanced students used fewer metacognitive strategies than did the advanced learners. Similarly, Zhang (2001) conducted a study to explore metacognitive knowledge and use of reading strategies

among higher and lower reading proficiencies of Chinese college students learning English in China. Among 312 participants, 5 high and 5 low reading proficient students were selected for interviews. After the interviews, Zhang (2001) found that the advanced readers used different reading strategies more often than did the less advanced readers.

Not only did the studies demonstrate more frequent use of reading strategies among successful readers than among struggling readers, the studies also showed different characteristics of reading strategies among the two groups (Upton, 1997; Zhang, 2001). The higher proficient readers depended on global or top-down strategies. For example, the successful readers captured the whole picture of the passage, made inferences from prior knowledge and from contexts, monitored for comprehension, and skimmed for main ideas. By contrast, the lower proficient readers were more likely to use the local or bottom-up strategies. The readers focused on lexical resources (e.g., dictionary) and grammatical structure, and performed less monitoring for comprehension, less inferences from context, and less skimming for main ideas.

English reading involves two languages for non-native English speaking students. Scholars examined how such learners with different levels of English proficient learners used English and a native language. From the examination of reading experiences and awareness of struggling bilingual students, Jiménez, García, and Pearson (1995, 1996) found that the struggling students did not effectively use the first language, Spanish, as a means to help reading understanding in the second language, English, and possessed less prior knowledge from literacy experiences in the first language. On the other hand, more proficient bilingual readers viewed the Spanish language as a useful resource for better understanding English passages.

However, unlike the findings of Jiménez, García, and Pearson (1995, 1996), Upton (1997) and Zhang (2001) found that although more successful readers were engaged and processing in English for reading processing, struggling readers depended on native languages, particularly for thinking processing and comprehending unknown English vocabulary. For example, the Japanese participants were asked to think aloud in English while processing reading in English or to think aloud in Japanese while processing reading in Japanese (Upton, 1997). The study indicated that the less advanced readers often used the first language, Japanese. In other words, the lower reading proficient learners translated the English passages into Japanese to confirm the meaning of a text passage and to understand the meaning of the unfamiliar words, and re-stated English sentences in Japanese. In contrast, the advanced readers tended to use English in order to understand the content of a text and even in the situation of reading unknown vocabulary.

The findings of Upton (1997) and Zhang (2001) support the results of the studies of Anderson (1991) and of Carrell (1989). The lower-proficient students relied on the first language while reading in the second language and focused on details; while, the higher-proficient learners tried to use the second language and to grasp the bigger picture of a text for better reading comprehension.

In summary, the analysis of different studies that examined the effects of metacognitive strategies for native-English speakers yielded the effectiveness of the explicit and systematic instruction for learners' reading comprehension (Boulware-Gooden, Carreker, Thornhill, & Joshi, 2007; Cummins, Stewart, & Block, 2005). The students benefited from learning a variety of metacognitive strategies; how, when, and

where to use the reading strategies; and how to evaluate these strategies (Winograd & Hare, 1988). Learners who plan by pre-reading, monitor during reading, and evaluate reading engagement afterwards demonstrated better reading performance and comprehension (Hare & Borchardt, 1984; Winograd & Hare, 1988). Moreover, studies of non-native English speakers revealed that readers employed metacognitive reading strategies more often than did native English speakers (Mokhtari & Reichard, 2004). Successful non-native English speaking learners can utilize metacognitive strategies including top-down strategies, but struggling non-native English speaking readers are less aware of and less employed reading strategies and relied on bottom-up strategies (Upton, 1997; Zhang, 2001).

An examination of second language acquisition and second language reading was presented to provide a contextual framework within which to examine reading skills for ESL learners. Next, the importance of metacognition on the development of reading skills was presented, with an in depth examination of the applicability of this concept to the ESL population. Understanding these concepts is critical in order to fully understand the interrelatedness of second language development, second language reading, and academic achievement in that second language. Further, the importance of self-awareness of these processes, through metacognition, was presented. These topics are all critical in order to collectively examine self-evaluation skills and their impact on academic achievement.

Self-evaluation on Academic Achievement

The ability to self-evaluate academic performance is considered critical to academic success (Schunk, 1995). More specifically, self-evaluating reading proficiency

is necessary not only for all learners, but particularly for ESL students (Sheorey & Mokhtari, 2008b). This section explores these concepts and discusses the relationship between the two.

The Ability of Self-evaluation

Self-evaluation, judging one's abilities on his/her own, is one of the important variables for self-efficacy in education (Schunk, 2003). Bandura (1995) defined self-efficacy as "the belief in one's capabilities to organize and execute the courses of action required to manage prospective situations" (p. 2). In other words, self-efficacy is what people believe of their own capabilities of skills and/or abilities (Bandura, 1997; Maddux & Gosselin, 2003). Self-efficacy has been shown to be a powerful predictor for individuals' motivation and learning achievement (Schunk, 1995; Zimmerman & Ringle, 1981). For example, students who have stronger self-efficacy tend to be engaged in reading. Consequently, these students are most likely to succeed in academic learning. Low self-efficacy may adversely influence students' incentive and learning performance (Henk & Melnick, 1995).

The Relationship between Self-evaluation and Academic Performance

There are some studies concerning the role of self-evaluation in the learning context. Scholars indicated learners who judge themselves as more successful readers perform better in academic reading than do learners who evaluate themselves as lower-performing readers (Coutinho, 2008; Sheorey & Mokhtari, 2008b). Sheorey and Mokhtari (2008b) looked at a relationship between self-reported reading ability and use of reading strategy among two groups of more and less competent readers. The participants included native and non-native English speaking college students. The

findings were that, regardless of English as a first or second language, students who evaluated themselves as more skillful readers used a variety of reading strategies more frequently than those who viewed themselves as less skillful readers.

Coutinho (2008) also supported the finding of Sheorey and Mokhtari (2008b). Coutinho (2008) conducted a study to investigate whether any significant relationships existed among self-efficacy, metacognition, and academic performance of native English speaking college students. When examining self-efficacy, metacognition, and grade point average (GPA), the study implied that self-efficacy had a stronger relationship to students' academic performance than to metacognition. Students who evaluated themselves more capable learners demonstrated better academic performance as measured by GPAs. It should be noted that although metacognition did not play a role as significant toward academic performance as self-efficacy, Coutinho (2008) pointed out the importance of the role of metacognition upon learners' academic performance.

Two studies conducted by Coutinho (2008) and Sheorey and Mokhtari (2008b) showed the significant relationship between self-evaluation and academic performance. However, Kruger and Dunning (1999) and Isaacson and Fujita (2006) argued that people who have lower academic abilities tend to overestimate their abilities. It is because less competent students are typically limited in metacognitive skills to identify discrepancies between self-evaluation and actual performance. On the other hand, scholars argued that advanced students are more likely to judge their learning abilities accurately (Hacker, Bol, Horgan, & Rakow, 2000) or to underestimate their abilities (Isaacson & Fujita, 2006).

In another study, Sheorey and Baboczky (2008) examined metacognitive awareness in reading strategies for college students who are majoring in English in

Hungary. Approximately 550 students participated in this study and completed a modified version of the Survey of Reading Strategies (SORS) written in Hungarian. The study examined any significant relationships between self-evaluated English proficiency in general (reading, writing, speaking, and listening), self-evaluated English proficiency in reading in particular, and frequency of reading strategy use among skillful and less skillful learners. For overall English proficiency, there were no significant differences between the high- and low-reading proficiency groups in terms of use of reading strategies, including the overall and three subscales of the Global Reading Strategies (GLOB), of the Problem Solving Strategies (PROB), and of the Support Strategies (SUP). For reading proficiency, a significant difference was found only in the Global Reading Strategies (GLOB), but not other types of reading strategies. The findings of Sheorey and Baboczky (2008) are not supporting conclusions of other studies, which found positive correlations between learners' language proficiencies and use of reading strategies (e.g., Sheorey & Mokhtari, 2008b; Mokhtari & Sheorey, 2002).

Summary

This chapter, the review of literature, provided a comprehensive review of key research relevant to the study. Theories of second language acquisition, second language reading, the role of metacognition in reading for both native and non-native English-speaking students, and self-evaluation in academic learning were discussed. Behaviorist, innatist, and interactionist theories have impacted views of reading and reading instruction over time (Alexander & Fox, 2004; Harris & Hodges, 1995). There are several variables that affect learners' reading performance, including age, gender,

motivation, personality, aptitude, and social and cultural contexts (Ellis, 1994; Gass & Selinker, 2001; Lightbown & Spada, 2006; Ushioda, 2008).

Reading and reading comprehension were defined along with some theoretical frameworks of learning. Reading plays a significant role in academic achievement (Koda & Zehler, 2008). Some key different components between first language (L1) and second language (L2) reading were presented. L2 readers interact with two languages, and cultural background and L1 literacy influence the process of L2 reading (Grabe & Stoller, 2002; Singhal, 1998).

Metacognition is related to the cognitive framework and a significant feature in developing readers' comprehension (Baker & Brown, 1984; Garner, 1987; McCormick, 2003). Regardless of first or second language, skillful readers were able to manipulate various reading strategies and demonstrated high reading comprehension (Anderson, 2005; Blackowicz & Ogle, 2008; Duke & Pearson, 2002; Sheorey & Mokhtari, 2008b). On the other hand, less skillful learners used fewer reading strategies and showed lower reading comprehension (Baker & Brown, 1984; Jiménez, García, & Pearson, 1995, 1996).

Self-evaluation is related to self-efficacy (Schunk, 2003). People judge actual learning abilities and skills differently. Some studies regarding self-evaluation and academic performance were explored. All of the precedent studies with four main categories reported in this chapter supply foundation of this study.

CHAPTER III

METHODOLOGY

Overview

Researchers have focused on the effectiveness of metacognitive awareness and strategy use in reading for native-English speakers as well as non-native English speakers (Anderson, 2005; Baker & Brown, 1984; Flavell, 1979; Flavell, Miller, & Miller, 2002; Mokhtari & Reichard, 2002; Mokhtari & Sheorey, 2008; Pressley, 2002; Sheorey & Mokhtari, 2001). This study explored the role of metacognitive awareness in academic reading among adult ESL English Language Institute (ELI), undergraduate, and graduate students enrolled in a university in a southeastern part of the United States of America. This study also examined the use of metacognitive reading strategies by those students.

In the previous chapter, two central research questions were posed:

1. What role does metacognitive awareness have in academic English reading for adult ESL students enrolled in a university in the southeastern part of the United States of America?
2. How does use of reading strategies impact academic success for adult ESL students enrolled in a university in the southeastern part of the United States of America?

Furthermore, this study also explored the following three null hypotheses for the quantitative research methods design:

1. There are no differences in the overall score of the Survey of Reading Strategies (SORS) or any of its three sub-scales (Global Reading Strategies, GLOB; Problem Solving Strategies, PROB; and Support Strategies, SUP) among three

levels of English as a Second Language students (non-degree seeking students at the English Language Institute, undergraduate students, and graduate students) enrolled in a university in the southeastern part of the United States of America.

2. There are no relationships between the overall score of the Survey of Reading Strategies (SORS) or any of its three sub-scales (Global Reading Strategies, GLOB; Problem Solving Strategies, PROB; and Support Strategies, SUP) and academic performance as measured by grade point average (GPA) of adult ESL students enrolled in a university in the southeastern part of the United States of America.
3. There are no relationships between adult ESL students' self-rated academic English reading proficiency and their metacognitive reading awareness and strategies as measured by the overall score of the Survey of Reading Strategies (SORS) or any of its three sub-scales (Global Reading Strategies, GLOB; Problem Solving Strategies, PROB; and Support Strategies, SUP).

This study also developed the following guiding questions for the qualitative research methods design:

1. To what extent are three levels of adult ESL students (non-degree seeking students at the English Language Institute, undergraduate students, and graduate students) enrolled in a university in the southeastern part of the United States of America aware of their metacognitive reading strategies?
2. What reading strategies do three levels of adult ESL students (non-degree seeking students at the English Language Institute, undergraduate students, and graduate

students) enrolled in a university in the southeastern part of the United States of America use while reading academic English materials?

3. What reading strategies do three levels of adult ESL students (non-degree seeking students at the English Language Institute, undergraduate students, and graduate students) enrolled in a university in the southeastern part of the United States of America use while experiencing difficulties in academic English materials?
4. How are metacognitive reading strategies used by adult ESL students when reading academic English materials influenced by those strategies they use when reading academic materials in their first language?

This study used a triangulation mixed method design. In a mixed method research design, the researcher conducts both quantitative and qualitative research methods in order to provide “a better understanding of the research problem and questions than either method by itself” (Creswell, 2008, p. 552). Particularly in this study, the researcher used a quantitative research design in order to investigate three null hypotheses. A qualitative research design was used to answer four guiding questions. In a triangulation mixed method design, the researchers “simultaneously collect both quantitative and qualitative data, merge the data, and use the results to understand a research problem” (Creswell, 2008, p. 557). Creswell (2008) also describes three characteristics of a triangulation mixed method design. First, the researcher gives equal weight to both quantitative and qualitative data. Second, the researcher collects both quantitative and qualitative data at the same time. Third, the researcher uses both quantitative and qualitative data in order to see whether they support or do not support

similar results. In other words, the triangulation design helps to cover weaknesses of one data-collection form (Creswell, 2008).

This study employed a causal-comparative design. The purpose of the causal-comparative design is “to explore the possibility of cause and effect” (Mertler & Charles, 2008, p. 261). This type of design “does not convincingly demonstrate cause and effect but can strongly suggest it” (Mertler & Charles, 2008, p. 261). A causal-comparative design uses the independent variable which can not be manipulated or altered by a researcher (e.g., gender, or ethnicity). A researcher “identifies events that have already occurred or conditions that are already present and then collects data to investigate a possible relationship between these factors and subsequent characteristics or behaviors” (Leedy & Ormrod, 2005, p. 232). In other words, in a causal-comparative design, the researcher seeks how the independent variable(s) may cause differences on the dependent variable(s) (e.g., students’ GPAs, self-rated reading proficiency). Gall, Gall, and Borg (2003) state the benefits of using a causal-comparative design are that they are helpful to understand cause-and effect relationships and that researchers can examine these relationships in one research. In this study, the researcher examined how the type of English language learner caused differences on metacognitive awareness and strategy use in reading English academic materials.

This chapter first describes the quantitative research design (phase I). It includes the following sections: (a) the research design to identify and define variables, (b) participants, including their number and nature, (c) instrumentation, including validity and reliability, (d) procedures, including how to obtain an Institutional Review Board (IRB) approval and data collection, and (e) data analysis.

Next, a description of the qualitative research design (phase II) follows. It contains the following sections: (a) the research design, (b) context and setting, (c) participants, (d) instrumentation, (e) procedures, (f) researcher's role, (g) data analysis, (h) verifications, and (i) ethical considerations.

Phase I: Quantitative Research Design

Research Design

The quantitative research design employed the Survey of Reading Strategies (SORS) instrument. A two-way multivariate analysis of variance (MANOVA) was used to analyze the first null hypothesis: There are no differences in the overall score of the Survey of Reading Strategies (SORS) or any of its three sub-scales (Global Reading Strategies, GLOB; Problem Solving Strategies, PROB; and Support Strategies, SUP) among three levels of English as a Second Language students (non-degree seeking students at the English Language Institute, undergraduate students, and graduate students) enrolled in a university in the southeastern part of the United States of America. The researcher examined any differences between participants' three academic levels (ELI, undergraduate, and graduate) and their scores on the SORS (overall score and three sub-category scores). The three sub-categories on the SORS instrument are Global Reading Strategies (GLOB), Problem Solving Strategies (PROB), and Support Strategies (SUP). The SORS was described further in the *Instrumentation* section later in this chapter.

The Pearson product-moment correlation coefficient was employed to analyze the second null hypothesis: There are no relationships between the overall score of the Survey of Reading Strategies (SORS) or any of its three sub-scales (Global Reading Strategies, GLOB; Problem Solving Strategies, PROB; and Support Strategies, SUP) and

academic performance as measured by grade point average (GPA) of adult ESL students enrolled in a university in the southeastern part of the United States of America. The researcher determined if a relationship exists between the participants' GPAs and their overall scores on the SORS instrument or any of its three sub-scales (Global Reading Strategies, GLOB; Problem Solving Strategies, PROB; and Support Strategies, SUP) through the Pearson correlation.

The Pearson product-moment correlation coefficient was also employed to analyze the third null hypothesis: There are no relationships between adult ESL students' self-rated academic English reading proficiency and their metacognitive reading awareness and strategies as measured by the overall score of the Survey of Reading Strategies (SORS) or any of its three sub-scales (Global Reading Strategies, GLOB; Problem Solving Strategies, PROB; and Support Strategies, SUP). In the third null hypothesis, the researcher determined if a relationship exists between the participants' self-rated academic English reading proficiency and their overall scores on the SORS instrument or any of its three sub-scales (Global Reading Strategies, GLOB; Problem Solving Strategies, PROB; and Support Strategies, SUP). ESL participants filled out the SORS instrument that included 30 items regarding academic English reading.

Variables. There were seven variables in this study. The first variable was the academic status of students at the three levels of ELI, undergraduate, and graduate. The second variable was participants' academic performance measured by their GPAs at one level, ranging from 0 (lowest) to 4 (highest). GPAs were self-reported by participants. The third variable was participants' self-rated academic English proficiency at five levels: 1 (lowest), 2 (low), 3 (intermediate), 4 (high), and 5 (highest). The fourth variable

was the overall score of the Survey of Reading Strategies (SORS) instrument. The SORS instrument used a five-point Likert-type scale, ranging from 1 to 5. Score of 1 meant that “I never or almost never do this.” Score of 2 meant that “I do this only occasionally.” Score of 3 meant that “I sometimes do this” (about 50% of the time). Score of 4 meant that “I usually do this.” Score of 5 meant that “I always or almost always do this.”

The fifth, sixth, and seventh variables were all scores on subtests of the SORS. More particularly, these are the subset score for Global Reading Strategies (GLOB), the subset score for Problem Solving Strategies (PROB), and the subset score for Support Strategies (SUP) in the SORS instrument. These last three variables used the same five-point Likert-type scale as the SORS instrument.

Participants

After the Institutional Review Board (IRB) at the University of Southern Mississippi granted permission to conduct this study (Appendix A), the researcher recruited participants. Participants in the quantitative research design included 102 adult international students enrolled in a university in the southeastern region of the United States. Of these students, four international students whose native language was English were removed from the study. The remaining 98 ESL students had native languages other than English and studied their subject matter in English at a higher-educational setting in the United States. The age of participants was 18 years old or older, including both males and females. They were of various ethnicities representing 27 different countries.

There were three levels of the participants: English Language Institute (ELI), undergraduate, and graduate students. ELI students were those who had not been

admitted to enter higher educational institutions in English speaking countries yet due to their unsatisfied English language requirement. The required English proficiency at the university where this study was conducted was the minimum score of 197 on the computer-based Test of English as a Foreign Language (TOEFL) or the minimum score of 71 on the internet-based TOEFL. The ELI also included international students who were learning English for other purposes rather than entry into post-secondary schools. Undergraduate international students were those who had met the English language requirement, which was the score of 197 on the computer-based TOEFL or the score of 71 on the internet-based TOEFL. Graduate international students were those who had met a required English proficiency, which was a higher score of the TOEFL (197 on the computer-based TOEFL or 71 on the internet-based TOEFL) than that of undergraduate students.

The researcher identified participants using several approaches, including convenience sampling and snowballing sampling. She used a convenience sampling form with the following three approaches: (a) through online survey through the International Student and Scholar Services (ISSS), (b) through the English Language Institute (ELI), and (c) through the Baptist Student Union (BSU), student organization, on campus.

First, the researcher contacted the International Student and Scholar Services (ISSS) at the university and asked whether the ISSS was willing to send an online version of the Survey of Reading Strategies (SORS) instrument (see Appendix B) along with a request for the background information questionnaire (see Appendix C). After the researcher obtained the agreement of the ISSS (Appendix D), the electronic SORS

statement was sent to all international undergraduate and graduate students in the university. Any students who voluntarily answered the online survey questionnaire were considered as participants in this study. The survey was distributed electronically two times. First, an online survey was sent out through a representative of the ISSS on November 18, 2008. Approximately one week later, a second online survey was electronically sent out to the students through the office of the ISSS with a reminder for students who had not yet responded to the survey on November 24, 2008.

Second, as another convenience sampling form, the researcher visited the office of the English Language Institute (ELI) at the university where the study was conducted and asked the manager for permission to administer the SORS instrument and the background information questionnaire in the following ELI classes: level 2 (low-intermediate), level 3 (high-intermediate), level 4 (low-advanced), and level 5 (high-advanced) in reading. These levels were routinely determined by ELI staff based upon the English language placement tests that were taken immediately after the students' enrollment in the ELI during the 2008 fall 2 session (8 weeks, October 20 – December 12). After the researcher obtained permission from the ELI (Appendix E), ELI students filled out the SORS instrument along with the background information questionnaire. Any students with voluntary responses were considered as participants in this study.

Third, the researcher contacted a student organization in the university where international students regularly or occasionally meet for fellowship, Baptist Student Union (BSU). The BSU typically scheduled a weekly lunch meeting for students. The BSU sponsored this meeting on Thursdays during the fall 2008 semester. The researcher

visited the lunch meeting at the BSU on November 20, 2008 and asked international students to fill out the SORS instrument and the background information questionnaire.

Fourth, a snowballing quantitative sampling approach was employed to gather participants in this study. Snowballing quantitative sampling refers to “a sampling procedure in which the researcher asks participants to identify other participants to become members of the sample” (Creswell, 2008, p. 647). With this sampling form, the researcher asked participants she met at the ELI and the BSU to locate other participants in this study. In the case of inconvenient access to the other possible participants recommended by the participants, the researcher distributed a package, which included a cover letter (see Appendix F), (b) the background information questionnaire, and (c) the SORS instrument, to the participants and asked them to deliver it to their international peers and/or colleagues. Those who were willing to fill out the survey were considered participants in this study.

Fifth, the researcher contacted two professors. The first professor was a Chinese faculty member, from whom the researcher took her research class in the past semester, at the Department of Educational Leadership and Research in the College of Education and Psychology. The professor asked some international students she knew to participate in the study. The second faculty member was a professor who taught southern culture studies for exchange international students. The researcher was introduced to him through the Office of the International Programs on campus. The researcher asked both professors to locate students and distributed the package, which was described in the previous section, to their international students. Those who were voluntary participants in the survey were included in this study.

Due to the multiple approaches of the sampling, the researcher orally or in writing asked a one-time participation for the survey in order to avoid duplicate responses by the same participant. Participants had the right to opt out of the survey and to withdraw from responding to it at any point.

Instrumentation

The Survey of Reading Strategies (SORS) instrument. The SORS instrument was developed by Mokhtari and Sheorey (2002) (see Appendix B). The SORS measured adult ESL students' metacognitive reading awareness and use of reading strategies while reading academic materials such as textbooks. The SORS was a five-point Likert type scale, ranging from 1 ("I never or almost never do this.") to 5 ("I always or almost always do this."). The higher the score was, the more a student was aware of and most likely to use a particular reading strategy.

The SORS had 30 items with three sub-categories (see Table 1). The researcher obtained permission to use the SORS for this study by the primary author (Kouider Mokhtari, personal communication, June 6, 2008; see Appendix G). The SORS included the following three sub-categories: (a) Global Reading Strategies (GLOB), (b) Problem Solving Strategies (PROB), and (c) Support Strategies (SUP). Global Reading Strategies are those "intentional, carefully planned techniques by which learners monitor or manage their reading" (Mokhtari, Sheorey, & Reichard, 2008, p. 51). Sample strategies were adjusting reading speed, using context clues for better understanding, and making inferences. Problem Solving Strategies were "the actions and procedures that readers use while working directly with the text" (Mokhtari, Sheorey, & Reichard, 2008, p. 51). Some PROB are visualizing information, rereading the text for confirming understanding,

and guessing unknown words or phrases. Support Strategies were “basic support mechanisms intended to aid the reader in comprehending the text, such as using a dictionary, taking notes, underlining, or highlighting textual information” (Mokhtari, Sheorey, & Reichard, 2008, p. 51).

Table 1

Three Sub-categories of the Survey of Reading Strategies

| Sub-category | Description |
|--------------|---|
| GLOB | I have a purpose in mind when I read. (item 1) |
| | I think about what I know to help me understand what I read. (item 3) |
| | I take an overall view of the text to see what it is about before reading it. (item 4) |
| | I think about whether the content of the text fits my reading purpose. (item 6) |
| | I review the text first by noting its characteristics like length and organization. (item 8) |
| | When reading, I decide what to read closely and what to ignore. (item 12) |
| | I use tables, figures, and pictures in text to increase my understanding. (item 15) |
| | I use context clues to help me better understand what I am reading. (item 17) |
| | I use typographical features like boldface and italics to identify key information. (item 20) |

Table 1 (continued).

| Sub-category | Description |
|--------------|--|
| | I critically analyze and evaluate the information presented in the text. (item 21) |
| | I check my understanding when I come across new information. (item 23) |
| | I try to guess what the content of the text is about when I read. (item 24) |
| | I check to see if my guesses about the text are right or wrong. (item 27) |
| PROB | I read slowly and carefully to make sure I understand what I am reading. (item 7) |
| | I try to get back on track when I lose concentration. (item 9) |
| | I adjust my reading speed according to what I am reading. (item 11) |
| | When text becomes difficult, I pay closer attention to what I am reading. (item 14) |
| | I stop from time to time and think about what I am reading. (item 16) |
| | I try to picture or visualize information to help remember what I read. (item 19) |
| | When text becomes difficult, I re-read it to increase my understanding. (item 25) |
| | When I read, I guess the meaning of unknown words or phrases. (item 28) |

Table 1 (continued).

| Sub-category | Description |
|--------------|---|
| SUP | <p>I take notes while reading to help me understand what I read. (item 2)</p> <p>When text becomes difficult, I read aloud to help me understand what I read. (item 5)</p> <p>I underline or circle information in the text to help me remember it. (item 10)</p> <p>I use reference materials (e.g., a dictionary) to help me understand what I read. (item 13)</p> <p>I paraphrase (restate ideas in my own words) to better understand what I read. (item 18)</p> <p>I go back and forth in the text to find relationships among ideas in it. (item 22)</p> <p>I ask myself questions I like to have answered in the text. (item 26)</p> <p>When reading, I translate from English into my native language. (item 29)</p> <p>When reading, I think about information in both English and my mother tongue. (item 30)</p> |

Reliability. The Survey of Reading Strategies (SORS) instrument was based on the Metacognitive Awareness of Reading Strategies Inventory (MARSİ) developed by Mokhtari and Reichard (2002). The MARSİ measures native English speakers' metacognitive reading awareness and use of reading strategies when they read academic

materials. The MARSİ includes 30 items about reading awareness and strategies and has three sub-categories of Global Reading Strategies (13 items), Problem-Solving Strategies (8 items), and Support Strategies (9 items). Mokhtari and Reichard (2002) provided reliabilities of the MARSİ for the total (.93) and three sub-categories with .92 for Global Reading Strategies, .79 for Problem-Solving Strategies, and .87 for Support Strategies.

When Mokhtari and Sheorey (2002) developed the SORS instrument, they modified it based on the MARSİ. In the report of Sheorey and Mokhtari (2001), they incorporated two Support Strategies items (item 6: "I summarize what I read to reflect on important information in the text." and item 9: "I discuss what I read with others to check my understanding.") on the MARSİ into other items of Support Strategies, which resulted in a removal of two items from the total 30 items. They also modified wording so that ESL students, who are in a developmental process of reading in English, can understand the content of the questions better.

In Mokhtari and Sheorey's study (2002), they further modified the primary SORS instrument by adding two new items of Support Strategies (item 29: "When reading, I translate from English into my native language." and item 30: "When reading, I think about information in both English and my mother tongue."). They report reliability for the total on the SORS (Cronbach's alpha .89) in their 2002 article of "Measuring ESL Students' Awareness of Reading Strategies."

Anderson (2003b, 2004) conducted a study on metacognitive awareness and reading strategies by using the SORS instrument with English learners in Costa Rica ($n = 260$) and students in the U.S. ($n = 136$). The reported reliabilities are as follows: .85 for the overall, .74 for Global Reading Strategies, .64 for Problem-Solving Strategies,

and .67 for Support Strategies. Anderson (2005) further points out that “Mokhtari and Sheorey report reliability for the MARSIS but not for the SORS. Because it has just recently been completed, more studies need to be conducted using this instrument to determine whether the SORS is as stable of an instrument as the MARSIS from which it was based” (p. 761).

In this study, the researcher measured the internal consistency of the SORS instrument with 98 adult English as a Second Language (ESL) students enrolled in a university located in the southeastern part of the United States where the study was conducted. The participants included English Language Institute ($n = 21$), undergraduate ($n = 22$), and graduate students ($n = 55$). Reported Cronbach’s Alphas for reliabilities were as follows: overall (.93), Global Reading Strategies (.86), Problem-Solving Strategies (.87), and Support Strategies (.81).

Validity. Items on the Survey of Reading Strategies (SORS) instrument are based on the MARSIS instrument, which targets native English speakers. When the MARSIS was developed, Mokhtari and Reichard (2002) examined reviews of the literature regarding metacognition and reading comprehension, such as Alexander and Jetton (2000), Baker and Brown (1984), Garner (1987), Paris and Winograd (1990), Pressley (2000), and Pressley and Afflerbach (1995). The authors of the MARSIS also sought judgment from a panel of experts as to the content of the instrument. They also examined previous instruments for categories, items, and format. These instruments assess reading strategies and include the Index of Reading Awareness (IRA) (Jacobs & Paris, 1987), the Metacognitive Reading Awareness (MRAI) (Miholic, 1994), the Reading Strategy Use (RSU) (Pereira-Laird & Deane, 1997), and the Metacomprehension Strategy Index (MSI)

(Schmitt, 1990). Mokhtari and Reichard (2002), the authors of the MARSI, further used the factor analysis to check the scale structure. In addition to these approaches, Mokhtari and Reichard (2002) selected 100 items of reading strategies. They removed 40 items with the consultation of three expert judges. They conducted a pilot study with the remaining 60 items ($N = 825$) in Grades 6 -12. Based on the pilot test, they further reduced items down to 30 with assistance from the same panel of the experts who reviewed 100 items. Mokhtari and Reichard (2002) conducted another pilot study with 30 items, including three sub-categories on the instrument: Global Reading Strategies (GLOB) with 13 items, Problem Solving Strategies (PROB) with 8 items, and Support Strategies (SUP) with 9 items. They report reliabilities for the total, GLOB, PROB, and SUP, .89, .92, .79, and .87, respectively.

The Survey of Reading Strategies (SORS) instrument, which measures ESL students' perceived use of reading strategies, was based on the MARSI inventory. Mokhtari and Sheorey (2002) modified two items of Support Strategies on the SORS. They also modified wording so that ESL students could better understand the content of the items.

Background information questionnaire. Mokhtari, Sheorey, and Reichard (2008) suggest using a background questionnaire when administering the SORS. Therefore, the participants of this study filled out a background questionnaire along with the SORS survey. Mokhtari, Sheorey, and Reichard (2008) suggest that users of the SORS obtain the participants' background information such as age, gender, and a standardized test score (e.g., the Test of English as a Foreign Language [TOEFL]). In this study, the background information questionnaire (see Appendix C) included the following 14 items:

(a) gender, (b) age, (c) nationality, (d) native language, (e) years of staying in the U.S., (f) years studying in English in non-English speaking countries, (g) years studying in English in English speaking countries, (h) student academic status, (i) academic major, (j) current grade point average (GPA), (k) TOEFL score, (l) hours of academic English reading materials per week, (m) self-rated English reading proficiency (from 1 [lowest] to 5 [highest]), and (n) self-rated overall English proficiency (including reading, writing, speaking, and listening) (from 1 [lowest] to 5 [highest]).

Procedures

Upon the approval of the Institutional Review Board (IRB) at the University of Southern Mississippi (Appendix A), the researcher started collecting data from the Survey of Reading Strategies (SORS) instrument and the background information questionnaire from participants. Multiple collections were conducted simultaneously. The researcher distributed the survey along with the questionnaire through online survey, by the student organization of the Baptist Student Union (BSU), through the English Language Institute (ELI), and through asking international students and faculty members at the university to locate other potential participants.

The estimated administration time to complete the SORS is between 10 and 12 minutes (Mokhtari, Sheorey, & Reichard, 2008). Upon the SORS administration, the researcher explained the purpose of the inventory, ensured confidentiality, and answered any questions about the SORS administration and clarified for any questions. The researcher also confirmed that there were no right or wrong answers on the participants' responses. It took approximately 5 minutes to complete the background information questionnaire.

For the English Language Institute (ELI), the researcher explained the purpose of the study (see Appendix H). She also detailed the Survey of Reading Strategies (SORS) instrument including items and three sub-categories: Global Reading Strategies (GLOB), Problem Solving Strategies (PROB), and Support Strategies (SUP), and the background information questionnaire to ELI instructors at levels 2, 3, 4, and 5. The researcher also provided directions to the instructors (see Appendix I). The researcher answered any questions the ELI instructors may have when administering the SORS instrument along with the background information questionnaire. The instructors distributed the survey and the background information questionnaire in their reading classes, which was held at the fifth period after lunch every day. The ELI students (levels 2, 3, 4, and 5) completed the survey and the background information questionnaire. They were allowed to use dictionaries when necessary in order to better understand the content of the instrument. They were also allowed to ask questions about procedures and content of the items on the SORS instrument to their instructors while administering.

Quantitative data collection from all possible participants took place over approximately one month (mid-November through December 2008).

Data Analysis

A two-way multi-analysis of variance (MANOVA) was used to answer the first null hypothesis. In other words, it was used to determine differences between one factor (adult ESL students) at three levels (ELI, undergraduate, and graduate) and another factor (their metacognitive awareness from the responses of the Survey of Reading Strategies [SORS] instrument) at four levels (scores of overall, Global Reading Strategies, Problem Solving Strategies, and Support Strategies on the SORS).

Pearson product-moment correlation was conducted to answer the second null hypothesis. It was used to answer whether there were any relationships between adult ESL students' academic performance (GPA) and their overall scores of the SORS.

Pearson product-moment correlation was used to answer the third null hypothesis. It was utilized to answer whether there were any relationships between adult ESL students' self-rated academic English reading proficiency and their overall scores of the SORS. The .05 significance level was set to determine whether the hypotheses in this study made Type I errors. Two-tailed tests were used for data analysis. All quantitative data were analyzed using the SPSS software version 15.

Phase II: Qualitative Research Design

Research Design

The qualitative research design used a case study method. A case study is “an exploration of a ‘bounded system’ or a case (or multiple cases) over time through detailed, in-depth data collection involving multiple sources of information rich in context” (Creswell, 1998, p. 61). A case study aims “to develop a highly detailed description and gain an understanding of the individual entity” (Mertler & Charles, 2008, p. 196).

Context and Setting

The interviews were conducted at a university located in a small city in the southeastern part of the United States. The university is a mid-size university with an enrollment of approximately 14,800 students in the fall 2008. There were 325 international students in fall 2008 with about 51 % of males and 49 % of females and approximately 25 % of undergraduate students and 75 % of graduate students. The student enrollment at the English Language Institute (ELI) was 23 in the 2008 fall 2

session (8 weeks, October 20 – December 12). The total international students, including ELI, undergraduate, and graduate levels, are about 2.35 % of the total student population at the university.

Participants

Upon the arrival of permission from the Institutional Review Board (IRB) at The University of Southern Mississippi, the researcher purposefully selected participants for semi-structured interviews. She recruited them by personally asking the participants their willingness when they filled out the survey for the quantitative portion of the study.

Other participants were also introduced by the managers of the English Language Institute (ELI) and of the International Programs. The following six students participated in the interviews:

1. Ali (pseudonym) is a 25-year old English Language Institute (ELI) from Syria. His native language was Arabic. He graduated from a college in Jordan, majoring in computer engineering. Prior to coming to the United States, he spent a year in the United Kingdom. He arrived in the United States to study at the ELI in October, 2008 and was planning to pursue his master's degree at an American university. When the researcher interviewed him, he was placed at the level 4 (low-advanced) at the ELI.

2. Kyoko (pseudonym) is a Japanese ELI student. Like Ali, she was determined to be a level 4 (low-advanced) student by the placement text by the ELI instructors. Her first language was Japanese. She was an exchange student from her university in Japan, which has a partnership with the university where the study was conducted. Her major in the Japanese university was management and economics. She also stayed in Australia for 3 weeks before her American school life. She came to America in August 2008.

3. Chen (pseudonym) is a 19-year old Chinese undergraduate student. His native language is Chinese. He studied English for 7 years in China. As an exchange student, he spent his last year of high school in the southeastern region of the United States for the 2006-07 school year. After graduation, he entered the ELI at the university where the study was conducted and stayed for 8 months, and entered the same university to pursue his bachelor degree in electronic engineering. He began his undergraduate study in the summer of 2008.

4. Juliane (pseudonym) is another undergraduate student. She is from Germany. In her native country, she was a college student majoring in North American studies with two minors in political science and economics. German was her first language. She began to learn English during the 5th grade. When she was 16 years old, she spent 10 months at a high school located in the northeastern part of the United States. She also spent 1 month in the southern part of the United States. She came to the American university in the summer of 2008.

5. Himanshu (pseudonym) is a 28-year old Indian graduate student who speaks the Telugu language at home. He went to a medical school in India and worked as a doctor for about 3 years. He then came to the United States to earn his master's degree in public health.

6. Mei (pseudonym) is another graduate student from China. Her native language is Chinese. She went to colleges in China and completed her bachelor's and master's degrees. After working for several years, she decided to pursue her doctoral degree in biology at an American university. Her doctoral studies began in 2005 at the school where the study was conducted.

The average age of the students was 24.7, with its range from 19 to 31 with 3 male and 3 female students. The years of studying English in non-native speaking countries, such as China and Syria, varied from 7 to 20, with its average of 13.2 years. The length of studying English in English-speaking countries ranged from 1 month to 3 years, with an average length of 1.6 years. Table 2 presents demographic information about the six participants described.

Table 2

Demographic Information of Six Interviewees

| Features | Names | | | | | |
|--|--------|----------|------------------------|---------------|-------------------|---------|
| | Ali | Kyoko | Chen | Juliane | Himanshu | Mei |
| Country of origin | Syria | Japan | China | Germany | India | China |
| Native language | Arabic | Japanese | Chinese | German | Telugu | Chinese |
| Gender | M | F | M | F | M | F |
| Age | 25 | 23 | 19 | 22 | 28 | 31 |
| Student status | ELI | ELI | Undergrad. | Undergrad. | Grad. | Grad. |
| Academic major | — | — | Electronic engineering | Public health | Political science | Biology |
| Marital status | Single | Single | Single | Single | Single | Single |
| Year(s) studying English in non-English speaking countries | 18 | 10 | 7 | 10 | 20 | 14 |

Table 2 (continued).

| Features | Names | | | | | |
|--|-------|-------|------|---------|----------|-----|
| | Ali | Kyoko | Chen | Juliane | Himanshu | Mei |
| Year(s) studying English in English speaking countries | 1.08 | .33 | 2 | 1.25 | 2 | 3 |
| Year(s) staying in the U.S | .08 | .33 | 2 | 1.25 | 2 | 3 |
| Hour(s) of academic English reading per week | 20 | 10 | 20 | 7 | 5 | 10 |

Note. Names are pseudonyms. ELI = the English Language Institute students. Undergrad.

= undergraduate students. Grad. = Graduate students.

Instrumentation

Semi-structured interviews. Semi-structured interviews were used to explore the participants' metacognitive reading strategies in school-related materials. The researcher purposefully selected the six participants described in the previous section. Each interview had five open-ended questions using a semi-structured interview protocol (see Appendix J). The interviews were conducted in English, except with Kyoko whose native language was Japanese. The researcher used the Japanese language to interview Kyoko so that she could provide her honest and accurate responses to the researcher.

Documents. The researcher asked the participants to bring their reading materials they have read for their academic purposes. These materials included textbooks, newspaper

and/or research articles. She examined them to understand how the participants were processing their academic English reading and what strategies they employed.

Procedures

Data collection. The researcher purposefully selected six participants for the semi-structured interviews (see Appendix J for the interview protocol) and for examining their reading materials. On the interview days, the researcher asked the participants to fill out the informed consent forms (see Appendix K). She conducted one-on-one semi-structured interviews for them to answer open-ended questions so that they could provide their honest perceptions, thoughts, and experiences regarding their academic English reading. Semi-structured interviews allowed the researcher to negotiate meanings with the interviewees and gave an opportunity for her to probe further and deeper information. Each interview took approximately 40 minutes, including observing the participants reading documents for their academic purposes. The interviews were tape-recorded and digital photos were taken. These products were stored in a locked cabinet in the researcher's residence and were destroyed after the completion of the study. Interviews were held in several locations on campus, such as vacant classrooms, where the participants were comfortable to share their reading experiences with the researcher.

Time limitation. The qualitative data were collected during the time period from the end of November 2008 to the middle of January 2009.

Researcher's Role

This study had a solo researcher. The researcher collected quantitative and qualitative data, analyzed them, and reported the findings. She illustrated the setting, procedures, and findings in detail with rich descriptions. This allowed readers to

determine whether or not the findings in this study were transferable into other settings (Erlandson, Harris, Skipper, & Allen, 1993).

Data Analysis

Creswell (1998) describes the qualitative analysis as a spiral (Leedy & Ormrod, 2005). In the process of qualitative data analysis, a researcher is involved in moving back and forth the collected data “in analytic circles rather than using a fixed linear approach” (Creswell, 1998, p.142). As Creswell (2008) suggests, the researcher employed four steps. First, she organized the data by using folders. She organized all data by type, including recorded interviews, interview protocols, and photographs of reading materials taken at the interviews. Second, the researcher transcribed the recorded interviews into Microsoft Office Word 2003. For one interview conducted in the Japanese language with Kyoko, the researcher translated it into the English language and transcribed it. She asked a colleague who is fluently bilingual in Japanese and English to verify the translation so that the transcript conveys and reflects the interviewee’s accurate opinions and experiences about reading. During the transcription process, the researcher used the following rules to be consistent in presenting the interviews:

- ... pause
- Bold letters** words stressed
- [] unstated and implied words and/or phrases
- () restate a previous word
- < > researcher’s observations

Third, after preparation for the data analysis was complete, the researcher conducted “a preliminary exploratory analysis” (Creswell, 2008, p.250). She explored

the data to get the general sense of the data. While exploring the data, she took notes about some key words, comments, and/or ideas that came to her mind in the margins of the transcripts and/or under photographs.

Fourth, the researcher coded the data by segmenting and labeling the data. She read the transcripts and protocols and examined photographs. She then highlighted the materials by finding some trends about metacognitive awareness and reading strategies. After highlighting, she wrote memos about characteristics found in the interview under each semi-structured interview question on metacognitive awareness and reading strategies for each interviewee. She then reviewed the memos for all six respondents she developed. After that, she organized the trends of all six participants by guiding question. In other words, she sought some recurring trends and commonalities for each guiding question regarding metacognitive awareness and reading strategies that were discovered across the participants and took notes about them on a piece of paper. She then categorized them by reading strategy and coded them. She reviewed her notes and reduced a number of the codes by categorizing the similar codes into one code that embraced them. The researcher continued this process until saturation was reached. In other words, she reduced the codes down to three to six categories or themes for different guiding questions, where no more additional information for each emergent theme was needed.

Verifications

The researcher built trust with participants to gain their honest and thoughtful voices about their metacognitive reading strategies and academic reading experiences. She got to know them by meeting and exchanging e-mails informally before she

conducted the interviews. In the cases of meeting the participants on the interview days for the first time, she spent some time chatting with them to get to know one another before the interviews. This allowed them to answer questions under comfortable circumstances.

Furthermore, in order to verify the qualitative data, the researcher used triangulation. In triangulation, various types of data, including multiple reading documents, or methods of data collection, such as tape-recorded interviews and photos of the documents, were used. The researcher also used “member checking” (Creswell, 2008, p. 267). In member checking, the researcher asked the participants to ensure if the findings and descriptions of this study reflected their accurate and correct opinions and experiences. Lastly, the researcher also employed external audits. She asked individual outsiders to review the study, which was helpful to provide different perspectives on the study.

Ethical Considerations

The researcher informed participants of the purpose of the study. She asked them to sign an informed consent form on interview days. The participants had the right to withdraw from interviews at any point. The study used pseudonyms for the participants. The researcher kept data, including interview protocols, transcriptions and tapes, in a safe place.

Summary

This chapter described methodology for this study. This study attempted to explore the role of metacognitive awareness among adult ESL students of various English proficiencies enrolled in a university in the southeastern part of the United States of

America. This study also examined the use of metacognitive reading strategies used by those students. This study used quantitative and qualitative research designs. In the quantitative research design, three null hypotheses were explored. The Survey of Reading Strategies (SORS) instrument was employed to measure participants' metacognitive awareness and strategy use in English reading. In the qualitative research design, four guiding questions were posed to understand selected participants' reading experiences. The researcher analyzed data collected from both research designs to discuss two central research questions.

CHAPTER IV

RESULTS

Introduction

This mixed research design-oriented study explored the role of metacognitive awareness in reading among adult English as a Second Language (ESL) students of various academic levels enrolled in a university located in the southeastern part of the United States while they are engaged in academic reading materials. This study examined the use of metacognitive reading strategies utilized by those students. The Survey of Reading Strategies (SORS) was employed to measure metacognitive reading awareness and use of strategies for adult ESL students in the university. Additionally, semi-structured interviews were conducted along with examination of participants' reading materials to further explore these areas. Two central research questions developed for this study were as follows:

1. What role does metacognitive awareness have in academic English reading for adult ESL students enrolled in a university in the southeastern part of the United States of America?
2. How does use of reading strategies impact academic success for adult ESL students enrolled in a university in the southeastern part of the United States of America?

Based on the research questions, the following three null hypotheses were developed and examined for the quantitative research methods design:

1. There are no differences in the overall score of the Survey of Reading Strategies (SORS) or any of its three sub-scales (Global Reading Strategies, GLOB;

Problem Solving Strategies, PROB; and Support Strategies, SUP) among three levels of English as a Second Language students (non-degree seeking students at the English Language Institute, undergraduate students, and graduate students) enrolled in a university in the southeastern part of the United States of America.

2. There are no relationships between the overall score of the Survey of Reading Strategies (SORS) or any of its three sub-scales (Global Reading Strategies, GLOB; Problem Solving Strategies, PROB; and Support Strategies, SUP) and academic performance as measured by grade point average (GPA) of adult ESL students enrolled in a university in the southeastern part of the United States of America.
3. There are no relationships between adult ESL students' self-rated academic English reading proficiency and their metacognitive reading awareness and strategies as measured by the overall score of the Survey of Reading Strategies (SORS) or any of its three sub-scales (Global Reading Strategies, GLOB; Problem Solving Strategies, PROB; and Support Strategies, SUP).

Furthermore, for the qualitative research methods design, four guiding questions were developed.

1. To what extent are three levels of adult ESL students (non-degree seeking students at the English Language Institute, undergraduate students, and graduate students) enrolled in a university in the southeastern part of the United States of America aware of their metacognitive reading strategies?
2. What reading strategies do three levels of adult ESL students (non-degree seeking students at the English Language Institute, undergraduate students, and graduate

students) enrolled in a university in the southeastern part of the United States of America use while reading academic English materials?

3. What reading strategies do three levels of adult ESL students (non-degree seeking students at the English Language Institute, undergraduate students, and graduate students) enrolled in a university in the southeastern part of the United States of America use while experiencing difficulties in academic English materials?
4. How are metacognitive reading strategies used by adult ESL students when reading academic English materials influenced by those strategies they use when reading academic materials in their first language?

This chapter presents results of the study. Findings of the quantitative portion of the study are presented followed by findings of the qualitative portion of the study.

Phase I: Quantitative Research

Results of the quantitative portion of the research study are presented in the following section. These findings are organized by description of the sample and response rate, statistical analyses for null hypotheses, and summary.

Description of the Sample and Response Rate

Of 325 international undergraduate and graduate students enrolled in a university where the study was conducted, 81 students completed the Survey of Reading Strategies (SORS). Among the total enrollment of 23, 21 English Language Institute (ELI) students participated in the study. The response rate for the total participants out of the total international student enrollment at the university was approximately 29.3 %. Various forms of convenience sampling were used to collect data for the SORS including online distribution; face-to-face distribution at the English Language Institute and at meetings of

various student organizations; and snowballing sampling. Of these techniques, most responses were gathered by visiting events sponsored by student organizations on campus ($n = 32$). Collection of surveys online yielded the second highest number of responses ($n = 30$). Next, 21 responses were collected at the ELI. Through faculty members at the university, 10 students participated in the study. Last, 9 responses were collected through snowballing sampling. Out of the total participant number of 102, there were four responses completed by international students whose native languages were English, including British, Canadian, Jamaican, and the Federation of Saint Kitts and Nevis students. These responses were excluded because the study was designed only to investigate English as a Second Language (ESL) students. This yielded 98 responses completed by ESL students for the SORS. Among these 98 participants, there were 48 male students (49.0%) and 44 female students (44.9%), and 6 students who did not report gender (6.1%).

Participants represented three academic levels at the university: English Language Institute (ELI), undergraduate, and graduate students. Among 98 participants, 21 were ELI students (21.4%), and 22 were undergraduate students (22.4%), and 55 were graduate students (56.1%). The English Language Institute (ELI) students were dispersed across four categories used by the ELI staff with 4 students considered level 2 (low-intermediate), 6 students considered level 3 (high-intermediate), 8 students considered level 4 (low-advanced), and 3 students considered level 5 (high-advanced).

Participants represented all five academic colleges of the university. Particularly, there were 24 participants from the College of Arts and Letters (24.5%), 10 from the College of Business (10.2%), 4 from the College of Education and Psychology (4.1%), 4

from the College of Health (4.1%), and 35 from the College of Science and Technology (35.7%). There were no particular majors or colleges for 21 ELI students (21.4%) since their focus was general and academic English language learning. Table 3 illustrates demographic information of the participants described above.

Table 3

Participants' Gender, Academic Level, and College (N = 98)

| Classification | Count | Percent |
|--------------------------|-------|---------|
| Gender | | |
| Male | 48 | 49.0 |
| Female | 44 | 44.9 |
| No Response | 6 | 6.1 |
| Academic Level | | |
| ELI | 21 | 21.4 |
| Undergraduate | 22 | 22.4 |
| Graduate | 55 | 56.1 |
| College | | |
| Arts and Letters | 24 | 24.5 |
| Business | 10 | 10.2 |
| Education and Psychology | 4 | 4.1 |
| Health | 4 | 4.1 |
| Science and Technology | 35 | 35.7 |
| ELI | 21 | 21.4 |

Note. ELI= the English Language Institute.

As Table 4 shows, age of participants ranged from 18 to 45 ($M = 26.94$, $SD = 5.88$). There were seven categories. Among 98 participants, there were 14 students in the category of 18-21 (14.29%), 32 students in the category of 22-25 (32.65%), 19 students in the category of 26-29 (19.39%), 20 students in the category of 30-33 (20.41%), 3 students in the category of 34-37 (3.06%), 5 students in the category of 38-41 (5.10%), and 3 students in the category of 42-45 (3.06%). There were 2 participants who did not indicate their ages, which consisted of 2.04 % of the total sample size.

Table 4

Participants' Age ($M = 27.05$, $SD = 5.88$, $N = 98$)

| Age | Count | Percent |
|-------------|-------|---------|
| 18-21 | 14 | 14.29 |
| 22-25 | 32 | 32.65 |
| 26-29 | 19 | 19.39 |
| 30-33 | 20 | 20.41 |
| 34-37 | 3 | 3.06 |
| 38-41 | 5 | 5.10 |
| 42-45 | 3 | 3.06 |
| No Response | 2 | 2.04 |

In this study, 27 countries were represented. Countries with the largest population of the participants were China with 17 participants (17.3%), Brazil with 13 participants (13.3%), India with 11 participants (11.2%), Japan with 9 participants (9.2%), and Germany with 6 participants (6.1%). Of 61 total countries represented at the university,

these five countries had the largest international student population enrolled at the university with India first, China second, Brazil third, Germany fourth, and Japan fifth.

Table 5 shows the participants' nationality.

Table 5

Participants' Nationality (N = 98)

| Nationality | Count | Percent |
|-------------|-------|---------|
| China | 17 | 17.3 |
| Brazil | 13 | 13.3 |
| India | 11 | 11.2 |
| Japan | 9 | 9.2 |
| Germany | 6 | 6.1 |
| Nepal | 5 | 5.1 |
| South Korea | 5 | 5.1 |
| France | 3 | 3.1 |
| Mexico | 3 | 3.1 |
| Colombia | 2 | 2.0 |
| Ghana | 2 | 2.0 |
| Holland | 2 | 2.0 |
| Paraguay | 2 | 2.0 |
| Spain | 2 | 2.0 |
| Syria | 2 | 2.0 |
| Venezuela | 2 | 2.0 |
| Vietnam | 2 | 2.0 |

Table 5 (continued).

| Nationality | Count | Percent |
|-------------|-------|---------|
| Albania | 1 | 1.0 |
| Ecuador | 1 | 1.0 |
| Egypt | 1 | 1.0 |
| Libya | 1 | 1.0 |
| Macedonia | 1 | 1.0 |
| Mongolia | 1 | 1.0 |
| Russia | 1 | 1.0 |
| Sri Lanka | 1 | 1.0 |
| Thailand | 1 | 1.0 |
| Turkey | 1 | 1.0 |
| Total | 98 | 100.0 |

Twenty-three native languages were reported among 98 participants. The top five native languages reported were as follows: Chinese (17 participants, 17.3%), Portuguese (13 participants, 13.3%), Spanish (12 participants, 12.2%), Japanese (9 participants, 9.2%), and German (6 participants, 6.1%). Other reported native languages included Albanian, Arabic, Dutch, Ewe, French, Hindi, Korean, Macedonian, Mongolian, Nepalese, Russian, Sinhalese, Tamil, Telugu, Thai, Turkish, Twi, and Vietnamese. Table 6 illustrates the participants' native languages.

Table 6

Participants' Native Language (N = 98)

| Native Language | Count | Percent |
|-----------------|-------|---------|
| Chinese | 17 | 17.3 |
| Portuguese | 13 | 13.3 |
| Spanish | 12 | 12.2 |
| Japanese | 9 | 9.2 |
| German | 6 | 6.1 |
| Hindi | 5 | 5.1 |
| Korean | 5 | 5.1 |
| Nepalese | 5 | 5.1 |
| Arabic | 4 | 4.1 |
| Telugu | 4 | 4.1 |
| French | 3 | 3.1 |
| Dutch | 2 | 2.0 |
| Tamil | 2 | 2.0 |
| Vietnamese | 2 | 2.0 |
| Albanian | 1 | 1.0 |
| Ewe | 1 | 1.0 |
| Macedonian | 1 | 1.0 |
| Mongolian | 1 | 1.0 |
| Russian | 1 | 1.0 |
| Sinhalese | 1 | 1.0 |

Table 6 (continued).

| Native Language | Count | Percent |
|-----------------|-------|---------|
| Thai | 1 | 1.0 |
| Turkish | 1 | 1.0 |
| Twi | 1 | 1.0 |
| Total | 98 | 100.0 |

Participants were asked to self-report their grade point averages (GPAs) on the background information questionnaire. Of the respondents, 39 students (39.8%) gave this information. Overall grades for the ELI students were based on a 100-point scale. Of 21 ELI students, 14 ELI students reported their final grades in this study. These final grades were converted into a 4-point scale by the researcher when the data were input in the SPSS program. As seen in Table 7, the minimum reported GPA was 2.76, and the maximum was 4.00 out of the 39 responses ($M = 3.50$, $SD = .35$).

Participants were asked to report hours of reading academic English materials per week. Of the 98 participants, 94 provided this information (95.92% response rate). The range of hours of English reading for academic purposes was reported from 1 to 50 ($M = 15.21$, $SD = 12.18$).

Participants were also asked to self evaluate their English reading proficiency as well as their overall English proficiency. All participants provided a self-rating on English reading proficiency on the background information questionnaire (100% response rate). Scores were reported using a five-point Likert scale with 1 (lowest) and 5 (highest) ($M = 3.23$, $SD = .87$). When asked to self evaluate overall English proficiency,

97 participants did so (98.98% response rate). Like the self-rated English reading proficiency, the self-rated overall English proficiency was reported using a five-point Likert scale with 1 (very poor) and 5 (very good) ($M = 3.42$, $SD = .92$). Table 7 indicates all information regarding the participants' GPA, hours of academic English reading, self-rated English reading and overall English proficiencies.

Table 7

Participants' Grade Point Average (GPA), Hour(s) of Academic English Reading, Self-rated English Reading Proficiency, and Self-rated Overall English Proficiency

| | Minimum | Maximum | Mean | SD |
|---|---------|---------|-------|-------|
| GPA ($N = 39$) | 2.76 | 4.00 | 3.50 | .35 |
| Hour(s) of Academic English reading ($N = 94$) | 1.00 | 50.00 | 15.21 | 12.18 |
| Self-rated English reading proficiency ($N = 98$) | 1.00 | 5.00 | 3.23 | .87 |
| Self-rated overall English proficiency ($N = 97$) | 1.00 | 5.00 | 3.42 | .92 |

Note. Grade Point Average (GPA). Hour(s) of academic English reading is per week.

When examining participants' self-rated English reading proficiency by students' academic level, the ELI students' mean was the highest ($n = 21$, $M = 3.29$, $SD = 1.01$), followed by the graduate students ($n = 55$, $M = 3.24$, $SD = .86$). The mean of the undergraduate students was the lowest ($n = 22$, $M = 3.18$, $SD = .80$). Means of all three groups ranged from 1 to 5. Examination of participants' self-rated overall English proficiency by group shows that the highest mean was reported by the ELI students ($n =$

21, $M = 3.52$, $SD = .93$). The next highest mean was found in the undergraduate group ($n = 22$, $M = 3.50$, $SD = .91$). The mean of the graduate students was 3.35 with its standard deviation of .93 ($n = 55$). For all three groups, reported scores included 1 as the minimum score and 5 as the maximum score (see Table 8).

Table 8

Participants' Self-rated English Reading Proficiency and Self-rated Overall English Proficiency by Group

| | Mean | SD | Minimum | Maximum |
|---|------|------|---------|---------|
| Self-rated English reading proficiency | | | | |
| ELI ($n = 21$) | 3.29 | 1.01 | 1.00 | 5.00 |
| Undergraduate ($n = 22$) | 3.18 | .80 | 1.00 | 5.00 |
| Graduate ($n = 55$) | 3.24 | .86 | 1.00 | 5.00 |
| Total ($N = 98$) | 3.23 | .87 | 1.00 | 5.00 |
| Self-rated overall English Proficiency | | | | |
| ELI ($n = 21$) | 3.52 | .93 | 1.00 | 5.00 |
| Undergraduate ($n = 22$) | 3.50 | .91 | 1.00 | 5.00 |
| Graduate ($n = 54$) | 3.35 | .93 | 1.00 | 5.00 |
| Total ($N = 97$) | 3.42 | .92 | 1.00 | 5.00 |

Note. ELI = the English Language Institute.

Scores on the Test of English as a Foreign Language (TOEFL) were collected, with 49 participants reporting their scores on the background information questionnaire. These participants included the English Language Institute ($n = 4$), undergraduate ($n = 8$), and graduate students ($n = 37$). A response rate of the TOEFL score for the total sample

size was 50.00 %. To be consistent, reported scores of the Paper-Based Test (PBT) and the Computed-Based Test (CBT) were converted into those of the internet-Based Test (iBT). The conversion was based on score comparison tables provided by Educational Testing Service (ETS) (2005), which develops and conducts all three types of TOEFL. Scores of the iBT TOEFL range from 0 to 120. The mean of the reported scores was 86.18 with its minimum score of 32 and maximum score of 119 ($SD = 19.32$).

Participants were asked to report amount of time in residency in the United States as well as length of time studying English in English-speaking countries. Among the total sample size of 98, 90 participants (91.84%) provided this information with length of residency ranging from .08 to 10 years with a mean of 2.37 years ($SD = 2.18$). The participants' years studying English in non-English speaking countries, such as China, Mexico, and Germany, ranged from 0 to 29 years. The mean was 9.49 years, and its standard deviation was 7.01 ($N = 91$). The students' years studying English in English speaking countries, such as Canada and the United States, were from 0.25 to 25 years. The average year of studying English in the English speaking countries was 3.06 ($N = 79$, $SD = 4.73$) (see Table 9).

Table 9

Participants' Length of Staying in the United States, Years of Studying English in Non-English Speaking Countries, and Years of Studying English in English Speaking Countries

| Classification | Min. | Max. | Mean | SD |
|--|------|------|------|------|
| Length of staying in the United States ($N = 90$) | .08 | 10 | 2.37 | 2.18 |
| Years of studying English in non-English speaking countries ($N = 91$) | 0 | 29 | 9.49 | 7.01 |
| Years of studying English in English speaking countries ($N = 79$) | .25 | 25 | 3.06 | 4.73 |

Note. Min. = Minimum. Max. = Maximum.

The students responded to the Survey of Reading Strategies (SORS) instrument, including three subsets of Global Reading Strategies (GLOB), Problem Solving Strategies (PROB), and Support Reading Strategies (SUP). Among overall, GLOB, PROB, and SUP scores, the highest mean of 3.47 was found in PROB with its minimum of 1.25 and maximum of 4.75 ($SD = .70$). The mean of the overall score (3.18) was the second highest, followed by the mean of the GLOB scores (3.17). The overall scores ranged from 1.23 to 4.38 ($SD = .64$). The minimum score of GLOB was 1.15, and its maximum score was 4.38 ($SD = .65$). Among all four categories of overall and its subsets, the SUP mean (2.92) was the lowest, ranging from 1.11 to 4.22 ($SD = .75$).

Table 10 presents the descriptive information discussed in this section.

Table 10

Participants' Reported Scores on the Survey of Reading Strategies (SORS) by Overall, and its Three Subsets of Global Reading Strategies (GLOB), Problem Solving Strategies (PROB), and Support Reading Strategies (SUP) (N = 98)

| | Minimum | Maximum | Mean | SD |
|---------|---------|---------|------|-----|
| Overall | 1.23 | 4.38 | 3.18 | .64 |
| GLOB | 1.15 | 4.38 | 3.17 | .65 |
| PROB | 1.25 | 4.75 | 3.47 | .70 |
| SUP | 1.11 | 4.22 | 2.92 | .75 |

Note. GLOB = Global Reading Strategies. PROB = Problem Solving Strategies. SUP = Support Reading Strategies.

Statistical Analyses

This section presents statistical analyses. Based on the two central research questions, three null hypotheses were tested in this study. This section reports the results of these tests.

Data analysis of the first null hypothesis. The first null hypothesis tested in this study was: There are no differences in the overall score of the Survey of Reading Strategies (SORS) or any of its three sub-scales (Global Reading Strategies, GLOB; Problem Solving Strategies, PROB; and Support Strategies, SUP) among three levels of English as a Second Language students (non-degree seeking students at the English Language Institute, undergraduate students, and graduate students) enrolled in a university in the southeastern part of the United States of America. A two-way multivariate analysis of variance (MANOVA) was used to analyze the first null hypothesis.

To test this null hypothesis, academic level of the participant (ELI, undergraduate, and graduate) was used as the independent variable. There were four dependent variables for the first null hypothesis including the overall score of the Survey of Reading Strategies (SORS) instrument and its subset scores of Global Reading Strategies (GLOB), Problem Solving Strategies (PROB), and Support Strategies (SUP). All scores were reported using a five-point Likert-type scale, ranging from 1 to 5. A higher score indicates more frequent use of a reading strategy by the participants. Scores were classified as high (mean of 3.5 or higher), medium (mean of 2.5 to 3.4), and low (mean of 2.4 or lower) based on research reported by previous scholars (e.g., Henk & Melnick, 1995; Oxford, 1990; Oxford & Burry-Stock, 1995; Mokhtari, Sheorey, & Reichard, 2008). A MANOVA revealed that, in this study, there was a statistically significant difference between the student academic level and the overall and subset scores of the SORS ($F(2, 95) = 5.55, p = .005$). In particular, as seen in Table 11, means of overall, GLOB, PROB, and SUP for ELI students were higher than those of undergraduate and graduate students. Furthermore, the total mean of PROB was the highest ($M = 3.47$) among the three sub-scales of GLOB, PROB, and SUP. The total mean of GLOB ($M = 3.17$) was higher than that of SUP ($M = 2.92$).

Table 11

Participants' Mean, Standard Deviation, and Sample Size of the ELI, Undergraduate, and Graduate Students in Overall, Global Reading Strategies (GLOB), Problem Solving Strategies (PROB), and Support Strategies (SUP) for the Survey of Reading Strategies (SORS)

| | Mean | SD | N |
|----------------|------|-----|----|
| Overall | | | |
| ELI | 3.54 | .47 | 21 |
| Undergraduate | 3.17 | .51 | 22 |
| Graduate | 3.04 | .70 | 55 |
| Total | 3.18 | .64 | 98 |
| GLOB | | | |
| ELI | 3.45 | .57 | 21 |
| Undergraduate | 3.08 | .56 | 22 |
| Graduate | 3.10 | .70 | 55 |
| Total | 3.17 | .65 | 98 |
| PROB | | | |
| ELI | 3.86 | .54 | 21 |
| Undergraduate | 3.54 | .52 | 22 |
| Graduate | 3.30 | .76 | 55 |
| Total | 3.47 | .70 | 98 |

Table 11 (continued).

| | Mean | SD | N |
|---------------|------|-----|----|
| SUP | | | |
| ELI | 3.39 | .54 | 21 |
| Undergraduate | 2.97 | .66 | 22 |
| Graduate | 2.72 | .78 | 55 |
| Total | 2.92 | .75 | 98 |

Note. ELI = the English Language Institute. GLOB = Global Reading Strategies. PROB= Problem Solving Strategies. SUP= Support Strategies.

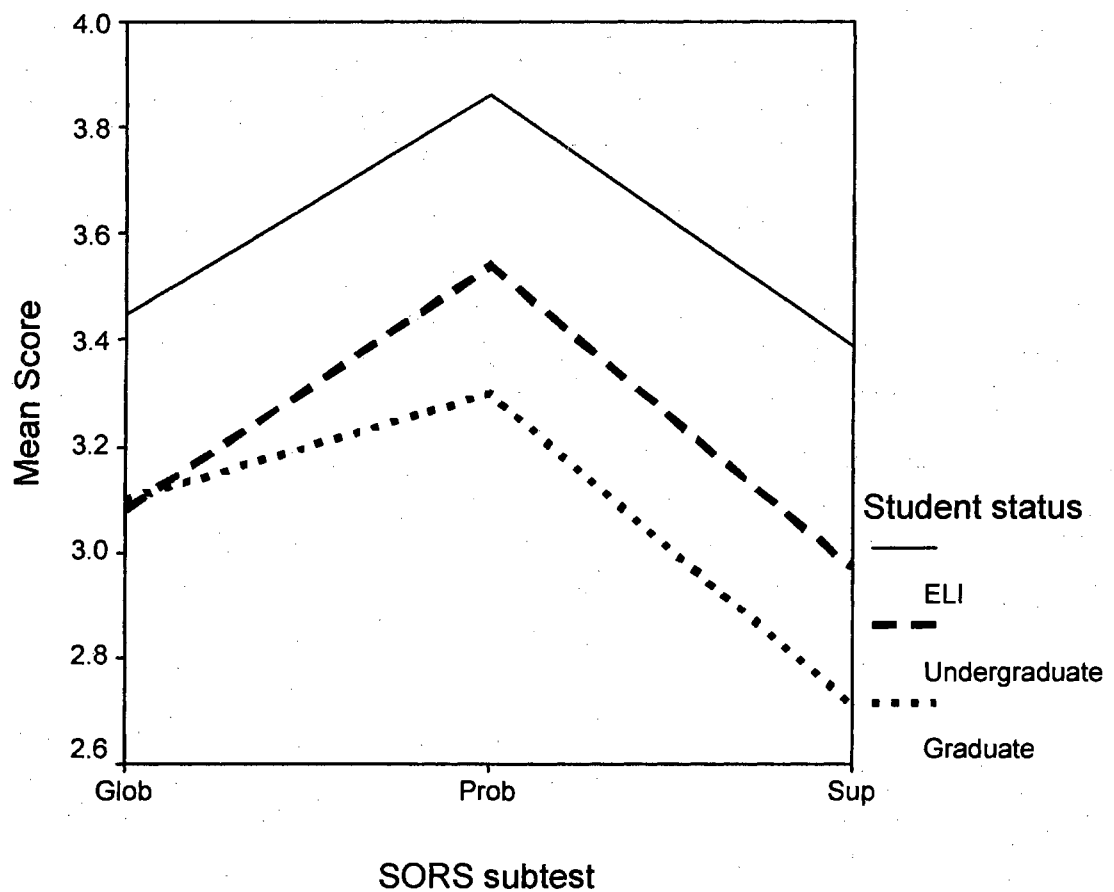
In terms of the means of GLOB, PROB, and SUP on the SORS, further analysis was conducted to explore whether there were any significant differences in the metacognitive awareness and reported use of the reading strategy among English Language Institute (ELI), undergraduate, and graduate students while they are engaged in academic English reading. There was a statistically significant difference among GLOB, PROB, and SUP ($F(2, 94) = 47.45, p < .001$). Figure 1 displays that graph patterns of the ELI and undergraduate students for GLOB, PROB, and SUP were very similar. In other words, both groups had the highest means on PROB, and GLOB means were higher than those of SUP. The only difference was that the ELI had consistently higher means on GLOB, PROB, and SUP than those of the undergraduate.

In addition, as seen in Table 11, Figure 1 illustrates that the means of PROB ($M = 3.47$) for the all three groups of ELI, undergraduate, and graduate students were the highest among the means of GLOB, PROB, and SUP. By students' academic level, as already shown in Table 11, Figure 1 also presents that the ELI students had higher means

than those of the undergraduate and graduate students for all GLOB, PROB, and SUP. In terms of PROB and SUP, the means of undergraduate students were higher than those of graduate students. Furthermore, as seen in Figure 1, there was an interaction between the undergraduate and graduate students on GLOB ($F(4, 190) = 3.43, p = .010$). Both groups indicated almost same means on this particular reading strategy.

Figure 1

Means of GLOB, PROB, and SUP among ELI, Undergraduate, and Graduate Students



Data analysis of the second null hypothesis. The second null hypothesis was as follows: There are no relationships between the overall score of the Survey of Reading Strategies (SORS) or any of its three sub-scales (Global Reading Strategies, GLOB; Problem Solving Strategies, PROB; and Support Strategies, SUP) and academic performance as measured by grade point average (GPA) of adult ESL students enrolled in the university in the southeastern part of the United States of America. The Pearson product-moment correlation coefficient was used to assess whether there was any relationship between students' reading strategy use and their GPAs. Independent variables were the overall score of the Survey of Reading Strategies (SORS) instrument and its three subset scores, including Global Reading Strategies (GLOB), Problem Solving Strategies (PROB), and Support Strategies (SUP). All scores were on the five-point Likert-type scale, ranging from 1 to 5. The higher the score becomes, the more frequent a student uses the reading strategy. The dependent variable was the participants' GPAs. As Table 12 displays, the result of the Pearson product-moment correlation coefficient indicated that there were no statistically significant differences among the participants' scores of overall ($r(38) = .057, p = .729$), GLOB ($r(38) = .218, p = .183$), PROB ($r(38) = .032, p = .846$), and SUP ($r(38) = -.179, p = .276$) and GPAs.

Table 12

Correlations for the Grade Point Average (GPA) and Overall, Global Reading Strategies (GLOB), Problem Solving Strategies (PROB), and Support Strategies (SUP) on the Survey of Reading Strategies (SORS) (N = 39)

| | | GPA |
|---------|---------------------|-------|
| Overall | Pearson Correlation | .057 |
| | Sig. | .729 |
| GLOB | Pearson Correlation | .218 |
| | Sig. | .183 |
| PROB | Pearson Correlation | .032 |
| | Sig. | .846 |
| SUP | Pearson Correlation | -.179 |
| | Sig. | .276 |

Note. GPA = Grade Point Average. GLOB = Global Reading Strategies. PROB = Problem Solving Strategies. SUP = Support Strategies.

Data analysis of the third null hypothesis. The third null hypothesis was as follows: There are no relationships between adult ESL students' self-rated academic English reading proficiency and their metacognitive reading awareness and strategies as measured by the overall score of the Survey of Reading Strategies (SORS) or any of its three subscales (Global Reading Strategies, GLOB; Problem Solving Strategies, PROB; and Support Strategies, SUP). The Pearson product-moment correlation coefficient was used to assess whether there was any relationship between participants' self-rated English reading proficiency and the use of reading strategies reported by the participants. The

independent variables were the scores of overall, GLOB, PROB, and SUP on the SORS, which was on the five-point Likert-type scale with 1 (never) to 5 (always). The dependent variable was the participants' self-rated academic English reading proficiency, which was also on the five-point Likert type scale with 1 (lowest) and 5 (highest). As seen in Table 12, the result indicated that there were no correlations among the reported scores of overall ($r(97) = .169, p = .095$), GLOB ($r(97) = .194, p = .055$), PROB ($r(97) = .186, p = .067$), and SUP ($r(97) = .086, p = .402$) and the students' self-rated English reading proficiency.

Table 13

Correlations for Participants' Self-rated English Reading Proficiency and Overall, Global Reading Strategies (GLOB), Problem Solving Strategies (PROB), and Support Strategies (SUP) on the Survey of Reading Strategies (SORS) (N = 98)

| | | Self-rated English reading proficiency |
|---------|---------------------|---|
| Overall | Pearson Correlation | .169 |
| | Sig. | .095 |
| GLOB | Pearson Correlation | .194 |
| | Sig. | .055 |
| PROB | Pearson Correlation | .186 |
| | Sig. | .067 |
| SUP | Pearson Correlation | .086 |
| | Sig. | .402 |

Note. GLOB = Global Reading Strategies. PROB = Problem Solving Strategies. SUP= Support Strategies.

Summary

Research questions and null hypotheses tested quantitatively were presented in the previous sections along with reported findings. The descriptive data for the participants and their response rates were presented along with statistical data for the three null hypotheses. The results of these findings were then explored qualitatively through semi-structured interviews and examination of participants' reading materials. These findings are presented in the following section.

Phase II: Qualitative Research

This section presents findings of the qualitative portion of the study. It first describes the selected participants for semi-structured interviews. Emergent themes found from the interviews are then presented. Next, findings across the quantitative and qualitative data are presented followed by summary. The findings are based on the following four guiding questions developed in this study:

1. To what extent are three levels of adult ESL students (non-degree seeking students at the English Language Institute, undergraduate students, and graduate students) enrolled in a university in the southeastern part of the United States of America aware of their metacognitive reading strategies?
2. What reading strategies do three levels of adult ESL students (non-degree seeking students at the English Language Institute, undergraduate students, and graduate students) enrolled in a university in the southeastern part of the United States of America use while reading academic English materials?

3. What reading strategies do three levels of adult ESL students (non-degree seeking students at the English Language Institute, undergraduate students, and graduate students) enrolled in a university in the southeastern part of the United States of America use while experiencing difficulties in academic English materials?
4. How are metacognitive reading strategies used by adult ESL students when reading academic English materials influenced by those strategies they use when reading academic materials in their first language?

Characteristics of the Participants

The qualitative portion of the study was conducted with selected participants. The researcher interviewed six English as a Second Language (ESL) students who also participated in the qualitative portion of the study. In this section, characteristics of each interviewee are presented.

Ali (pseudonym) was a very outgoing student from Syria. The researcher met him for the first time on the interview day in the English Language Institute (ELI) building. The ELI manager, a gatekeeper, introduced Ali to the researcher. Despite a very first meeting, Ali was not shy at all and very cheerful. When the researcher asked to interview him, he was very willing to volunteer. He said, "Of course. I will be glad to do so. Just tell me whatever you need" (personal communication, December 9, 2008). The interview was conducted in a vacant classroom at the ELI building. The room was small, equipped with one big table with about 15 chairs. Before the interview, the researcher and Ali began to talk to get to know each other. Conversation continued, and the researcher had to stop it so that the interview could be conducted. Ali liked to talk a lot. He sometimes told jokes and laughed during the conversation. During the interview, no

frustration about his English proficiency was observed. Although he was still at the developing stage in terms of English proficiency, he was very comfortable to dialogue with me in English. He evaluated that his English speaking and listening abilities were better than reading and writing abilities. Overall, he seemed to be confident about his English proficiency. He told the researcher that he does not get depressed when he faces difficulties in understanding in English. He said, "That's okay. Don't worry. I will just give it [a reading passage] up and just keep going."

Kyoko (pseudonym) was another ELI student from Japan. The ELI manager introduced her to the researcher. Like Ali, Kyoko was also a very social person. The researcher and she met each other for the first time on the interview day. She was very willing to participate in the interview. The researcher asked which language (English or Japanese) she preferred to use for an interview. She chose the Japanese language. Therefore, the interview was conducted in Japanese so that she was comfortable enough to share her English academic reading experiences as detail as possible. She was very frank and open. Being at the level 4 (low-advanced) at the ELI, she seemed to be confident with her English reading ability. Indeed, during the interview, she said, "I do not know why my English [reading] is good, but it improved a lot about five years ago [when I studied hard for the university entrance examination]" (personal communication, December 5, 2008). The interview took place in the same vacant classroom in the ELI building, which was used for the interview with Ali. Kyoko was very positive to share her reading materials and even her graded tests and quizzes with me.

Chen (pseudonym) was an undergraduate student from China. He seemed to be a little frustrated with his English proficiency. The research met him before the interview

day through his instructor she knew at the university. Prior to the interview day, several correspondences were developed by email and phone for an interview arrangement. During the interview, Chen spoke very slowly. When he was expressing his ideas in English, it seemed that he was thinking and processing a lot. He was sometimes looking for a particular English word he wanted to use and paused many times. He was gentle and calm.

Juliane (pseudonym) was a female undergraduate student from Germany. She was very extroverted. A manager of the International Programs introduced her to the researcher. When the researcher emailed and asked for her participation in the study, she immediately responded and agreed to volunteer. Interview was conducted in a quiet place in the university library. She was fluently speaking English; as fluent as Himanshu, an Indian graduate student. Juliane was very satisfied with her English proficiency and evaluated her as a high proficient English learner. During the interview, the researcher asked her if her English was improved after coming to the United States to study at the university. She reflected, compared her English level while she was studying as an exchange student at an American high school about 6 years ago, and said, "...um...when I was there, my English was good. By the time I left there, I was fluent. I was like me now [here as a university student in the United States], I guess" (personal communication, January 12, 2009).

Himanshu (pseudonym) was an Indian graduate student. The researcher had known him since 2007. He had worked in a computer laboratory in the researcher's department building. When being asked for an interview, he was very happy to volunteer. After several correspondences via email for an interview arrangement, the interview was

conducted in the library. Himanshu was a little introverted person. He was quiet and did not speak a lot. However, when he was asked questions, he expressed his English reading experiences as much as possible he remembered. His English speaking level was advanced. He seemed to be very comfortable to communicate in English.

Mei (pseudonym) was a Chinese graduate student. The researcher met her at an event sponsored by the Baptist Student Union (BSU) at the university. The researcher happened to talk with Mei. The researcher told Mei that she was looking for a student to interview. Mei said, "I would be glad to help you" (personal communication, November 24, 2008). After the event, several interactions by email were made for an interview arrangement. For her convenience, an interview took place in her laboratory on campus. It was a large room where many study desks and experimental instruments were provided. There was Mei's space with her desk and chair for research in the room. She was very quiet. She spoke English a little slowly. Nevertheless, she possessed rich vocabulary and used proper English during the interview.

Emergent Themes

After conducting interviews with six students, the researcher analyzed the data, including recorded interviews, transcripts, interview protocols, and photographs of the interviewee's reading materials. Data analysis was conducted through exploration of the data. The researcher took notes on the collected materials and highlighted some features regarding metacognitive awareness and reading strategies for each participant. She re-organized these features discovered from the participants under semi-structured interview question. She then looked for similar trends across the participants and re-organized them based on the four guiding questions presented earlier. She reviewed the trends and

coded them which were categorized under each guiding question and reduced the number of the codes.

The discussion of the qualitative findings is organized by the four guiding questions posed for this study. The first guiding question was about students' metacognitive awareness. The second guiding question targeted reading strategies employed by those students. The third guiding question explored reading strategies used by those students when encountering challenges and/or difficulties in English reading. The fourth guiding question focused on which strategies were used in first language (L1) reading and second language (L2) reading. For each guiding question, emergent themes were found through the exploration of the tape-recorded interviews and interviewees' reading documents, such as textbooks and journal and newspaper articles.

Emergent themes for guiding question 1. When the researcher asked about metacognitive awareness in English reading to six participants, she discovered that all of them were aware of their reading strategies and processes. More particularly, they expressed that they summarize passages, mark texts in the margins, and scan to get general ideas and find unfamiliar words. For example, when asked about metacognitive awareness, Ali said, "...I summarize what I read." Ali knew that summarizing the information in his own words helps him understand what he is reading, and he declared that one of the important purposes of reading is to comprehend the passages. Juliane also was aware of use of summarizing strategies.

When asked about metacognitive awareness, Chen, Juliane, and Mei expressed that they use text marking strategies. Examples include highlighting, underlining, numbering, writing translations in the margins, and putting abbreviations. Another

emergent theme was scanning. Kyoko and Juliane were aware that they scan the text first to see what it is written, find unknown vocabulary and key information. For instance, Kyoko, reflecting her reading experience, said, "...if I have to read quickly [because I have limited time], I read and then I kind of see important parts. After that, I go back to read these [important] parts."

Among the six participants, Chen and Himanshu were aware of their metacognitive reading strategies and shared that they sometimes automatically implement reading approaches. Chen said, "Partly, I do it (employing different reading strategies) automatically" (personal communication, December 15, 2008). Himanshu also indicated that he automatically uses reading strategies. When first asked about metacognitive awareness, he expressed that he had not thought about it. However, as the interview went on and the researcher asked questions, he realized his awareness and began to share his reading experiences and use of strategies. In short, participants' metacognitive reading awareness was explored through the first guiding question. All students were aware of their reading approaches. Common strategies discovered were summarizing, marking texts, and scanning. Findings of the second guiding questions are presented in the next section.

Emergent themes for guiding question 2. As to reading strategies employed by the six participants when they read for academic purposes in English, the following six key trends were explored: (a) adjusting reading speed and strategies for different purposes, (b) using prior knowledge, (c) inferring text, (d) marking text, (e) focusing on typographical features, and (f) restating information. Table 14 below presents a summary

of the six major trends. Some of the repeated strategies were found in both guiding questions 1 and 2.

Table 14

Six Categories of Reported Reading Strategies

| Categories | Examples |
|---|--|
| Adjusting reading speed and reading strategies for different purposes | <ul style="list-style-type: none"> • Skimming to overview the text • Scanning to identify key information and/or answers • Re-reading • Reading fast and/or slowly • Keeping questions and/or key information in mind • Focusing on key information and/or words |
| Using prior knowledge | <ul style="list-style-type: none"> • Activating what one knows about a topic • Connecting one's prior knowledge to the text |
| Inferring text | <ul style="list-style-type: none"> • Predicting what text is about from a title • Inferring from headings and/or subheadings • Using context clues • Guessing what is coming while reading |

Table 14 (continued).

| Categories | Examples |
|------------------------------------|--|
| Marking text | <ul style="list-style-type: none"> • Underling • Highlighting • Staring • Parenthesizing • Circling key and/or unknown words • Annotating comments and/or key words • Using different markers in colors |
| Focusing on typographical features | <ul style="list-style-type: none"> • Words in bold • Italicized words • Large prints |
| Restating information | <ul style="list-style-type: none"> • Summarizing paragraph and/or the whole passage in one's own words • Replacing with simple English vocabulary |

For the first key category, all six interviewees employed various reading strategies for different purposes. Typical examples of these strategies include skimming, scanning, re-reading, changing reading rate, keeping questions and key information in mind while reading, and focusing on important information. It was found that all of the interviewees skim a reading passage, book chapter, or a book, if they are asked to grasp its general idea. Juliane said, "When I knew I do not really have to understand everything [in the text], I just read fast. I am not so specific about everything." Mei also said she

sometimes skims an article first and read carefully to analyze for the second time. She uses this technique because she does not want to spend so much time in analyzing the paper (journal article) for the first time without knowing what to focus on and what to ignore.

Scanning was also emerged to be a common strategy used by the students. All six interviewees addressed that they scan the text to identify key information and/or to answer questions if they exactly know what information they need to look for before reading. For example, Kyoko, Ali, and Himanshu shared that their instructors give study guides (e.g., questions, key words) in advance and they focus on information they need to look for while reading. Kyoko said, "...after I read for the first time, I read it (a passage) again, thinking about questions and focus on parts that give me tips for the questions." Ali also said, "(when asked specific things by the instructors,) I just scan [to find necessary information to answer the questions]." Moreover, Himanshu scans journal articles for his meta-analysis assignment. He expressed that he mainly reads an abstract and summary for this particular assignment to understand what the article was about. He picks up essential information from his scanning.

In terms of reading speed, the participants adjust their reading rates for different purposes. They typically read slowly to prepare for quizzes, tests, examinations, and/or assignments that require comprehensive understanding of reading passages. On the other hand, they read fast for other types of assignments. Out of six participants, Ali, Kyoko, Juliane, and Himanshu demonstrated their slow reading. Particularly, Kyoko and Himanshu expressed their slow reading for quiz, test, and examination preparations.

Kyoko said, "...for quizzes and tests, I have to read very carefully...because they (ELI instructors) ask me to know very detailed information..., I read slowly and thoroughly. I need to prepare for them so that I can answer any questions properly."

In addition to slow reading for exam preparations, Himanshu and Juliane expressed they carefully read for other assignments. Both students read articles very slowly and concentrate while keeping questions or guidelines given by their professors in mind during reading. The researcher examined Juliane's article and found many marks, such as underlines, highlights, key words, and question marks, for almost all eighteen pages.

While the students read slowly for specific tasks or exams, they also stated that they read fast. Of the total six interviewees, four students said they sometimes read fast. They usually do not take notes or mark in the text when they read fast. When Kyoko shared newspaper articles she read for her business English class with the researcher, there were some articles without many marks and notes. Kyoko explained that she knew she just was supposed to understand content roughly, so she just read the passage fast without paying too much attention. Juliane showed the researcher one thick book (approximately 200 pages) she read for a class assignment, which had no text marks. She said she read it fast because she "picked up everything without much difficulty." Ali's TOEFL (Test of English as a Foreign Language) textbook contained no marks, too. He said he read passages fast for test practices because he has a limited amount of time to read if he takes the TOEFL. He said, "I can't write when I take an exam because it is computer-based. So, I read fast. I have to."

As seen in Table 14, using prior knowledge was the second key category for an emerged reading strategy. All six students expressed that they activate their background knowledge on a topic when they read and connect it to the text and try to understand what they read. Chen said, "...when I read something, I use my prior knowledge...to see if they [my prior knowledge and a sentence in the text] agree or are against each other." While showing a reading passage about the Eiffel Tower, he demonstrated how he activated background knowledge: "When I read this one (passage), 'the Eiffel Tower,' I knew what it is. I knew it is in France. It is a very famous tower in the world..."

When the researcher asked Ali to share his thinking processes while reading a passage about Antarctica, he showed his use of background knowledge. He said, "Well...first, I read a title, 'Antarctica,' I thought about general ideas about Antarctica. Like...it has ice...polar bear, penguins,...very cold weather, iceberg." Similar to Chen and Ali, Kyoko shared her reading passage on the Olympic Games. She expressed that her background knowledge helped her comprehend its content.

The third key category was inferring text. All six interviewees addressed their guessing strategies. Examples include predicting from titles and headings, utilizing context clues, and inferring what is coming while reading. It was found that Juliane, Mei, and Kyoko focus on titles and make inferences about what the texts are about. Juliane knew the importance of reading a title to grasp a general idea about its passage so that she does not get lost. Mei also shared that she thinks about "what they (the authors) will talk about in this whole paper, just from the title of the paper."

When the researcher examined Ali's reading materials, he said, "I sometimes try to guess from **the context clues**." In addition, Kyoko said she predicts what will be

discussed in the next sentence as she reads. This was based on her understanding about how a paragraph is generally structured. She understood she usually finds key information at the beginning of a paragraph followed by its descriptions. Thus, she anticipates what is coming based on the paragraph structure.

A text-mark strategy was identified as the fourth key category. This includes underling, highlighting, starring, parenthesizing, circling words, annotating, and using markers in colors. All six participants declared that they marked texts in different ways. However, not many text-marking strategies were discovered from Ali and Himanshu. The researcher found many text-marking approaches were used by Mei, Juliane, and Kyoko. They highlighted key information, words, phrases, or sentences in colors or underline them. Kyoko said, "I look for a sentence that really talks about a main point **simply**. And then I underline it."

Juliane and Kyoko circled unknown words so that they can "look them up in a dictionary" if necessary (Juliane, personal communication, January 12, 2009). On the other hand, Mei circled key words. Juliane, Mei, and Chen used annotation techniques in the margins. For example, the researcher observed that they wrote some abbreviations, comments, summarizing phrases or sentences. The researcher also found that Mei's scientific journal article contained many marks in her seven-page article, including visual representations (e.g., plus marks and numeric expressions) she simplified from particular statistical sentences or phrases, and comments. Kyoko and Chen put question marks beside a sentence they did not understand so that they can later ask about it to their instructors.

The fifth key category was to focus on typographical features (e.g., bold and italicized words) in text. Four students except Himanshu and Mei shared this approach with the researcher. For example, Juliane expressed she pays attention to words in bold and italics because they are important. She said, when losing on track, she focuses on italicized or bold words and gets ideas about the passage. Ali also pays attention to the typographical features and thinks about why they appear special. He said, "I analyze myself...like, 'Why are they (words) in bold? **Why are they important?**'" He continued, "...then I will read [a passage], and it will give me explanation of a particular thing in a paragraph. That's why they (words in bold) are important."

The last key category for reading strategies emerged from the interviews was restating information on their own words. Of six participants, four (Kyoko, Ali, Juliane, and Mei) stated that they summarize paragraphs. Kyoko said, "Like after I read something in English, I summarize in my mind...just very briefly." She does this process in her native language. Ali also mentioned that he summarizes each paragraph into one simple sentence and connects and compare all summarized sentences so that he can understand "the **whooooole** article." He does this process in English. Similar to Kyoko and Ali, Juliane also highlights key points in the text and summarizes the highlighted parts so that she can read her own summary and be ready for class. She uses English to summarize.

Moreover, Ali and Chen revealed that they sometimes replace difficult English words or sentences with simple ones so that they can comprehend what they are reading. Ali said, "If I summarize into my simple English language, I will understand it." In addition, Chen sometimes restates English words in other English words he really knows.

He gave an example of replacing a word, “although,” which he did not know, with “even though,” which he easily understood.

In summary, six categories were explored for the second guiding question.

Common reading strategies the participants use in general were adjusting reading rate and strategies for various purposes, using background knowledge, inferring text, marking text, focusing on typographical features, and summarizing. Further exploration was conducted about particular reading approaches when the students have difficulties in comprehension. These findings are present in the next section.

Emergent themes for guiding question 3. The third guiding question was developed to describe what reading strategies the participants employ when they are challenged to comprehend English reading materials. After exploring the obtained data, three categories were discovered: using context clues, re-reading, and using supplementary resources. Table 15 exemplifies each category and its descriptions. Some of the strategies were applicable to both cases when the participants use in general (guiding question 2) and when they use to overcome difficulties (guiding question 3).

Table 15

Three Categories of Reported Reading Strategies When Having Difficulties

| Categories | Examples |
|----------------------------|--|
| Using context clues | <ul style="list-style-type: none"> • Reading previous and following sentences • Making inferences with one's prior knowledge |
| Re-reading | <ul style="list-style-type: none"> • Read slowly • Concentrate |
| Using supportive resources | <ul style="list-style-type: none"> • Using a dictionary • Searching information in the internet • Asking for help • Reading other related references • Discussing with classmates |

Using context clues was identified to be the first category. All six students expressed that they attempt to understand unknown words and unclear sentences from the context clues. For example, when asked how to solve difficulties in comprehension, Ali answered he proceeds to read next paragraph and sees if the next paragraph gives a better idea about the previous one. He shared that he uses “**context clues.**” He knew that these clues help him comprehend parts he did not understand. Kyoko was similar to Ali. She sometimes figures out meanings of unknown words “from the previous sentences or sentences around them.” Moreover, Himanshu shared his context clue strategy when he

encounters unknown words. He addressed, “For example, if I find a word I do not understand, I will read a sentence. I will get a meaning of the content. Based on that, I will understand [the meaning of the unknown word]” (personal communication, November 25, 2008).

The second reading strategy discovered from the participants was re-reading. This particular strategy was a repeated trend across students’ metacognitive awareness (guiding question 1) and reading approaches to be used for solving difficulties. All six students declared that they go back to read a passage again if they do not understand it. They re-read carefully to understand the text. They also concentrate on reading. The researcher found that Ali and Himanshu particularly slow down their reading speed, carefully re-read passages for several times, and concentrate on reading. Ali explained, “...I **concentrate** to try to understand it (a part I did not understand). Like, I will read it three times, or four times...I read it again...and **concentrate**.”

Juliane and Kyoko expressed that when encountering difficulties in comprehending a passage, they re-read and guess its meanings from context clues and prior knowledge. Juliane said, “If I think I am not understanding [what I am reading], I go back and start to read again...with the knowledge I have.” She continued “...I...go back to the sentence before and guess what it might...like what could come up in the context afterwards.”

The third category of reading strategies for students to use when they encounter difficulties in understanding a passage was using other supportive resources. They include (a) using dictionaries, (b) searching information on the internet, (c) asking for help, (d) reading other associated references, and (e) discussing with classmates.

For dictionary use, five interviewees except Himanshu used a translation approach. Among the five students, Kyoko, Ali, and Chen seemed to depend on dictionaries, whereas Juliane and Mei depended less on the dictionaries. When asked reading approaches to solve any difficulties in understanding text, Chen answered, "...<pausing and thinking>...first, for vocabulary, I use this (translation dictionary) <showing his electronic dictionary>. I translate a word from English into Chinese."

The researcher examined reading materials of Ali and Kyoko. Both declared that they do not use dictionaries a lot or try not to use them. However, the researcher found many translations written in their texts. For example, on a two-page excerpt from Ali's textbook on a topic, Antarctica, Arabic translations were almost everywhere, with arrows from unknown words along with Arabic memos, in the margins on both pages. Kyoko's short reading passage contained 27 words translated into her native language. For another newspaper article about tax, this particular one-page article (19 paragraphs) included approximately 50 words translated in the Japanese language.

Another reading approach for using supportive resources was searching information online. Out of all six interviewees, five students except Kyoko stated that they check internet to search particular words they did not understand and/or concepts they were unfamiliar with. Particularly, the researcher discovered that Chen, Mei, Juliane, and Chen utilize this online approach. Mei said, "...if I do not understand something, I check online. Google search." She explores the internet in English and looks for helpful information about a scientific term or concept she did not understand and gets general ideas about it.

Another finding about how to solve difficulties in English reading was asking for help. Kyoko, Ali, Juliane, Chen, and Himanshu use this asking approach to understand meanings of unknown words and/or concepts. For example, Juliane spoke, “If nothing helps [after I use a dictionary and/or guess], and I think sentences are **really really** important, then I go to somebody and ask to explain to me.” Moreover, the researcher discovered that two students (Mei and Juliane) explore other reading materials associated to the text they read and are challenged to understand. Mei checks articles’ references and reads them to get general ideas about specific scientific concepts or terms. Juliane also checks other supporting materials, such as book reviews and critiques, so that she understands an author’s political position or view.

The last approach students reported using to solve difficulties in reading was to discuss a reading passage with their classmates. Ali, Kyoko, Chen, and Himanshu used this approach. For example, Himanshu said, “If I do not understand a text, I will ask...my classmate. And then, we will discuss about the text.”

In summary, it was found that students implement particular reading strategies when they are challenged to understand text. They use context clues to figure out unknown words or sentences. They also slowly read passages again and concentrate on reading by utilizing their background knowledge. Finally, they depend on supportive resources, including dictionary and internet, to better understand text they did not comprehend well. A next section demonstrates findings regarding strategies used in first and second language reading.

Emergent themes for guiding question 4. The fourth guiding question was developed to understand if reading strategies participants use in their first language (L1) reading

influence their reading strategies in their second language (L2) reading. All six interviewees declared that reading strategies they employ in L1 are related to those in L2. At the same time, when they compare reading approaches in L1 to those in L2, they also expressed some differences between the two. Table 16 summarizes such similar and different reading strategies in the two languages reported by the participants.

Table 16

Similarities and Differences on Reading Strategies in the Participants' First (L1) and Second (L2) Languages

| Similarities | Differences | |
|---|--|--|
| L1 and L2 | L1 | L2 |
| <ul style="list-style-type: none"> • Marking text (highlighting, underlining, starring, writing key words in margins, etc.) • Inferring • Focusing on key information • Focusing on typographical features • Summarizing • Activating prior knowledge • Re-reading | <ul style="list-style-type: none"> • Reading fast • Using no dictionary (no translation) • Thinking in L1 | <ul style="list-style-type: none"> • Reading slowly • Using dictionaries (translation) • Thinking in L1 and/or L2 |

Note: L1 = the participants' native language. L2 = the participants' second language (English).

In terms of common reading strategies found in the participants' first (L1) and second languages (L2), all six students were cognizant of reading strategies used in both L1 and L2. Strategies employed in both languages include marking text, guessing, focusing on key information and typographical features, summarizing, using background knowledge, and re-reading. For example, when asked any relationships of reading strategies between L1 and L2, Mei clearly knew advantages of utilizing reading strategies in Chinese for her English reading. She expressed that "some [reading] techniques are the same for both Chinese and English materials." When the researcher asked any examples, Mei listed the following approaches: inferring from a title, surveying, focusing on headings, marking text, and summarizing. Kyoko admitted that her reading strategies in both Japanese and English are very similar. She said, "I read English in the same way I do in Japanese." Other reading strategies that were common in L1 and L2 discovered from Chen included marking text, focusing on key information, predicting, using background knowledge, and re-reading. Although he understood using similar approaches in both languages, he expressed he uses more strategies in English.

In addition to similar reading strategies used in the first language (L1) and the second language (L2), all six interviewees stated some differences between the two languages. In their L1 reading, they read faster, do not use dictionaries, and think in L1. On the other hand, they read slower, refer to dictionaries to check unknown words, and think in L1 and/or L2 in L2 reading. Four students (Chen, Kyoko, Juliane, and Mei) pointed out their slower reading in English. For example, Juliane stated, "I read a little slower when I read in English. I recognize that." She continued "because, I guess...in

German (L1), I am skimming more unconsciously...I do not realize I am skimming. But, in English, I actually read every passage.”

Furthermore, all interviewees except Himanshu use dictionaries when they read in English. On the other hand, when they read in their native language, they do not usually refer to any reference materials. While reading in English, they think about what they are reading in either and/or both their first language and/or second language (English). Four students (Mei, Juliane, Himanshu, and Ali) stated they monitor their reading processes in English most of the time. Yet, Mei, Juliane, and Ali also use their first languages when they encounter more complex English sentences, or unfamiliar words/ concepts. Unlike the four students, Kyoko and Chen depended on their native languages to monitor their reading processes. Kyoko said, “I think about it (a passage) in Japanese.”

In summary, three major emergent themes were discovered for the fourth guiding question. The participants realized that they use similar strategies for their first language (L1) and second language (L2) reading. These approaches included marking text, guessing, focusing on key information and typographical features, summarizing, utilizing prior knowledge, and re-reading. On the other hand, some different strategies were also found. Their reading rate, dependence on dictionaries, and languages used for monitoring were different in L1 and L2 reading.

Findings across the SORS and Interviews

Emergent themes for four guiding questions were presented in the previous sections. The first guiding question was about the students' metacognitive awareness. All students were conscious about their reading styles and approaches. For the second guiding question focused on reading strategies employed by them. The following six

categories were found: (a) adjusting reading speed and reading strategies for different purposes, (b) using prior knowledge, (c) inferring text, (d) marking text, (e) focusing on typographical features, and (f) restating information in one's own words. Regarding the third guiding question on particular reading approaches employed when the participants have difficulties in understanding text, it was found that they using context clues, re-reading, and using supportive materials such as dictionaries. For the last guiding question on associations between the first and second languages in terms of reading strategies, the students declared some strategies in common and different approaches for reading rate, translation, and thinking processes in first and/or second language.

Common reading strategies in the quantitative and qualitative research designs.

After the analysis of the collected data based on the four guiding questions, the researcher conducted further analysis. She explored if the findings of the qualitative part of this study are aligned with reading strategies discussed in the quantitative portion of the study. In other words, she reviewed if the reading strategies emerged from the semi-structured interviews are presented in the Survey of Reading Strategies (SORS), a quantitative instrument. She investigated this by three sub-categories of the SORS: Global Reading Strategies (GLOB), Problem Solving Strategies (PROB), and Support Strategies (SUP).

From the analysis, it was found that six interviewees stated and/or demonstrated 29 reading strategies on the Survey of Reading Strategies (SORS). As delineated in Table 17, 12 Global Reading Strategies, eight Problem Solving Strategies, and nine Support Strategies were found in the interviews. Only one strategy, which was not observed in the qualitative part of the study, was checking how content fits reading purpose (GLOB, item 6).

Table 17

Classification of Reported and Observed Metacognitive Reading Strategies on the Survey of Reading Strategies (SORS) by Six Participants

| GLOB | PROB | SUP |
|---|--|--|
| <ul style="list-style-type: none"> • Setting purposes for reading (item 1) • Using background knowledge (item 3) • Previewing text (item 4) • Noting text characteristics (item 8) • Determining what to read and what to ignore (item 12) • Using text features (e.g., tables) (item 15) • Using context clues (item 17) • Using typographical features (e.g., italics) (item 20) • Analyzing text critically (item 21) | <ul style="list-style-type: none"> • Reading slowly and carefully (item 7) • Staying focused (item 9) • Adjusting reading speed (item 11) • Focusing on reading when text becomes complex (item 14) • Pausing and thinking (item 16) • Visualizing text information (item 19) • Re-reading when text becomes complex (item 25) • Inferring unfamiliar vocabulary (item 28) | <ul style="list-style-type: none"> • Taking notes (item 2) • Read aloud when text becomes complex (item 5) • Underlining and circling (item 10) • Using reference materials (item 13) • Paraphrasing (item 18) • Going back and forth in text (item 22) • Asking questions (item 26) • Translating (item 29) • Thinking in both languages (item 30) |

Table 17 (continued).

| GLOB | PROB | SUP |
|--|------|-----|
| <ul style="list-style-type: none"> • Check understanding (item 23) • Guessing content of the text (item 24) • Confirming inferences (item 27) | | |

Note. GLOB = Global Reading Strategies. PROB = Problem Solving Strategies. SUP = Support Strategies.

In summary, the analysis of reading strategies in relation to the qualitative and qualitative research designs demonstrated that out of 30 approaches on the Survey of Reading Strategies (SORS), 29 were explored from the interviews and examinations of the participants' reading materials. This indicated that the strategies the participants implement or declare to use in the interviews included Global Reading Strategies, Problem Solving Strategies, and Support Strategies, which were identified as key and common approaches on the quantitative instrument of the SORS.

Synopsis of the Findings of the Qualitative Research Design

This part of the qualitative research displayed findings from semi-structured interviews and exploration of reading documents. The first section depicts characteristics of six interviewees, Ali, Kyoko, Chen, Juliane, Himanshu, and Mei. Based on the four guiding questions, the second section demonstrated key themes that were emerged from the findings. Another analysis was conducted to explore any consistency on reading

strategies between the quantitative and qualitative data. Taken together, a summary for both quantitative and qualitative research designs is provided in the next section.

Summary

In this chapter, findings for the mixed method research were offered. The quantitative results were presented in three sections. In the first section, the description of the sample and the response rate were provided. In the next section, statistical analyses, according to three null hypotheses, were offered. For the first null hypothesis, the two-way multivariate analysis of variance (MANOVA) was used to examine to see if any significant differences exist between three academic levels of students (the English Language Institute [ELI], undergraduate, and graduate students) and their reported scores on the Survey of Reading Strategies (SORS). When compared to the undergraduate and graduate students, the ELI students reported significantly higher statistical scores on the overall survey (SORS) and its three subscales: Global Reading Strategies (GLOB), Problem Solving Strategies (PROB), and Support Strategies (SUP). The Pearson product-moment correlation coefficient was utilized for the second null hypothesis, which attempted to determine any statistical differences between the participants' grade point averages (GPAs) and scores on the SORS. No statistical significant difference was found. For the third null hypothesis, which examined to determine significant differences between the participants' self-rated English reading proficiency and their scores on the SORS, the analysis of Pearson product-moment correlation coefficient did not indicate any statistical differences. In the last section, a brief summary of the quantitative research was provided.

The qualitative research part consisted of three sections: the characteristic of the six participants, emergent themes, and a summary. The participants included: one male ELI student from Syria, one Japanese female ELI student, one Chinese male undergraduate student, one female undergraduate student from Germany, one male graduate student from India, and one Chinese female graduate student. In the second section, based on four guiding questions, findings from semi-structured interviews and examination of the participants' reading documents, such as textbooks and newspaper and/or journal articles, were provided. For the first guiding question, it was discovered that students were aware of their metacognitive reading strategies. As to the second question, the students shared different reading strategies, including adjusting reading speed and selecting strategies for different purposes, predicting, activating background knowledge, marking text, focusing on typographical features, and summarizing. The third guiding question regarding the participants' reading approaches when having difficulties discovered three key themes of using context clues, re-reading, and referring to supplemental materials (e.g., dictionary). For the fourth guiding question, which explored relationships of the participants' reading strategies in their first language (L1) and second languages (L2), they stated some similar reading approaches, including text marking, inference, use of background knowledge, and different strategies, such as reading speed, translating, and thinking processes in L1 and/or L2. Another exploration was conducted to explore if the qualitative findings match those of the quantitative. This was investigated by comparing the emerged qualitative reading strategies with those indicated in the SORS. Based upon the results presented in this chapter, the next chapter

discusses interpretations of the results, their implications for students, teachers, and professionals, and recommendations for further studies.

CHAPTER V

DISCUSSION AND CONCLUSIONS

Introduction

The study examined the role of metacognitive awareness and reading strategies used by adult English as a Second Language (ESL) learners enrolled in a university in the southeastern region of the United States of America. This chapter focuses on discussion and interpretations of the results. It first summarizes the study followed by its discussion and conclusions. Limitations of the study and implications for students, teachers, and professionals are also offered. Finally, the chapter ends with recommendations for further research.

Summary of the Study

Reading is related to students' academic achievement (Koda & Zehler, 2008). Previous research indicated the important role of metacognition in reading (Baker & Brown, 1984; O'Malley & Chamot, 1990). With an increased population of students who have language backgrounds other than English, it is critical to explore ways to improve English reading abilities for the academic success of these students. Review of the literature examined second language acquisition, second language reading, metacognitive reading, and self-evaluation on academic achievement. The studies examined in this review led to development of research questions and null hypotheses for the study.

With two central research questions, this mixed method research study sought to examine (a) the role of metacognitive awareness and (b) use of metacognitive reading strategies by adult students whose native languages are not English and who are enrolled at a university in the southeastern region of the United States of America when they read

academic English reading materials. These questions were explored both quantitatively and qualitatively. In the quantitative portion of the research, data from the Survey of Reading Strategies (SORS) instrument and the background questionnaire information were collected from 98 ESL students. Analysis of the data using a two-way multivariate analysis of variance (MANOVA) revealed statistically significant differences among the three groups of participants (English Language Institute, undergraduate, and graduate students) with respect to their metacognitive reading strategies. The ELI students reported the highest scores on the overall SORS and its sub-scales of Global Reading Strategies (GLOB), Problem Solving Strategies (PROB), and Support Strategies (SUP). Next, an analysis of the Pearson product-moment correlation coefficient showed no correlations between the students' self-reported grade point averages (GPAs) and their overall and GLOB, PROB, and SUP scores on the SORS. In addition, from the analysis of the Pearson product-moment correlation coefficient, no correlations were found between the participants' self-rated English reading proficiency and their overall, GLOB, PROB, and SUP scores.

During the qualitative exploration of the research questions, the researcher conducted semi-structured interviews with six students, including two ELI, two undergraduate, and two graduate students. She also examined their reading documents such as textbooks. Transcripts of these interviews as well as observations noted when examining reading materials were analyzed by the researcher. She explored the data to get general sense of the data and wrote memos (e.g., comments, key words). She reviewed them and organized key features about participants' metacognitive awareness and reading strategies for each interview question. She then re-organized the similar

trends under each guiding question, coded them, and reduced a number of the codes.

This analysis suggested that students were aware of their metacognitive reading strategies. They used various reading approaches, including changing reading speed and strategies for different purposes, activating background knowledge, guessing, marking text, focusing on typographical features (e.g., italics), and summarizing. Additionally, it was found that when being challenged in reading, the students use context clues, re-reading, and consult other supportive materials, such as a dictionary and internet search. As to reading approaches in the first language (L1) and second language (L2), the students use similar approaches and strategies in both languages. However, some differences, including reading rate, translation, and thinking process in L1 and/or L2, were also found.

Discussion

This mixed method study was conducted to explore the role of metacognitive awareness and reading strategies among adult English as a Second Language (ESL) students. Five major discussions are presented in this section. They are (a) students' academic levels and use of reading strategies, (b) academic success and reading strategies, (c) self-evaluated reading proficiency and reading strategies, (d) reading approaches when having difficulties, and (e) reading strategies in first and second language.

Students' Academic Levels and Use of Reading Strategies

This study examined reading strategies used by students who were categorized in three different academic levels (the English Language Institute [ELI], undergraduate, and graduate students). From the quantitative portion of the study, the analyses of the first null hypothesis indicated that frequency use of reading strategies measured by the Survey of Reading Strategies (SORS) among three groups of the students were different. In

particular, among the three groups, the ELI participants indicated that the highest strategy use as evidence by overall scores and all three sub-scales of the SORS (Global Reading Strategies, Problem Solving Strategies, and Support Strategies). Undergraduates reported a higher frequency of use than graduate students on overall, PROB, and SUP scores. The graduate students declared that they employed the strategies the least, except the case of GLOB. These results contradicted the previous review of literature, which claimed that advanced students are aware of and deploy a wide range of metacognitive reading strategies more than less advanced students (e.g., Baker & Brown, 1984; Klingner & Vaughn, 2004; Mokhtari, Reichard, & Sheorey, 2008; Pressley & Afflerbach, 1995; Sheorey & Mokhtari, 2008b).

Another finding, as to different strategy use among Global Reading Strategies, Problem Solving Strategies, and Support Strategies on the SORS, was that the participants of all three groups employed Problem Solving Strategies, such as reading slowly, re-reading, and inferring from the context, the most while reading academic texts in English. This result was consistent with other studies (e.g., Sheorey & Mokhtari, 2008b), which illustrated the most frequent use of Problem Solving Strategies by second language learners.

Based upon the findings above, three explanations can be offered. First, the ELI learners may be actually using more reading strategies as compared to their undergraduate and graduate peers. Because the English Language Institute's primary focus is developing English skills, the primary purpose of its curriculum is to provide students with intensive English language instruction. The ELI student may indeed learn various reading approaches in class and attempt to use them for improving their English

proficiencies. Especially, at the beginning stage of language learning, students may need to use different strategies to understand a new language, which is English in the case of this study.

The discrepancy between the results of this study and previous research may also be a result of an inability of ESL learners to accurately examine their own abilities. Scores on the SORS instrument were generated through the results of a self-reported instrument. It is difficult for one to precisely assess reading performance. Some students may overestimate or underestimate use of reading strategies. As Isaacson and Fujita (2006) and Kruger and Dunning (1999) point out disposition of less competent learners to overestimate their abilities, the ELI students might have overrated their use of reading strategies.

A final explanation of the discrepancy between the previous and current research may be that graduate students, who demonstrated the least use of reading strategies when they read in English, may not actually employ multiple approaches as often as other groups of the students. In other words, the graduate students, who are generally considered the highest reading-performance learners among the three groups, may have mastered the English language and internalized that language. Stetsenko and Arieviditch (1997, p.161) claim that “psychological processes emerge first in collective behavior, in co-operation with other people, and only subsequently become internalized as the individual’s own ‘possessions.’” Vygotsky (1978) points out that a language plays a significant role in this process. The graduate students in this study might have reached a point of internalization, without being conscious about how they are reading in English. Or they may not need to employ a lot of reading strategies to understand the English text

as often as the ELI students do since the graduate students have advanced their English proficiency. For them, reading in English could have become as natural or close to as reading in their native language in terms of strategy use.

Although the quantitative data showed statistically significant differences on use of reading strategies among three academic levels of the students, the qualitative data did not discover significant differences among them. Similar to the discussion above, previous qualitative research, which compared more expert and novice English language learners with respect to their reading strategies, found that more competent students were aware of and utilized various reading approaches than less competent ones (Jiménez, García, & Pearson, 1995, 1996). Nevertheless, in this study, all students, regardless of their English proficiency levels based on the academic level, knew their effective reading approaches, and they reflected their reading strategies. Each student attempted to develop his or her reading comprehension in the American academic setting.

Moreover, it was found that, in the qualitative portion of the study, all students thought about using various effective approaches for different purposes. They adjust reading speed depending on their tasks (e.g., answering questions, surveying the text). They also indicated that they use scanning strategies to identify key information. Focusing on the key information is a useful metacognitive approach (Pressley & Afflerbach, 1995). Less advanced readers are often unable to identify what to focus on and what to ignore in text. Other reading strategies, such as using background knowledge, predicting, marking text, concentrating on typographical elements (e.g., italic or bold words), and summarizing (which were observed when examining reading materials), are metacognitive reading strategies often observed and discussed as features of strategic,

engaged readers by scholars (e.g., Grabe, 2009; Pearson, Roehler, Dole, & Duffy 1992; Pressley, 2002; Westby, 2004).

Regulation of cognition is one of the dimensions of metacognition identified as crucial (Baker & Brown, 1984). This element includes three stages: planning before reading, monitoring their reading processes during reading, and evaluating after reading (Hudson, 2007; Israel, 2007). These three phases of metacognitive strategies are effective for better reading comprehension (Mokhtari, Reichard, & Sheorey, 2008). Through the interviews and examinations of participants' reading documents, the researcher explored that the participants used such key reading approaches before, during, and after reading.

Students' Academic Achievement and Use of Reading Strategy

In the quantitative part of the study, the data analysis of the second null hypothesis showed no correlations among the participants' self-reported grade point averages (GPAs) and their reported scores on the overall, GLOB, PROB, and SUP. This result was inconsistent with Coutinho's (2008) study, which indicated a positive correlation between the college students' metacognition and GPAs. The result was also contrary to the study conducted by Arbona, Bullington, and Pisecco (2001), who concluded advanced Turkish students learning English tended to have higher GPAs.

The finding of this study led to further examination validity and reliability of GPA. Graham (1987) points out some issues regarding GPA's prediction on students' academic achievement. It might be difficult to assess students' academic achievement on their GPAs since criteria of the grading system for different courses may vary (Graham, 1987). Factors, such as attendance, assignments, quizzes, and examinations, may also

contribute to how final grades are determined. Additionally, other variables, including motivation (e.g., Wigfield, Eccles, Schiefele, Roeser, & Davis-Kean, 2006), personality (e.g., Ho & Spinks, 1985), self-efficacy (Zimmerman, Bandura, & Martinez-Pons, 1992), and language aptitude, may contribute to their academic success. In this sense, students' reading abilities may not necessarily and directly impact GPA. It is complex to define in what sense one is academically successful. Multiple ways to assess the students' academic achievement may be needed.

From the qualitative portion of the study, the researcher discovered that regardless of participants' academic levels, they all were aware of and implemented various metacognitive reading strategies. However, their academic success was measured only by their academic levels. More qualitative examination is needed to understand students' academic performance and metacognitive strategy use.

Self-evaluated Reading Proficiency and Use of Reading Strategy

In the quantitative portion of the study, the analysis of the third null hypothesis demonstrated that students who were considered successful English readers were not necessarily engaged in more reading strategies while reading in English. This finding was contrary to scholars, including Baker and Brown (1984), Jiménez, García, and Pearson (1995, 1996), Upton (1997), Westby (2004), and Zhang (2001), who concluded that advanced readers are cognizant of and deploy a variety of metacognitive reading approaches more often than struggling readers. Based on the finding of this study, two potential explanations are discussed. First, in this study, similar to the debate in the previous section, the participants' abilities to assess their reading proficiencies could be

uncertain. Some learners, especially less competent learners, may be limited in their ability to accurately evaluate their own reading performance (Isaacson & Fujita, 2006).

Second, when students judge their reading abilities, other variables may also influence their reading performance. For example, such factors include personal characters, age, text difficulties for three academic levels (ELI, undergraduate, and graduate), familiarities with topics and/or text structures on reading materials, and one's literacy background in the first language. Extroverted and introverted learners who are at the same level of English reading proficiency may self-rate their reading abilities differently. Indeed, the researcher noticed that during the interviews, Ali and Kyoko, two gregarious ELI students, self-judged themselves as competent English readers. On the other hand, Himanshu, an introverted Indian graduate student, said "I am not a good reader." In addition, levels of reading materials (e.g., textbooks) may vary, depending on the academic level. ELI students may use introductory textbooks for beginners, whereas graduate students may be engaged in more scholarly reading materials (e.g., treatise, journal articles). These different levels of textbooks may impact those students' self-evaluation on reading proficiency.

Reading Strategies when Encountering Difficulties

In the qualitative portion of the study, the researcher explored how to solve difficulties when the participants enter difficulties in reading comprehension. Three main themes were discovered. The students used context clues by reading previous and following sentences and by inferring with background knowledge. When they did not understand a word, phrase, or sentence, they attempted to figure its meaning out from the context. In this process, they monitored their comprehension and linked their old

information (i.e., what they already know) with new information (unknown information in text). In addition, they re-read a passage when they did not understand the text. In this case, they slowed down their reading speed because they wanted to concentrate and think more intensively. They are interacting with authors and try to understand their messages. Monitoring process occurs during this process. Re-reading is considered a useful approach (Mokhtari & Sheorey, 2002).

Another reading strategy found when the students entered challenges was referring to or depending on other resources, such as using dictionaries, searching online, asking for help, reading other related materials on a subject, and discussing with classmates about the text. One difference among levels of participants that emerged from the study was that the ELI students seemed to often use dictionaries to translate unknown vocabulary from English into their native languages, whereas the undergraduate and graduate students (who were categorized as advanced learners) did not use this technique that much. For example, Mei, a graduate student, looks unfamiliar words up in an English-Chinese dictionary only when she really thinks she needs to understand them since they are the key words in the text. This point is supported by Zhang's (2001) study, which concluded a frequent use of translation observed among Chinese struggling readers than successful students. Overall, in this study, the students employed different reading approaches to solve their difficulties when they read English and tried to understand the text as much as possible from using their already existing knowledge, guessing, engaging in the text, and depending on other supportive materials.

Reading Strategies in First Language (L1) and Second Language (L2)

When exploring relationships of reading strategies in the first (L1) and second (L2) languages, it was shown that the students read by employing the same or similar strategies in both languages. Such strategies included drawing inferences, focusing on key information, summarizing, utilizing background knowledge, and re-reading. In other words, the learners were aware of taking advantage of utilizing the strategies they learned from their L1 literacy experiences. They consciously and/or unconsciously employ these approaches when they read in English. This finding appeared to support Grabe's (2009) argument in that L2 readers may use and extend their L1 reading strategies and experiences in their L2 reading. The finding of this study is also consistent with scholars who affirmed that L1 reading strategies can promote to learn and practice students' L2 reading approaches (Dressler & Kamil, 2006; García, 2003).

This study also discovered some differences between L1 and L2 in terms of the participants' use of reading strategies. The participants affirmed that they read faster, do not depend on a dictionary for unknown words, and monitor only in their L1 for reading in their native language. On the other hand, in L2 reading, they stated that they read slower, often use dictionaries to translate unfamiliar vocabulary, and think about the text or use monitoring processes in their first language, second language, or both.

These three differences found in this study may have key implications for the field of second language reading. First is that when engaging in L2 reading, English as a Second Language (ESL) learners need more time to process their reading comprehension. The following quote by Juliane accounts for why she feels she reads slower in English (L2), compared to her reading in German (L1): "...because, I guess...in German, I am

skimming more unconsciously...I do not realize I am skimming. But, in English, I actually read every passage.” Like she pointed out, L2 readers may indeed require more time to monitor and comprehend every sentence in the text in English, even when they are surveying or scanning the text. This might be due to the complexity of second language reading as explained in research (e.g., Grabe & Stoller, 2002). Examples include using two languages for cognitive processes in second language reading, linguistics differences between L1 and L2, and culturally different schemata in L1 and L2.

A second implication on consulting dictionaries in second language reading is that when ESL learners encounter unknown words, they may still need to depend on their first language for clarification of the vocabulary. Although the extent of the translation process varied among students at different levels of English proficiencies (the English Language Institute, undergraduate, and graduate students) in the study, findings suggest that students may depend on their L1 literacy when they are really struggling in figuring out meanings of difficult vocabulary.

A third implication is that, in this study, any significant differences on the amount of L1 use for thinking processes while reading in L2 were not observed among three levels of the participants. Previous literature demonstrated that the more proficient in English ESL students are, the less they depend on their L1 for monitoring processes (Upton, 1997). The finding of this study did not demonstrate a clear distinction between advanced and less advanced students in terms of the amount to use L1 for one’s thinking process.

Conclusions

Important conclusions were presented in this section. There were two central research questions in this mixed method research study. The first question was as follows: What role does metacognitive awareness have in academic English reading for adult ESL students enrolled in a university in the southeastern part of the United States of America? Overall, from the quantitative and qualitative research method designs, the study found a significant role of metacognitive awareness. Metacognitive awareness is positively associated with reading comprehension (Mokhtari & Perry, 2008). In this study, the participants were conscious about their use of reading strategies in English when they were involved in reading academic materials. Results of the Survey of Reading Strategies (SORS) instrument showed that the English Language Institute (ELI) learners, who were assumed to be the lowest proficient readers, demonstrated the most frequent use of metacognitive strategies, compared to the undergraduate and graduate participants. Yet, when interviewing participants of all academic levels, all levels of English proficient readers showed metacognitive awareness. Perhaps, it would be difficult to accurately measure their awareness since each individual evaluates his or her monitoring engagement differently. Some may overestimate their reading consciousness, whereas others may underestimate it.

This research has suggested three possible explanations. First, less advanced second language readers may require more intensive and more explicit use of reading strategies than advanced students. Another account is that perhaps, as Grabe (2009) and Pressley and Fingeret (2007) argue, more proficient learners, such as graduate students, may have internalized strategies in the English language. Consequently, they might

automatically and unconsciously use the strategies when they read in English. Sinatra, Brown, and Reynolds (2002, p. 67) also state:

...they [skilled readers] may not be aware that they are selectively attending to different elements of the text at all... With practice and experience, the strategic allocation of resources to important text elements became proceduralized and no longer required conscious effort.

Additionally, Samuels, Ediger, Willcutt, and Palumbo (2005) proposed a model of automaticity (one's abilities to automatically process particular tasks) of metacognition in literacy. According to them, readers can practice and develop their automaticity of metacognition in reading, which they believe helps the readers become better readers.

Last, different levels of English proficiency, which distinguish advanced and less advanced learners, may not be the best predictor for awareness and use of metacognitive reading strategies. By integrating previous research on metacognitive reading in first and second languages, Hudson (2007) critiques limitations in separating successful readers from less successful ones. Individual differences, such as motivation, anxiety, sociocultural differences, linguistic varieties in L1 and L2, age, and personality, may need to be included to explore second language readers' metacognitive awareness and strategy use (Anderson, 2008; Schreiber, 2005). Further, Anderson (1999, 2005) also states that both expert and novice readers employ the same types of strategies. However, what makes them more competent readers is that these learners know how to appropriately use the strategies and manipulate them in combination in different contexts.

The second central research question was as follows: How does use of reading strategies impact academic success for adult ESL students enrolled in a university in the

southeastern part of the United States of America? This study explored that the participants were involved in a variety of reading strategies to prepare for classes and examinations and to complete assignments in the American post-secondary school. However, the data analysis did not find any correlations between the participants' grade point averages (GPAs) and their reported scores on the Survey of Reading Strategies (SORS). Additionally, qualitative data did not support salient differences on academic achievement among the ELI, undergraduate, and graduate students at different levels of English proficiency in terms of their use of reading strategies. Each individual knew his or her own strategies and utilized them for better reading comprehension. Various criteria on how grades are determined vary in instructors. Looking at student's academic achievement measured only by GPAs may be limiting when assessing overall academic performance. Other evaluation tools, such as researcher's classroom observation, teacher evaluation, and reflecting journals, may assist in examining the students' school success.

Limitations

There were limitations in this mixed method deigns study. These limitations are present for quantitative and qualitative research deigns. For this qualitative research design, one limitation was a limited number of the sample size. This may influence validity, reliability, and generalizability of the quantitative data analysis. Another limitation was that total enrollment of international students at the university where the study was conducted included students whose native language was English (e.g., Canadjans, and British). This resulted in inability to measure response rates for the participants' descriptive data. Lastly, Survey of Reading Strategies (SORS) is limited to participants' self-reports. As Mokhtari and Sheorey (2002), authors of the SORS, point

out, this instrument may not accurately reflect students' actual engagement in reading strategies.

There were two limitations for this qualitative research design. First limitation was a deficiency of multiple qualitative data on each participant. Qualitative research requires exploring the participants phenomena or situations from a variety of approaches, yet the researcher was limited to describing their reading awareness and strategies while reading academic English materials through semi-structured interviews and the students' reading documents. The second limitation was a short duration for collecting the participants' qualitative data. Longer duration of data collection with various data collection methods through researcher's classroom observation, instructors' evaluation, participants' reflective journal writings, and think-aloud protocols may further assist more exploration of the participants' metacognitive awareness and use of reading strategies.

Implications for Students, Teachers, and Researchers

This study examined metacognitive awareness and use of reading strategies among adult second language learners at a university in the southeastern United States. The results of this study have implications for students, teachers and instructors, and researchers. First, a suggestion for students whose first language is other than English must be aware of metacognition when using specific reading strategies to aid in reading comprehension. Knowing different types of reading strategies (declarative knowledge), using them appropriately in various contexts (procedural knowledge), and evaluating how they worked (conditional knowledge) are the keys for better reading comprehension.

Next, it is highly recommended that teachers and instructors of English Language Learners (ELLs) understand challenges the students face in English reading, be aware of the significant role of metacognition in reading, and teach various reading approaches to the learners. Such strategies include Global Reading Strategies (GLOB) (e.g., using background knowledge, predicting, determining what to read carefully and what to ignore, using context clues, and inferring word meanings), Problem Solving Strategies (PROB) (e.g., adjusting reading rate, and re-reading), and Support Strategies (SUP) (e.g., summarizing, and underlining and circling). Not only teachers of ELLs, but also mainstream classroom teachers should teach different metacognitive reading approaches. Furthermore, by revisiting the model of Vygotsky's zone of proximal development, Pearson and Gallagher (1983) introduced the model of gradual release of responsibility. As these scholars suggest, the teachers are recommended to instruct strategies discussed in this study with assistance at the beginning of teaching phase and to gradually reduce their support so that their students can become independent strategic readers.

Last, this study has implications for researchers. It is advised that professionals continuously focus on research in metacognition and reading for both English and non-English speaking learners. In particular, it is essential for them to disseminate the contribution of metacognition to reading for pre- and in-service teachers, provide useful pedagogical approaches, and equip the teachers and instructors with highly qualified instruction, which meet the needs of the ELLs who are culturally and linguistically diverse and of English-speaking students who also have different backgrounds.

Recommendations for Further Research

Based on the results of this study, five recommendations for further research are presented. First, this study directs further research on metacognition and reading with other variables which may contribute to reading comprehension. Baker and Beall (2009) calls for more studies on metacognition and reading comprehension with explaining roles of other variables that may contribute to one's metacognitive reading activities.

Examples of such factors contain students' motivation, age, self-efficacy, personality, anxiety, and linguistic differences between first and second languages. This call for more research is supported by the present study.

Next, it is recommended that researchers focus on relationships between students' automaticity and metacognition in terms of strategy use in reading. This study demonstrated that graduate students did not employ reading approaches as often as ELI students. Possible explanation was that more competent readers may have internalized reading strategies and can read English without these strategies just like or as close as their first language reading. Or if they implement the strategies and monitor reading processes, they may automatically or unconsciously do so. Even though Samuels, Ediger, Willcutt, and Palumbo (2005) acknowledge difficulty to self-evaluate one's unconscious thinking process, further exploration on individuals' automatic monitoring processes may shed light on understanding of characteristics of advanced readers.

Third, future research is called to further explore second language learners' use of reading strategies in combination and how they appropriately select and effectively utilize those strategies in different contexts. The findings of this study indicated that both more advanced and less advanced readers knew and used various reading approaches.

However, it was not clear if they use these strategies separately or in combination, and how they select these approaches and to what extent they use in different contexts. Focusing on these aspects may contribute to second language reading and contribute to a better understanding of how to teach reading strategies in classrooms.

Another suggestion is to use specific reading passages to quantitatively and qualitatively examine and understand students' metacognitive awareness and reading strategies. This study was limited to examine participants' awareness and use of reading approaches for academic purposes in general. Students at different academic levels read a variety of reading materials, whose range of topics and difficulty vary by majors and academic levels. Therefore, focusing on specific reading passages to measure students' use of reading approaches may help to better understand their metacognitive processes.

Last, because this study was limited to measure students' metacognitive awareness and strategy use from semi-structured interviews and examinations of reading materials in the qualitative research design, further studies may benefit from utilizing multiple tools to explore the students' metacognitive awareness and monitoring processes. Examples of such instruments include a researcher's observations, teachers' evaluation, students' reflecting journals, and think-alouds. These may further account for what, when and how learners effectively implement different reading strategies.

Summary

This chapter consisted of the following parts: introduction, summary of the study, findings, conclusions, limitations, implications for students, teachers, and researchers, recommendations for further research, and a summary. The purposes of this mixed method design research were to explore the role of metacognitive awareness for adult

English as a Second Language (ESL) students in a university in the southeastern region of the United States of America and to examine reading strategies employed by these learners. Based upon two central research questions, this study examined the students' metacognitive awareness and strategy use quantitatively and qualitatively. In the quantitative portion of the study, 98 students responded to the existing Survey of Reading Strategies (SORS) instrument developed by Mokhtari and Sheorey (2002). This instrument measured their metacognitive awareness and reading strategy use. In the qualitative design, six students (two English Language Institute, two undergraduate, and two graduate) participated in semi-structured interviews, including examination of their reading materials.

The findings of this study showed that, from the analysis of a two-way multivariate analysis of variance (MANOVA), students at three academic levels (English Language Institute, undergraduate, and graduate students) used reading strategies at the statistically significant level. The ELI students implemented the strategies the most on overall SORS and its three sub-categories. The undergraduate students used the strategies more frequently than the graduate students on all categories except Global Reading Strategies. Overall, among the three sub-scales of Global Reading Strategies (GLOB), Problem Solving Strategies (PROB), and Supportive Strategies (SUP), all groups used PROB the most. Unlike previous literature which supports advanced readers' frequent use of reading strategies, the ELI students may indeed implement reading approaches due to their intensive and extensive learning at the language center. Uncertainty of individuals' abilities to accurately measure their reading engagement was also discussed. Advanced readers' internalized language proficiency was also explained.

Despite significant differences among the academic levels in terms of use of reading strategies, qualitative data revealed that all levels of representative students were aware of and used various approaches. Major strategies used by the students include adjusting reading rate and selecting appropriate strategies for different purposes, utilizing prior knowledge, predicting, marking text, focusing on typographical features (e.g., italics), and summarizing. The students attempted to use these approaches to better understand the text.

Regarding academic success, the analysis of the Pearson product-moment correlation found that there was no correlation between students' academic achievement, which was measured by grade point average (GPA), and their use of reading strategies. Another analysis of the Pearson product-moment correlation showed that no significant differences were found between students' self-rated reading proficiency and use of reading strategies.

Furthermore, it was discovered that students implemented various reading strategies to overcome their challenges when encountering difficulties in comprehension. Using context clues, re-reading for intensive monitoring, and depend on other resources (e.g., dictionary, internet, consultant with teachers and classmates) were found to be the key strategies to overcome challenges. With respect to relationships reading strategies between first language (L1) and second language (L2), it was explored that the students used similar reading approaches in both languages. At the same time, they pointed out differences between L1 and L2. In L2, which was English in this study, the participants read slowly, translated from L2 into L1, and thought about the text in both L1 and L2.

Taken together, this study explored the importance role of metacognition in second language reading for adult learners. Metacognitive reading seems to contribute to the students' reading comprehension. Regarding metacognitive strategy use, it seems that students, including the ELI, undergraduate, and graduate levels, experience challenges and attempt to overcome the difficulties and to improve comprehension abilities by employing various approaches. These challenges must continue to be explored by instructors and researchers so that the best strategies are identified and student at all academic levels are supported in advancing their English language skills.

APPENDIX A

APPROVAL LETTER FROM THE INSTITUTIONAL REVIEW BOARD (IRB)



THE UNIVERSITY OF SOUTHERN MISSISSIPPI

Institutional Review Board

118 College Drive #5147
 Hattiesburg, MS 39406-0001
 Tel: 601.266.6820
 Fax: 601.266.5509
 www.usm.edu/irb

**HUMAN SUBJECTS PROTECTION REVIEW COMMITTEE
 NOTICE OF COMMITTEE ACTION**

The project has been reviewed by The University of Southern Mississippi Human Subjects Protection Review Committee in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months. Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: 28110302

PROJECT TITLE: Metacognitive Awareness and Strategy Use in Academic English Reading Among Adult English as a Second Language (ESL) Students

PROPOSED PROJECT DATES: 11/12/08 to 05/07/09

PROJECT TYPE: Dissertation or Thesis

PRINCIPAL INVESTIGATORS: Yuko Iwai

COLLEGE/DIVISION: College of Education & Psychology

DEPARTMENT: Curriculum, Instruction, and Special Education

FUNDING AGENCY: N/A

HSPRC COMMITTEE ACTION: Expedited Review Approval

PERIOD OF APPROVAL: 11/06/08 to 11/05/09

Lawrence A. Hosman

 Lawrence A. Hosman, Ph.D.
 HSPRC Chair

11-10-08

 Date

APPENDIX B

SURVEY OF READING STRATEGIES (SORS)

The purpose of this survey is to collect information about the various techniques you use when you read **academic materials in English** (e.g., reading textbooks for homework or examinations, reading journal articles, etc.).

All the items below refer to your reading of **college-related academic materials (such as textbooks, not newspapers or magazines)**. 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.

| Category | Statement | Never | Always |
|----------|--|-------|---------|
| GLOB | 1. I have a purpose in mind when I read. | 1 | 2 3 4 5 |
| SUP | 2. I take notes while reading to help me understand what I read. | 1 | 2 3 4 5 |
| GLOB | 3. I think about what I know to help me understand what I read. | 1 | 2 3 4 5 |

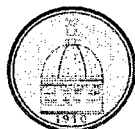
- GLOB 4. I take an overall view of the text to see what it is about before reading it. 1 2 3 4 5
- SUP 5. When text becomes difficult, I read aloud to help me understand what I read. 1 2 3 4 5
- GLOB 6. I think about whether the content of the text fits my reading purpose. 1 2 3 4 5
- PROB 7. I read slowly and carefully to make sure I understand what I am reading. 1 2 3 4 5
- GLOB 8. I review the text first by noting its characteristics like length and organization. 1 2 3 4 5
- PROB 9. I try to get back on track when I lose concentration. 1 2 3 4 5
- SUP 10. I underline or circle information in the text to help me remember it. 1 2 3 4 5
- PROB 11. I adjust my reading speed according to what I am reading. 1 2 3 4 5
- GLOB 12. When reading, I decide what to read closely and what to ignore. 1 2 3 4 5
- SUP 13. I use reference materials (e.g., a dictionary) to help me understand what I read. 1 2 3 4 5
- PROB 14. When text becomes difficult, I pay closer attention to what I am reading. 1 2 3 4 5
- GLOB 15. I use tables, figures, and pictures in text to increase my understanding. 1 2 3 4 5

- | | | | | | | |
|------|---|---|---|---|---|---|
| PROB | 16. I stop from time to time and think about what I am reading. | 1 | 2 | 3 | 4 | 5 |
| GLOB | 17. I use context clues to help me better understand what I am reading. | 1 | 2 | 3 | 4 | 5 |
| SUP | 18. I paraphrase (restate ideas in my own words) to better understand what I read. | 1 | 2 | 3 | 4 | 5 |
| PROB | 19. I try to picture or visualize information to help remember what I read. | 1 | 2 | 3 | 4 | 5 |
| GLOB | 20. I use typographical features like boldface and italics to identify key information. | 1 | 2 | 3 | 4 | 5 |
| GLOB | 21. I critically analyze and evaluate the information presented in the text. | 1 | 2 | 3 | 4 | 5 |
| SUP | 22. I go back and forth in the text to find relationships among ideas in it. | 1 | 2 | 3 | 4 | 5 |
| GLOB | 23. I check my understanding when I come across new information. | 1 | 2 | 3 | 4 | 5 |
| GLOB | 24. I try to guess what the content of the text is about when I read. | 1 | 2 | 3 | 4 | 5 |
| PROB | 25. When text becomes difficult, I re-read it to increase my understanding. | 1 | 2 | 3 | 4 | 5 |
| SUP | 26. I ask myself questions I like to have answered in the text. | 1 | 2 | 3 | 4 | 5 |

- | | | | | | | |
|------|---|---|---|---|---|---|
| GLOB | 27. I check to see if my guesses about the text are right or wrong. | 1 | 2 | 3 | 4 | 5 |
| PROB | 28. When I read, I guess the meaning of unknown words or phrases. | 1 | 2 | 3 | 4 | 5 |
| SUP | 29. When reading, I translate from English into my native language. | 1 | 2 | 3 | 4 | 5 |
| SUP | 30. When reading, I think about information in both English and my mother tongue. | 1 | 2 | 3 | 4 | 5 |
-

Mokhtari, K., & Sheorey, R. (2002). Measuring ESL students' awareness of reading strategies. *Journal of Developmental Education*, 25(3), 2-8. Reprinted with Permission.

APPENDIX D

PERMISSION LETTER FROM THE INTERNATIONAL STUDENT AND
SCHOLAR SERVICES (ISSS)

THE UNIVERSITY OF SOUTHERN MISSISSIPPI

*Office of International Student and Scholar Services*118 College Drive #5151
Hattiesburg, MS 39406-0001
Tel: 601.266.4841
Fax: 601.266.4898
www.usm.edu/internationaledu

October 21, 2008

Re: Iwai, Yuko

To Whom It May Concern:

I agree to send out Mrs. Iwai's online survey to all Southern Miss international students who are currently enrolled and on our email list for the fall 2008 semester.

I understand that this research project will be approved by The University of Southern Mississippi Institution Review Board, assuring that the research project will abide by all ethical standards before the survey and background information questionnaire are distributed.

Sincerely,

Handwritten signature of Barbara W. Jackson in cursive.

Barbara W. Jackson
Administrator

APPENDIX E

PERMISSION LETTER FROM THE ENGLISH LANGUAGE INSTITUTE (ELI)

**THE UNIVERSITY OF SOUTHERN MISSISSIPPI***Office of International Education*

English Language Institute
118 College Drive #5065
Hattiesburg, MS 39406-0001
Tel: 601.266.4337
Fax: 601.266.5723
www.usm.edu/eli

21 October 2008

To Whom It May Concern:

Consent is hereby given to Yuko Iwai at the University of Southern Mississippi to collect data of the Survey of Reading Strategies (SORS) and background information questionnaire from students at the English Language Institute (ELI) on campus. I understand that this research project will be approved by the University of Southern Mississippi Institutional Review Board assuring that the project will abide by all ethical standards before the survey and background information questionnaire are distributed.

Sincerely,

A handwritten signature in black ink, appearing to read "Ann D. Morris".

Ann D. Morris
Manager

APPENDIX F

COVER LETTER FOR ESL PARTICIPANTS

November 17, 2008

Dear Participant,

My name is Yuko Iwai. I am a doctoral student in the Department of Curriculum, Instruction, and Special Education at The University of Southern Mississippi. I am conducting a study that explores techniques ESL university students use when reading school-related academic materials (e.g., reading textbooks for homework or examinations, reading journal articles, etc.).

I would like you to fill out a background information questionnaire and a survey. It will approximately take 10-15 minutes to complete them. Information I obtain from you will be used only for my study. Your participation in this study is voluntary, and you may stop participating in the study at any point if you wish so. If you have already participated in my study online, please ignore this letter.

I have enclosed the following items:

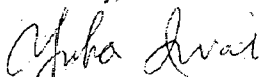
- Letter (1 page)
- Background information questionnaire (1 page)
- Survey (1 page)
- Stamped return envelope with mailing address (1 envelope)

After you fill out a background information questionnaire and a survey, please enclose them into a provided envelope and mail it to me by November 30, 2008.

If you have any questions about the study, please contact me at yuko.iwai@usm.edu.

Thank you so much for your participation in advance.

Sincerely,



Yuko Iwai

The Department of Curriculum, Instruction, and Special Education
The University of Southern Mississippi
118 College Drive #5057
Hattiesburg, MS 39406
yuko.iwai@usm.edu

APPENDIX G

APPROVAL LETTER FROM THE AUTHORS OF SURVEY OF READING
STRATEGIES (SORS)

Date: Fri, 6 Jun 2008 09:29:31 -0400

From: "Mokhtari, Kouider Dr." <mokhtak@muohio.edu>

To: Yuko Iwai <yuko.iwai@usm.edu>

Cc: "ravi_sheorey@yahoo.com" <ravi_sheorey@yahoo.com>

Subject: RE: inquiry about the Survey of Reading Strategies (SORS):from Yuko Iwai

This message was written in a character set other than your own. If it is not displayed correctly, click here to open it in a new window.

Hi Yuko,

Thanks for your interest in using the SORS instrument for your dissertation research purposes. As authors, we are pleased to grant you permission to use it for such purposes. However, please note that you may need to seek permission from the publisher as well, IF you decide to modify the instrument in any significant way.

Best of luck on your research. Let us know if we can assist you in any way with the use of the instrument.

Regards,

Kouider

Kouider Mokhtari, Ph.D.
John W. Heckert Endowed Professor and
Director of the Heckert Center for Children's Reading & Writing
Department of Teacher Education
401 McGuffey Hall
Oxford, Ohio 45056
Phone: (513) 529-6469
Fax: (513) 529-4931

From: Yuko Iwai [yuko.iwai@usm.edu]
Sent: Thursday, June 05, 2008 9:23 PM
To: Mokhtari, Kouider Dr.
Cc: yuko.iwai@usm.edu
Subject: inquiry about the Survey of Reading Strategies (SORS):from
Yuko Iwai

June 5, 2008

Dear Dr. Kouider Mokhtari,

Hello. I am Yuko Iwai, a Ph.D. student and a native of Japan, at the University of Southern Mississippi, Hattiesburg, MS. I am majoring in Secondary Education with a specialization of Reading at the Department of Curriculum, Instruction, and Special Education.

My dissertation will be dealing with metacognitive reading among ESL students. Especially, I am interested in how ESL college students enrolled in my university evaluate their metacognitive awareness. I have read some of your publications, including Reading Strategies of First- and Second- Language Learners: See How They Read (2008) and Measuring ESL Students' Reading Strategies (2002). I really benefited from reading your work.

I would like to use "the Survey of Reading Strategies (SORS)," which was developed by you, for my dissertation. I believe that using SORS will be effective for me to explore some characteristics of ESL students' metacognitive reading. Would you give me permission to use SORS for my dissertation? I would appreciate it very much.

Please let me know.

I look forward to hearing from you.

Sincerely,
Yuko Iwai

yuko.iwai@usm.edu

Yuko Iwai, Graduate Assistant
The Department of Curriculum, Instruction,
and Special Education
The University of Southern Mississippi
118 College Drive #5057
Hattiesburg, MS 39406-0001
Phone: (601)266-5175 (office)

APPENDIX H

LETTER TO ENGLISH LANGUAGE INSTITUTE (ELI) INSTRUCTORS

November 17, 2008

English Language Institute
The University of Southern Mississippi
118 College Drive #5065
Hattiesburg, MS 39406-0001
(601) 266-4337

Dear English Language Institute (ELI) instructors,

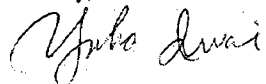
My name is Yuko Iwai. I am a doctoral student in the Department of Curriculum, Instruction, and Special Education in the College of Education and Psychology at The University of Southern Mississippi. I am conducting a study that explores techniques adult international students use when reading school-related academic materials (e.g., reading textbooks for homework or examinations, reading journal articles, etc.).

I would like to ask your assistance for the project. I would like to ask students at the ELI to participate in the study by completing a background information questionnaire (14 items) and a survey about reading experiences in English (30 items) in class. It will take approximately 15 minutes for the participants to fill them out, depending on their levels of English reading proficiency. Participation in this study is completely voluntary, and students may discontinue at any time without penalty. Information I obtain from your students will be used only for this study. The background information questionnaire and survey are anonymous. Collected data will be stored in a locked cabinet in the researcher's residence and destroyed after the completion of the study. Participants will have the right to ask questions regarding this study. If you have any questions about the study, please contact me at yuko.iwai@usm.edu.

This project has been reviewed by the Human Subjects Protection Review Committee, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research subject should be directed to the chair of the Institutional Review Board, The University of Southern Mississippi, 118 College Drive #5147, Hattiesburg, MS 39406-0001, (601)266-6820.

Thank you so much for your assistance.

Sincerely,



Yuko Iwai
The Department of Curriculum, Instruction, and Special Education
The University of Southern Mississippi
118 College Drive #5057
Hattiesburg, MS 39406
yuko.iwai@usm.edu

APPENDIX I

DIRECTIONS OF SORS ADMINISTRATION FOR ENGLISH LANGUAGE
INSTITUTE (ELI) INSTRUCTORS

Thank you for administrating a background information questionnaire and a survey for my study.

Please administrate them together with the following directions:

1. Tell your students that I would like them to participate in my study about reading strategies for school-related academic materials in English.
2. Tell your students that their participation is voluntary and they may withdraw from my study at any point.
3. Distribute copies of a background information questionnaire and a survey to each student.
4. Make sure that your students DO NOT write their names on the questionnaire and survey.
5. [For a background information questionnaire] Read the directions aloud.
6. Discuss the response options and make sure your students understand the rating scale (especially for questions 13 and 14).
7. Ask if there are any questions about the background information questionnaire.
8. [For a survey] Read the directions aloud.
9. Discuss the response options and make sure the students understand the rating scale.
10. Ask if anyone has any questions about any aspect of the survey.

11. Instruct the students to fill out the questionnaire and to read each statement on the survey carefully and circle the appropriate responses.
12. Encourage students to work at their own pace.
13. Instruct the students that they may use English-their native language dictionaries if necessary to understand the meaning of each statement.
14. Clarify the meaning of each statement if your students have difficulties in understanding it as they fill out the questionnaire and survey.
15. Collect the questionnaire and survey.

APPENDIX J

SEMI-STRUCTURED INTERVIEW PROTOCOL

Project:

Metacognitive awareness and strategy use in academic English reading among adult ESL students in the United States

Research Questions:

1. What role does metacognitive awareness have in academic English reading for adult ESL students enrolled in a university in the southeastern part of the United States of America?
2. How does use of reading strategies impact academic success for adult ESL students enrolled in a university in the southeastern part of the United States of America?

Guiding Questions:

1. To what extent are three levels of adult ESL students (non-degree seeking students at the English Language Institute, undergraduate students, and graduate students) enrolled in a university in the southeastern part of the United States of America aware of their metacognitive reading strategies?
2. What reading strategies do three levels of adult ESL students (non-degree seeking students at the English Language Institute, undergraduate students, and graduate students) enrolled in a university in the southeastern part of the United States of America use while reading academic English materials?

3. What reading strategies do three levels of adult ESL students (non-degree seeking students at the English Language Institute, undergraduate students, and graduate students) enrolled in a university in the southeastern part of the United States of America use while experiencing difficulties in academic English materials?
4. How are metacognitive reading strategies used by adult ESL students when reading academic English materials influenced by those strategies they use when reading academic materials in their first language?

Date: _____

Time of Interview: _____

Interviewer: _____

Interviewee: _____

Background Information of the Interviewee:

Nationality: _____

Gender: _____

Age: _____

Academic Status: _____

Marital Status: _____

Years of studying English in non-English speaking countries: _____

Years of studying English in English speaking countries: _____

Length of staying in the U.S.: _____

Hours of reading English academic materials per week: _____

Procedure 1: *Describe the project, tell the interviewee about ...*

- (a) Purpose of the study: To explore awareness and reading strategies adult ESL students use when they are engaged in academic reading materials in English
- (b) Data being collected: Records and document(s)
- (c) Participant's right: Voluntary participation, confidentiality, and use of a pseudonym in the report
- (d) Length of the interview: Approximately 30 minutes

Procedure 2: *Have an interviewee sign an informed consent form.*

Procedure 3: *Ask Interviewee for permission to tape the interview.*

Turn on the tape recorder and test it.

Procedure 4:

Ask interview question 1

Have you thought about your reading strategies when you read in English?

Ask interview question 2

What reading strategies do you use while reading academic materials in English?

Ask interview question 3

When you encounter difficulties in reading academic English materials, how do you approach them?

Ask interview question 4

Do you know your effective reading strategies while reading academic materials in English?

Ask interview question 5

How are reading strategies in native language related to reading strategies in your English reading?

Procedure 5: *Ask interviewee to share his/her reading materials and explain how he/she was processing reading.*

Procedure 6: *Thank the interviewee for his/her cooperation and participation in this interview.*

APPENDIX K
INFORMED CONSENT FORM

I agree to participate in the study about reading strategies for adult ESL students at a university in the southeastern part of the United States. I understand that a recording of the interview and digital photo(s) of document(s) will be stored in a locked cabinet in the researcher's residence and destroyed after the completion of the research project. It is my understanding that my identification will be protected as the findings will be reported using pseudonyms.

Name (print): _____

Signature: _____

Date: _____

REFERENCES

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