An Investigation Of Linguistic, Cognitive, And Affective Factors That Impact English Language Learners' Performance On A State Standardized Reading Achievement Test

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AN INVESTIGATION OF LINGUISTIC, COGNITIVE, AND AFFECTIVE FACTORS THAT IMPACT ENGLISH LANGUAGE LEARNERS' PERFORMANCE ON A STATE STANDARDIZED READING ACHIEVEMENT TEST

by

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ABSTRACT

The explicit teaching of reading comprehension strategies has been proposed as a means to better prepare secondary school-aged students for today's information-dense, fast-paced, fast-changing global society, and to improve the academic performance of struggling adolescent readers. This proposition of a direct and positive impact of reading comprehension strategies on reading achievement for all students has not been investigated with English language learners (ELLs) who, by definition, do not possess the same level of English language skills as their native-English speaking peers.

This mixed-method study investigated linguistic, cognitive, as well as affective factors that impact adolescent ELLs' performance on a standardized state reading achievement test. The quantitative portion examined the relative contributions of second language proficiency and reading comprehension strategies to a prediction model of reading achievement in 110 ninth and tenth grade ELLs. The qualitative portion of the study involved individual interviews and was aimed at deepening the understanding of ELLs' use of strategies during the standardized reading test, while also investigating affective factors that may impact their performance on this measure of academic achievement.

Quantitative findings include two statistically significant prediction models of reading achievement with reading comprehension strategies and English language proficiency as predictor variables. However, only language proficiency made a significant unique contribution to the prediction variable. Qualitative findings suggest that the participants had relatively little metacognitive awareness of their comprehension during the standardized test, had overestimated their use of reading strategies as reported on a 30-item strategy survey instrument, had

concentrated on sentence-level comprehension due to unknown vocabulary, and may have been

hindered by testing anxiety in being able to wholly concentrate on the task.

Recommendations made for the instruction of comprehension strategies consist of the

raising of metacognitive awareness through the explicit modeling of the thought processes

involved in reading comprehension, including determining the meaning of unknown words.

For my husband Ray, for being my best friend, my rock, and the love of my life;

and

For my parents, Sonja and Max Strebel who have always loved me, believed in me, and

supported my many adventures in life

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CHAPTER ONE:
INTRODUCTION

Comprehension of a variety of text types is the ultimate goal of reading instruction. At no time in history have solid reading skills been more important than at present. As many former American blue collar jobs are being shipped overseas or have been automated, large portions of this nation's economy are being shifted to a "knowledge-based" economy (Carnevale & Desrochers, 2001; U.S. Department of Labor, 2008) that places increasingly high critical thinking, problem-solving, communication, and reading skills on the American work force. The increase in advanced levels of literacy extends beyond the professional realm into everyday private life. To be fully functional members of today's fast-paced, fast-changing global society, people of all socio-economic classes have to be able to read and comprehend extensive amounts of traditional, print-based texts, as well as the new electronic and multimedia information that surround them (Berman & Biancarosa, 2005; Moore, Bean, Birdyshaw & Rycik, 1999).

To ensure adequate preparation of this work force and citizenry, the public sector is increasingly holding schools and students accountable for achieving academic literacy standards along the K-12 continuum. While academic literacy involves skills in reading, writing, and thinking about the text material students encounter in learning situations (Berman & Biancarosa, 2005), it has also been defined more narrowly as "the kind of reading proficiency required to construct the meaning of content-area texts and literature encountered in school" (Torgesen et al., 2007, p. 3). As grade levels increase, the reading demands placed on students increase accordingly. Rather than mastering the basic skills of decoding text and building reading fluency that are the hallmarks of reading instruction in the elementary grades, students in middle and high schools depend on these already-developed reading skills to learn. Learning new content-

area material requires these students to read large amounts of text in traditional textbooks, newspaper articles, and online sources (Biancarosa & Snow, 2006).

Unfortunately, society's demands of students' reading skills and actual student performance do not seem to connect well. Scores on state, national, and international standardized achievement measures demonstrate that many American students do not possess the necessary reading skills to succeed. For example, results from the National Assessment of Educational Progress (NAEP) show that over a quarter of American students perform below a basic mark for their grade levels (Grigg, Donahue & Dion, 2007; Lee, Grigg & Donahue, 2007; Perie, Griggs & Donahue, 2005), meaning that they do not even possess partial mastery of the prerequisite skills and knowledge necessary for on grade level proficient work. American students also perform poorly on international assessments compared to less developed countries (Organisation for Economic Co-operation and Development, 2004).

English language learners (ELLs) struggle with academic achievement, in particular with reading performance, for myriad reasons. These reasons include difficulty with oral and vocabulary skills, low English academic language skills, and breaks in formal schooling in their country of origin or due to the resettlement process in the United States (Berman & Biancarosa, 2005; Center on Education Policy, 2007; Short & Fitzsimmons, 2007). As a result, they typically fare worse than their native-English speaking peers. At the national level, studies have shown that of the possible 500 scale scores on the NAEP Reading, ELLs' average scale scores were lower by as much as 42 points (cited in Goldenberg, 2008). The statistics are equally disconcerting at the state level where Kindler found that only 18.7% of ELLs during the 2000-2001 school year met state norms for reading in English (2002).

Furthermore, ELLs struggle to pass standardized tests that are increasingly used as exit requirements from high school (Berman & Biancarosa, 2005; Center on Education Policy, 2007; Short & Fitzsimmons, 2007). Testimony before a U.S. House of Representatives educational subcommittee revealed that ELLs did not meet language arts and mathematics performance goals in roughly two-thirds of the 48 states for which the Government Accountability Office had obtained data for the 2003-2004 school year (2007). The large disparity of academic performance between ELLs and native English speakers, as well as the difficulty ELLs face in standardized measures of academic performance can most certainly be attributed to the fact that they are faced with twice the challenge of native-English speakers—learning to perform grade-level academic tasks while developing English language skills (Short & Fitzsimmons, 2007).

In an effort to improve the performance of all secondary school students who struggle with the requisite literacy skills to succeed in their academic careers, national reading experts have reviewed existing research findings pertaining to reading comprehension development in the adolescent population (e.g., Biancarosa & Snow, 2006; Heller & Greenleaf, 2007; Kamil, 2003; Kamil et al., 2008; RAND Reading Study Group, 2002; Short & Fitzsimmons, 2007; Torgesen et al., 2007). Although Short and Fitzsimmons point out that the majority of these reports give "very little guidance on how best to meet the varied and challenging literacy needs of adolescent ELLs" (Short & Fitzsimmons, 2007, p. 1), they do concur with the authors of the cited reports that schools should implement explicit comprehension instruction that is comprised of teaching reading strategies throughout the curriculum. There exists, after all, a research base that shows successful second language (L2) readers not only deploying a greater number of reading strategies than poor L2 comprehenders (Block, 1986; Block, 1992; Kletzien, 1991;

Knight, Padron & Waxman H.C., 1985; Phakiti, 2003; Sheorey & Mokhtari, 2001), but doing so with more flexibility (Jiménez, García & Pearson, 1996).

To better address the needs of adolescent ELLs in acquiring reading comprehension, it is helpful to separate out the factors that are specific to L2 learners from those that may be common to all readers. However, in addition to the reader, models of reading highlight the presence of two other factors that impact comprehension: the text, and the purpose of reading. The role of these three factors and their interrelationship need to be considered as well. Together, they form a holistic picture when researching ELLs' use of reading strategies.

It is thus with the description of a model of second language reading that this chapter now continues, followed by a depiction of the three-factor model just mentioned. Together, they provide the background for the purpose statement which is then presented. The significance of the study and the research questions make up the next two sections. The study's delimitations as well as the definitions of terms used in this study precede the final section, the general outline for the rest of this dissertation.

A Model for Second Language Reading

Leading L2 reading researchers readily acknowledge that first language (L1) reading research has had a direct and undeniable effect on their field (Bernhardt, 2000; Bernhardt, 2005; Fitzgerald, 1995; Grabe, 1991; Grabe, 2009; Hedgcock & Ferris, 2009; Koda, 2004). Although the path from L1-influenced inquiries to the infusion in the late 1990s of issues specific to second language acquisition (SLA) theory is seen as a normal evolution in the discipline, Bernhardt (2005) has pointed out that it slowed down the building of second language reading theory. Indeed, while L1 reading researchers have described numerous models of the reading

process, there exists only one theoretical model for L2 reading to date (Grabe, 2009):

Bernhardt's Compensatory Model of Second Language Reading (Bernhardt, 2005).

This model depicts L2 reading comprehension and the development of L2 reading

proficiency. It considers individual variance in L2 reading performance and is fixed on the

application of two theoretical constructs central to SLA: transfer of language and literacy skills

from L1 to L2, rooted in the Linguistic Interdependence Hypothesis, and L2 language

proficiency, based on the Linguistic Threshold Hypothesis. The model's current form evolved

from two prior attempts (Bernhardt, 1991; Bernhardt, 2000) to explain the distribution of factors

involved in L2 reading comprehension, and consists of three dimensions or knowledge sources

(Figure 1).
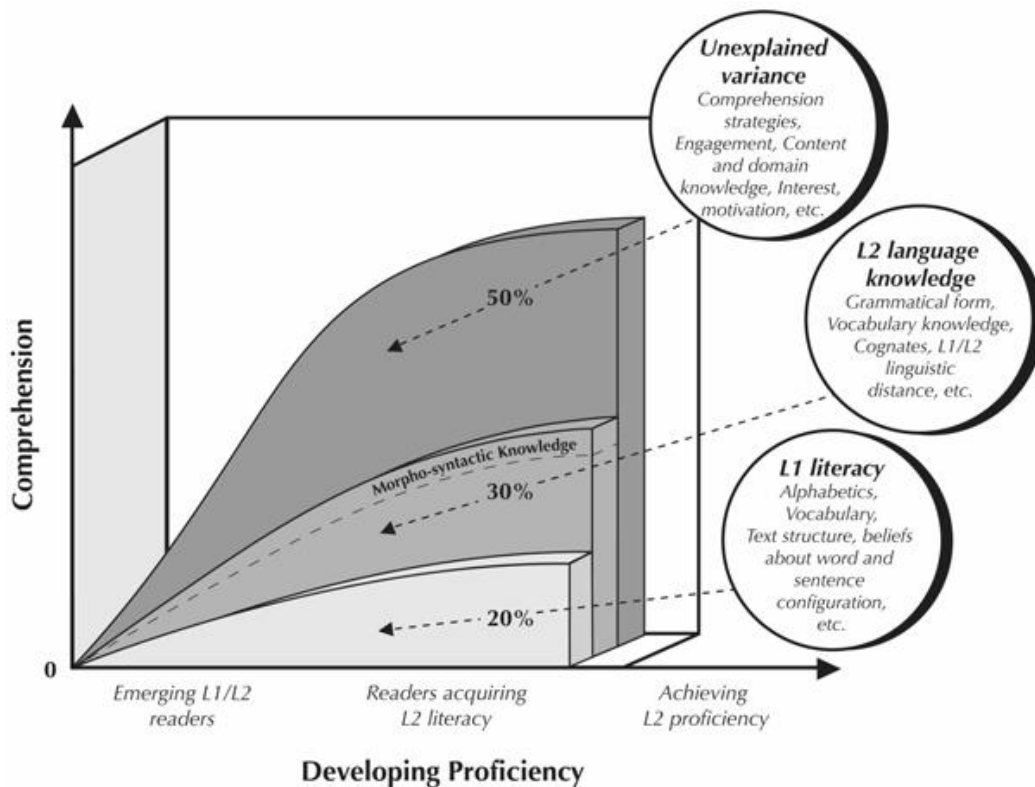
Figure 1. A compensatory model of second language reading.

(Bernhardt, 2005, p. 140). Reprinted with permission from Cambridge University Press.

The first dimension in the Compensatory Model of Second Language Reading, L1 Literacy, contributes 20% to the variance found in L2 reading performance. It consists, on the one hand, of underlying skills whose proficiency requires "a certain degree of automaticity and fluency" (Grabe, 2009, p. 141). Examples of these skills are alphabetics, oral/aural language, or vocabulary. On the other hand, it also involves knowledge of text structure, beliefs about word and sentence configuration and schema knowledge in the L1. These skills, knowledge, and beliefs, if developed in the L1 reader, can be transferred to the L2 reading context.

Second Language Knowledge which accounts for 30% of variance is the second dimension of the model. It contains factors such as learners' morpho-syntactic knowledge, as well as presence or absence of cognates, and linguistic distance between the two languages in question. The dashed line in the L2 Knowledge portion of Figure 1 indicates that Bernhardt (2005) adopted Brisbois' (1995) estimate of 27% word knowledge and 3% grammar knowledge necessary for proficient L2 learners. Learners whose L1 exhibits relative closeness to the L2 in terms of cognate vocabulary and word order encounter fewer difficulties in acquiring the L2 than those whose L1 is largely unrelated, as would be Asian languages and Indo-European languages.

Together with L1 literacy, L2 language knowledge constitutes only half of the variance in L2 reading comprehension, "failing to provide satisfying explanations of the second language process" (Bernhardt, 2005, p. 137). Bernhardt thus added a third dimension that research is currently exploring but for which no overarching descriptors have been found, calling it Unexplained Variance (Bernhardt, 2000; Bernhardt, 2005). Unexplained Variance includes numerous factors such as comprehension strategies, engagement in the reading process or text, content and domain knowledge, interest, motivation, and so on that are also found in a myriad of

studies involving L1 readers. In other words, Unexplained Variance includes factors that are neither exclusive to SLA theory nor to the L2 reading processes.

Bernhardt argues that instead of offering a sequential view of the L2 reading process where one skill or dimension adds to the other, the three dimensions of the Compensatory Model of Second Language Reading "operate synchronically, interactively, and synergistically" (Bernhardt, 2005, p. 140). L2 readers pull from more developed knowledge sources (i.e., L1 Literacy Knowledge, L2 Language Proficiency, or Unexplained Variance) to compensate for less developed areas to comprehend text. The three dimensionality of the model made possible by this compensatory aspect invites researchers to go beyond the bivariate nature of statistical analysis that looks at the relationship between dimensions or individual skills to investigate the contribution of various factors to L2 reading comprehension.

Despite its utility to L2 reading researchers due to the fact that it attempts to tease out linguistic factors unique to L2 readers from more general reader-related factors, the Compensatory Model for Second Language Reading (Bernhardt, 2005) is exclusively focused on the reader. However, other factors bear direct impact on reading comprehension. These factors are discussed and categorized in the next section.

<u>Facets of Reading</u>

Various descriptions and definitions of the reading process have been proposed over the years. Many of these, such as Durkin's "intentional thinking during which meaning is constructed through interaction between text and reader," (cited in Harris & Hodges, 1995) or The National Reading Panel's "intentional and thoughtful interaction between the reader and the text" (National Reading Panel, 2000, p. 13) make mention of the presence and the relationship of two fundamental aspects or facets of reading: the Text and the Reader. In addition to these two

facets that answer the question of who reads and what is being read (Weaver, 2002), researchers have reached consensus that a third element needs to be considered, although variations of what it should be called remain in the literature. What some (Irwin, 2007; Grabe & Stoller, 2002) term the *purpose* of reading is described by others (Sheorey & Mokhtari, 2001; Sheorey & Mokhtari, 2008) as the *context* or as the *situational context* (Weaver, 2002). Regardless of this element's characterization, though, its role is to answer the question of why, when and where the reading takes place (Weaver, 2002). Figure 2 depicts the three facets that need to be considered when researching the reading comprehension process.

The Reader brings various cognitive abilities, linguistic skills and capabilities, experiences, as well as dispositions to the act of reading (Alderson, 2000; Grabe & Stoller, 2002; Hedgcock & Ferris, 2009; Sweet & Snow, 2003a). Good readers possess decoding skills, vocabulary and grammar knowledge. They have knowledge of various topics and discourse types, and they utilize metacognitive skills to monitor comprehension and act upon comprehension breakdown. Finally, successful readers have a sense of self-efficacy and motivation to extract meaning from the text. As Bernhardt's previously described model shows, L2 readers draw upon linguistic skills in both their L1 and the L2, and they bring to the act of reading literacy skills developed in both their native language and the L2.

The Text encompasses factors such as discourse genre, text structure and form, media (i.e., textbook, hypertext, magazine), as well as subject matter (Hedgcock & Ferris, 2009; Hudson, 2007; Sweet & Snow, 2003a). These factors impact the level of effort the reader has to expend to comprehend the text. Without the requisite topic background, knowledge of specialized writing conventions, and knowledge of specialized terminology most readers are unable to fully comprehend highly technical texts written for professional journals. On the other

hand, they would be able to understand an internet article on the latest discovery of fossils that is accompanied by pictures and maps.

Reader	Text	Situational Context
Reader Cognitive abilities Linguistic abilities Motivation Knowledge Experiences	**Text** Discourse genre Discourse structure Media Subject matter	**Situational Context** Environmental Personal Occupational Academic Instructional Testing

Reading comprehension
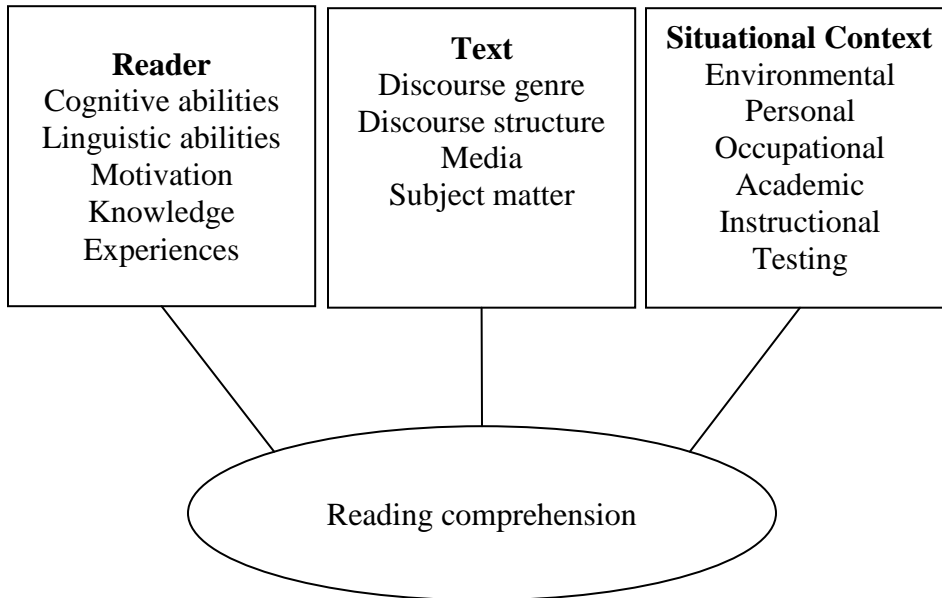
Figure 2. The three facets of reading.

The Situational Context, the term favored in this study for the third facet of reading, is influenced by the purpose for reading and the setting in which the reading takes place. These purposes can be seen as broad categories such as recreational, occupational, environmental or informational (Goodman, Watson & Burke, 1987) or focused toward a specific goal. Grabe lists six purposes for academic reading which include, for instance, skimming or scanning for information, reading for learning, and reading to evaluate, critique, and use information (Grabe, 2009, p. 8). Only a few literacy experts (Hudson, 2007; Weaver, 2002) have included testing as one of the situational context factors, although it would seem natural that this particular purpose of reading directly impacts the reader's affective and cognitive behaviors.

Purpose of the Study

The purpose of this study was to investigate linguistic, cognitive, as well as affective factors that impact adolescent ELLs' performance on a state standardized reading achievement test. Two distinct objectives drove the study's design. The first objective was to build a prediction model of grade-level academic reading achievement by examining the relationship between ninth and tenth grade ELLs' self-perceived use of reading strategies and their English language proficiency. Together, these three measures allowed for a simultaneous investigation of the three facets of reading comprehension. Specifically, L2 proficiency level and strategy use are reader-specific factors, standardized reading achievement test comprised of academic text in form of informational and literary passages represents the text facet, and the testing setting corresponds to the situational context. Within this triad, two factors that are attributed to two dimensions in the Compensatory Model of Second Language Reading, L2 Proficiency and Unexplained Variance, were explored (Bernhardt, 2005).

The second objective focused exclusively on the impact of reader-specific factors that fall in the Unexplained Variance dimension of Bernhardt's (2005) model. The aim of this portion of the study was to deepen the understanding of students' use of strategies, while also investigating the potential impact of other factors, namely motivation, engagement, and affect.

Statement of the Problem

Standardized tests in grades K-12 have been institutionalized in the United States as part of the accountability measures required under the No Child Left Behind Act (No Child Left Behind Act, 2002). As a result, they have become an important feature of instructional and programmatic decision-making in this nation's public schools.

Based on the previously cited literature, literacy experts' implied assumption appears to be that if secondary school-aged students become better readers through literacy instruction that is centered on comprehension strategies, they will automatically perform better on the standardized tests that are designed to test reading and thinking skills. However, the field is lacking experimental or correlational research that links the use of reading strategies to standardized achievement tests. While a few researchers (Anderson, 1991; Phakiti, 2003; Purpura, 1997) have explored the use of cognitive and metacognitive strategies of L2 readers under standardized language testing conditions, they all have done so at the post-secondary level. As a result, important questions that center on K-12 students' use of comprehension strategies and standardized achievement tests have not been addressed to date, such as: Is there a difference between reading strategy use during standardized testing conditions as opposed to regular academic reading conditions? Can standardized test scores be predicted based on students' reported use of reading strategies? Are there certain types of comprehension strategies that are more effective than others for L2 learners at different language proficiency levels? If so, what are their contributions to the variance? What is the impact of language proficiency level on ELLs' performance on a reading standardized test that was designed for measuring reading performance in the language of instruction? What factors other than strategies or language proficiency could impact standardized test performance in English language learners? This study was motivated by a desire to add to the research literature on reading comprehension strategy use in adolescent L2 readers through the exploration of what adolescent English language learners think and do under standardized testing conditions.

Significance of the Study

As previously stated, there exists a limited knowledge base on the link between K-12 second language learners' use of comprehension strategies and measures of standardized reading achievement. Due to its explorative nature, this study offers teachers a glimpse into the thought process of ELLs as they take the state reading achievement test. This study further provides data that allows the examination of issues related to academic reading and thinking under testing situations. Potential outcomes are the identification of certain types of strategies that are most beneficial to ELLs at various proficiency levels, or the discovery of proficiency levels in specific language skills areas that, along with comprehension strategies, contribute to reading ability.

Long term implications for determining such a proficiency threshold, should one be found and findings later be confirmed by subsequent studies on larger populations, could be programmatic in nature. Schools may choose to increase their efforts in the development of basic language skills for ELLs instead of placing struggling ELL readers in intensive reading programs before their language skills are sufficiently developed for them to benefit from such instruction.

Furthermore, this study examines factors that are attributed to two different dimensions within the Compensatory Model of Second Language Reading: Unexplained Variance and Second Language Knowledge. Inasmuch, it has the potential for adding to the research base that tests the model.

Methodology

To investigate linguistic, cognitive, and affective factors that impact adolescent ELLs' performance on a state standardized reading achievement test, a mixed-method study was designed. The quantitative portion examined the relationship between the use of reading

strategies in ELLs, English language proficiency level, and reading ability, whereas the qualitative portion was aimed at focusing the investigation on cognitive and affective factors.

Research Questions

Because the results of the test used to measure the participants' English language proficiency consist of an overall score as well as individual scores in the three parts of the test, two separate inquiries were possible. The overarching question of the quantitative portion of this study is listed first, followed by the two individual research questions:

- How do ELLs' reported use of reading strategies and their level of English language proficiency impact their score on a standardized reading achievement test?
  - What is the relationship between ELLs' use of reading strategies, their overall English language proficiency, and their reading achievement test score?
  - What is the relationship between ELLs' use of reading strategies, their English language proficiency in language skills areas, and their reading achievement test score?

The purpose of the qualitative portion of the study was not to focus on specific factors that may contribute to higher scores in reading comprehension tests. Rather, it was put in place to explore the presence of other factors that may affect ELLs' performance on the standardized reading achievement test. The research question that guided this inquiry was: "How do English language learners approach a standardized reading test?"

Data Collection

The study was conducted in ninth and tenth grade ESOL Reading and Language Arts classes at a high school in the central Florida area. The Reading portion of the Florida

Comprehensive Achievement Test (FCAT), and the Comprehensive English Language Learning

Assessment (CELLA) provided the respective measures of student reading achievement on a

standardized reading test and English language proficiency necessary to conduct the study. The

use of reading strategies deployed by the ELLs during the achievement test was obtained through

the administration of the Survey of Reading Strategies (SORS) (Sheorey & Mokhtari, 2001).

Finally, an eight-question interview protocol was created to conduct individual interviews that

were aimed at answering the qualitative research question.

Analysis

Three different analyses were conducted to answer the research questions. The first two

consisted of multiple regression analyses to investigate how much the use of comprehension

strategies and various ways of looking at levels of English language ability (overall proficiency

and language modalities of listening/speaking, reading, and writing) contributed to success on a

standardized reading achievement test. Interviews were conducted to answer the qualitative

research question. Students' responses were first coded for specific factors and then analyzed in

several rounds during which emerging themes were noted. These themes subsequently resulted

in changes to the coding system, and resulted in three final factors.

Delimitations of the Study

The design and execution of this study was dictated by several research-based and

practical considerations. First of all, based on comprehension strategy research that strongly

suggests that the use of strategies as well as metacognitive awareness thereof are developmental

in nature, the decision was made to limit the grade levels for this study to high school-aged

students. The fact that the last regular administration of the Reading FCAT occurs in tenth grade further narrowed the potential sample population to grades nine and ten.

Although Bernhardt (2005) advocates L2 reading research in both cognate and non-cognate languages to further build the research base of the Compensatory Model of Second Language Reading, this study was conducted with Spanish speakers only. The decision to focus on one language group was made because the L2 reading process is to some extent influenced by morpho-syntactical closeness to and othrographical system similarities with the L1.

Limitations of the Study

Several limitations that are related to the study population need to be pointed out as well. First of all, a limitation needs to be acknowledged in the fact that the English for Speakers of Other Languages (ESOL) teachers in whose classes the study was conducted responded to either a direct request by the principal or to an email invitation extended by the researcher after the principal had identified potential classroom teachers and provided their contact information. A claim of randomization can, therefore, not be made.

The study was carried out at one school in the central Florida area in an effort to limit potential variances in results that arise from mixing schools with different socio-economic status or schools located in vastly varied surroundings (i.e., urban and rural schools). The school is located in an urban area and has a high enrollment of ethnic and language minority students. The findings of this study may thus not be generalizable to schools with different overall populations patterns in terms of socio-economic status, ethnicity, or composition of native languages spoken by the ELL student population.

The fact that the quantitative portion of the study relied on the participants' self-report of their comprehension strategy use presents another issue that limits generalizability of the

findings. Although every effort was made to explain to the students that the purpose of the instrument was to find out what strategies they used during the administration of the FCAT Reading and not what strategies they felt the teacher or the researcher thought they should have used, there was no opportunity to observe actual student behavior during testing.

The reading portion of the standardized test used to predict scores based on the reported use of comprehension strategies is a criterion-referenced test constructed to measure achievement based on Florida's Sunshine State Standards. Unlike previous years when the FCAT also contained a norm-referenced test (NRT) in form of the Reading subtest of the Stanford 9 and later the Stanford 10, the FCAT NRT was no longer administered starting with the 2008-2009 school year, thus also limiting the generalizability of the findings to other states of the nation.

Finally, the school district in which this study was conducted does not offer the opportunity to obtain data on the students' L1 Literacy category. Although confirmation of the 20%, 30%, 50% variance distribution between L1 Literacy, L2 Language Knowledge, and Unexplained Variance, respectively, in Bernhardt's (2005) Compensatory Model of Second Language Reading was not the goal of this study, it does present a limitation in that only two of the three dimensions were included in the data collection and analysis.

<u>Definitions</u>

Today's vast knowledge base of reading development, the reading process, and reading instruction is based on a long history of research and theory that are rooted in various traditions. It is thus necessary to operationalize key terms that are used throughout this study. These terms and their definitions are:

R*eading comprehension strategy* refers to what Graesser describes as "a cognitive behavioral

action that is enacted under particular contextual conditions, with the goal of improving

some aspect of comprehension" (Graesser, 2007, p. 6). For readability purposes, two

shorter versions of the term, *reading strategy* and *comprehension strategy*, will be used

interchangeably. It is important to point out that reading comprehension strategies as

defined in this study are individual, stand-alone cognitive and metacognitive strategies

that readers utilize while engaged in active reading. Inasmuch they are not synonymous

with routines or packages such as Reciprocal Teaching or Questioning the Author that

some authors (e.g., Duke & Pearson, 2002) describe as strategies, as those would more

aptly be called approaches (Palincsar, 2003).

R*eading comprehension strategy use* or then *strategy use* relates to the deployment of individual

reading comprehension strategies during the act of reading.

Language proficiency or *language ability* is determined by students' knowledge of the L2, in this

case English.

Reading achievement or *reading performance* refers to how well students perform on a reading

comprehension test intended to measure students' understanding of informational and

literary text.

In addition to the definitions of fundamental terms related to the present study, numerous

abbreviations are utilized throughout this report. These abbreviations and their explanations are:

CELLA -- English Language Learning Assessment. A standardized English language proficiency

assessment used by a consortium of states, including Florida, to provide evidence of

program accountability in accordance with Title III of NCLB. The test is designed for

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four different grade clusters and consists of four individual sub-skill scores: listening/speaking, reading, and writing.

ELL -- English language learner. In the general literature, ELLs are seen as students who do not speak English at all or with such limited proficiency that they are unable to fully participate in mainstream classroom instruction without accommodations. Under the Florida Consent Decree, an ELL is: "An individual who was not born in the U.S. and whose native language is not English; OR who comes from home environments where a language other than English is spoken; OR who comes from an environment where a language other than English has a significant impact on their level of English language proficiency; AND who for the above reasons, has difficulty listening, speaking, reading, or writing in English, to the extent that he/she is unable to learn successfully in classrooms where English is the language of instruction."

ESL -- English as a Second Language. A term originally applied mostly to describe English language programs at the post-secondary level, but increasingly used at in the K-12 school system to describe students whose first or native language is other than English, whether they require specialized language instruction or services or not (see acronym ESOL below).

ESOL -- English for Speakers of Other Languages. Language development classes for ELLs in the K-12 system for those students who do not possess sufficient English language skills deemed necessary for academic success. Based on the Florida ESOL Consent Decree, schools have to provide ESOL services to students who are determined to possess low levels of oral and/or written English language proficiency. As long as students are classified in this category, they may receive testing accommodations if requested.

FCAT -- Florida Comprehensive Assessment Test. The statewide criterion-referenced

 assessment that measures students' progress on the State's standards in reading, writing,

 mathematics, and science. The reading portion of the FCAT assesses students' mastery of

 skills such as understanding words and phrases in context, identifying main idea and plot,

 or understanding, making and confirming inferences from what is read.

L1 -- The first or native language learned by a person. In countries where English is considered

 the lingua franca and is used as the language of instruction, L1 refers to English, even

 though for a large population it may be not be the first language.

L2 -- The second, or subsequent language learned by a person.

LEP -- Limited English Proficient. The term used by the federal government to refer to English

 language learners.

SLA -- Second language acquisition.

SORS -- Survey of Reading Strategies. A validated 30-item instrument based on the

 Metacognitive Awareness of Reading Strategies Inventory (MARSI). The instrument

 measures the comprehension processes and actions invoked by readers when reading

 academic material in a second language, and consists of three constructs of reading

 strategies:

 Global reading strategies -- techniques carefully chosen by learners when they monitor or

  manage their reading.

 Problem solving reading strategies -- focused techniques used by readers in solving

  problems that arise from the text.

Support reading strategies -- basic support mechanisms readers deploy when reading. Examples of support reading strategies include highlighting, summarizing, or using a dictionary.

Summary

Literacy experts recommend the explicit teaching of reading comprehension strategies to resolve the existing literacy crisis and to prepare this nation's adolescents for academic success that facilitates later full workforce participation and citizenry. English language learners face additional academic challenges to those of native English speaking students due to the fact that they are acquiring English language skills at the same time that they are expected to learn the necessary subject matter to succeed in school. While much is known about ELLs' use of reading strategies when engaged in academic reading of textbook material, no research has been conducted to explore what high school ELLs think and do when they approach a standardized reading achievement test. In order to provide school administrators and teachers with the guidance necessary to design appropriate programs and instruction for the ESOL population in this nation's schools, it is necessary to research the effect of several factors such as language proficiency level and the use of comprehension strategies on student performance as measured by standardized achievement tests.

This chapter has provided the background of the study by describing the current literacy crisis in the United States in terms of the achievement gap between native-English speakers and ELLs and by placing the central factors of the research within a theoretical model of L2 reading. It also offered a brief overview of the study's aim and design. Chapter Two consists of a review of related literature in the following areas: (a) academic literacy, (b) adolescent readers; (c) factors affecting English language learners' academic performance; (d) L2 reading research; and

(e) reading comprehension strategies. Chapter Three describes the research methodology

employed to investigate the research questions posed, and Chapter Four presents the results of

the data analysis. Finally, Chapter Five discusses the results of the research and provides

suggestions for further investigations into ELLs' thought processes as they approach

standardized reading achievement tests.

CHAPTER TWO
REVIEW OF LITERATURE

It could be argued that, from the first time children are purposefully or systematically exposed to sounds and letters all the way to adults taking a class in speed reading, the purpose of reading instruction is comprehension of written language. Comprehension, in this view, is the product of reading (Alderson, 2000), and it is this product that standardized reading achievement tests measure.

However, such an end-product view of reading comprehension cannot sufficiently answer questions of competencies that readers need to possess, nor can it explain the numerous cognitive competencies that students need to develop and apply to reading (Irvin, Meltzer & Dukes, 2007; Friedman & Rowls, 1980; Gordon, 1982; Grabe, 2009; Olshavsky, 1976). To help students build the necessary knowledge bases and develop the necessary skills to understand written language, researchers and teachers are concerned about how readers come to understand text, and what factors impact this process. Almost every textbook on reading instruction includes discussions of the numerous descriptive, experimental or behavioral, and human performance models, as well as approaches or "metaphorical interpretations of the many reading processes involved in reading comprehension" (Grabe & Stoller, 2002, p. 31) that have been presented in the past. Together these models and approach descriptions have shown that reading comprehension involves three facets as evidenced in the following definition of reading: "Reading is the process of constructing meaning through the dynamic interaction among the reader's existing knowledge, the information suggested by the written language, and the context of the reading situation" (Anthony, Pearson P. David & Raphael, 1993, p. 284).

Each of these facets will be brought up at different times throughout this review of the literature that pertains to the linguistic, cognitive, and affective factors that impact adolescent English language learners' academic reading performance. In the first section, academic literacy will be defined, and the influence of the situational context and text type on reading comprehension will be described. Next, the aspect of the reader will enter the discussion. Characteristics of adolescent readers will be described, and several cognitive and dispositional factors that bear direct impact on reading behavior and ability will be presented.

The reader will also be the focus of the section on English language learners and the particular issues this heterogeneous group of students faces when asked to perform in academic settings in the United States. The following section, reading in a second language, will focus on linguistic elements that affect reading development in those who read in more than one language. Two constructs from second language acquisition theory that lay at the heart of the L1 Literacy and the L2 Language Knowledge dimensions within Bernhardt's Compensatory Model for L2 Reading (2005) will be discussed.

The final section will focus on comprehension strategies. Research findings from both L1 and L2 strategy research will be presented. The means to inquire about readers' use of strategies will be depicted, and various schemes of classifying strategy types will be shown. Strategy research will then be examined to describe the reader and situational context variables that have been the focus of past studies.

Academic Literacy

Academic literacy involves skills in reading, writing, and thinking about material that students encounter in learning situations, including during standardized measures of academic achievement situations (Berman & Biancarosa, 2005; Torgesen et al., 2007). These skills are

developed over the course of many years, starting from the time in early childhood when caregivers tell stories and read to young children. As students move through grade levels the literacy demands placed on them increase in parallel. Literacy instruction for students in the lower elementary school grades involves the development of phonic skills, awareness of alphabetic principles, decoding skills, and reading fluency. The objective during these early years consists of teaching children basic literacy skills that enable them to make sense of and produce narrative texts and simple poems.

Around fourth grade, a shift takes place from learning to read to reading to learn (Alexander & Jetton, 2000; Chall, 1996), a situation in which expository texts become increasingly prevalent. The purpose of reading and writing is transferred toward subject-matter text and content learning. By the time they reach middle school, students are required not only to read increasing amounts of texts that range from the informational to the literary, but they do so by interacting with both traditional print-based texts and texts in various forms of modern electronic formats (Alvermann & Eakle, 2003; Biancarosa & Snow, 2006; Sternberg, Kaplan & Borck, 2007). One of the direct effects of the rapidly changing technological tools at the public's disposal is that today's adolescents function in a "media-rich, information-dense context" (Irvin et al., 2007, p. 7), presenting an entirely different learning environment than the one in which most secondary school teachers had grown up.

Because secondary school instruction is organized by subject matter (i.e., mathematics, science, social studies, language arts), the term *content area reading* is often used in the research literature when the focus is placed on instructional methods and strategies to help students acquire and work with content-specific knowledge, vocabulary and text organization (Alvermann & Eakle, 2003). Skills for reading and learning at the secondary level, however, transcend

specific content areas and, inasmuch, can be viewed as general literacy skills (Irvin et al., 2007).

These skills include making inferences, figuring out unfamiliar words, expanding lexical

knowledge, resolving conflicting information across texts, weaving together ideas from different

sources, recognizing the author's purpose, intent, attitude , and tone, and identifying and

summarizing the most important ideas (Alderson, 2000; Biancarosa & Snow, 2006; Torgesen &

Houston, 2009; Torgesen et al., 2007). The terms *academic literacy* or *adolescent literacy* reflect

the cross-disciplinary nature of reading at the secondary school level (Biancarosa & Snow, 2006;

Sweet & Snow, 2003b; Torgesen et al., 2007).

Situational Context of Academic Reading

Academic literacy refers to the situational context under which the reading acts that are

the focus of the current study take place. Certainly, some students may self-select to read a

historical novel while learning about a particular historical figure or era, but the fact remains that

the majority of literary events in which students engage for instructional purposes are dictated by

the curriculum and are teacher-imposed. The situational context has also been characterized as

purpose, *activity* or simply *context* by different literacy experts (Irwin, 2007; Grabe & Stoller,

2002; RAND Reading Study Group, 2002; Sheorey & Mokhtari, 2001; Sheorey & Mokhtari,

2008; Mokhtari & Reichard, 2008). Regardless of the term used to describe the function of this

facet of reading, it aids in answering the question of why, when and where the reading takes

place (Weaver, 2002).

The condition or situational context under which the reading takes place bears direct

impact on the level of attention brought to the reading task and the skills needed to fulfill the set

goal (Alderson, 2000; Hedgcock & Ferris, 2009; Hudson, 2007). Grabe proposes that academic

reading consists of six purposes or goals: (a) reading to search for information (scanning and

skimming), (b) reading for quick understanding (skimming), (c) reading to learn, (d) reading to integrate information, (e) reading to evaluate, critique, or use information, and (f) reading for general comprehension which he posits many readers do for interest or entertainment (Grabe, 2009, p. 8). These purposes are goal-oriented, task-specific, and they make the readers act distinctively according to the situational context for which they are applied. For example, those who scan for information in a text because they want to prove a point to a peer over a friendly wager will do so differently than a student who scans a source because he is assembling notes to study for an upcoming examination. The first reader seeks specific information he believes to be located in the text, the latter may try to gain additional background information on a topic that will be covered on the test. Both readers probably search for exact words or phrases that would inform them of the sought information being contained in that area of the text, but the end-goal with which they approach the task will dictate the level of attention they pay. Similarly, students who are reading to evaluate, critique, or use information during the development of a class project will engage with the text passages in a manner that diverges from that of a student who is doing the same to answer a set of pre-specified questions.

Academic reading transpires in two situational contexts, both of which are externally imposed upon the reader. The first is classroom-related instruction and learning which can consist of rather restrictive activities such as reading a textbook to complete a work sheet, or more broadly designed authentic activities to teach the reader research skills, for example (Gaskin, 2003). The second situational context in which academic reading occurs is that of assessment (Weaver, 2002). Alderson posits that "normal" academic reading like in the case of the two just mentioned activities and reading with the knowledge that one is being assessed create two distinct events, and that it is "difficult to extrapolate from 'performance' in one event

to 'performance' in the other" (2000, p. 27). Research has shown that adolescents become cynical about standardized achievement tests and that low achievers in particular engage in a variety of counterproductive actions that not only undermine their learning, but question the validity of the test results (Paris, Lawton, Turner & Roth, 1991).

Academic Text

Whereas thirty years ago students were assigned texts that were either specifically crafted for use in instructional situations or carefully selected from what was considered the canon of literary texts, today's students encounter a multitude of texts that "vary in content, readability levels, and genre" (RAND Reading Study Group, 2002, p. 24). They also vary in media format. Although print-based material still makes up the majority of these diverse texts, the inclusion of multimedia material is on the rise in today's technologically advanced society. Moreover, the text-based material is no longer restricted to textbooks or to classic books. Other text types such as newspaper and journal articles, correspondence, public notices, advertisements, and various electronic forms of text, including email and blogs, are increasingly incorporated into content-based literacy instruction, a change not only sanctioned but moreover encouraged by literacy experts (Biancarosa & Snow, 2006; RAND Reading Study Group, 2002; Torgesen et al., 2007). This is done in an effort to expose secondary school-aged students to the print-based material and modern media that they encounter in real life situations.

Reviews of state and national standards for reading and content instruction reveal that students at the secondary levels are exposed to and learn from narrative and expository text, as well as from noncontinuous print material such as charts, graphs, and illustrations. These forms of text shape the foundation for the four main aspects of reading that are typically assessed on state and national standardized reading achievement tests: forming a general understanding,

developing interpretation, making reader/text connections, and examining content and structure (Florida Department of Education, 2005; Lee et al., 2007; U.S. Department of Education, 2006). The type of text that is utilized in instruction is directly linked to grade level. Whereas instruction in the early grades takes place through the use of narrative texts (Lapp, Flood & Farnan, 1989), the turn of focus around fourth grade from learning to read to reading to learn discussed above leads to the increasing inclusion of expository material, so much so that high school students are exposed to expository text for the majority of instructional time throughout the day (Barton, 1997; Lapp, Flood & Farnan, 2008).

Comprehension and learning take place when there is a good fit between the reader's capabilities and text variables (Gaskin, 2003; Grabe, 2009; RAND Reading Study Group, 2002). Having described situational contexts within which students are asked to perform academic reading and then differentiated the media and text types that adolescent readers need to comprehend, the next section will focus on the third facet of reading, the reader.

Adolescent Readers

Adolescent readers have received relatively little attention until recently in comparison to students in the primary grades (Biancarosa & Snow, 2006; Graves, 1999; Jetton & Alexander, 2004). In some regards adolescent literacy was considered an extension of early literacy development, and many educators assumed that by the time students reach middle and high school, they would have developed the necessary basic literacy skills to make the transition to learning through content-based texts (Irvin et al., 2007). Clearly, not all adolescents encounter problems with academic performance. Results from national and international assessment programs results show that roughly one third of American students demonstrate competency over grade-level reading subject matter which is evidenced by their scoring at or above a proficient

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mark (Grigg et al., 2007; Lee et al., 2007; Organisation for Economic Co-operation and Development, 2004; Perie et al., 2005). Of great concern are thus the remaining two-thirds of students who struggle with academic performance, including reading.

Most adolescent readers move into secondary school with a high enough level of automaticity of decoding, word recognition, and meaning formation of unknown words that they approach new text with reasonable fluency. The problem faced by the majority of struggling adolescent readers is not that they do not know the basics of how to read, but that they lack comprehension (Biancarosa & Snow, 2006; Brown, 2002; Greenleaf, Jiménez & Roller, 2002; Underwood & Pearson, 2004). Comprehension difficulties, in turn, inhibit their ability to learn from text and achieve in school.

Biancarosa & Snow (2006) submit that adolescent readers exhibit a wide range of needs that hamper their comprehension of academic text. Irvin et al. (2007) attempt to summarize these needs by describing struggling adolescent readers. Despite vast individual differences that are present in all learning situations, struggling adolescent readers, they suggest, have certain common characteristics which consist of weak vocabulary knowledge and weak academic background, a perception of themselves as poor readers, lacking motivation to become engaged in academic activities, and an insufficient arsenal of strategies to overcome these difficulties, along with little ability to monitor comprehension. This list of deficiencies in adolescents who struggle with academic performance overlaps considerably but negatively with the six essential areas that Torgesen et al. posit as prerequisite for academic success at the secondary level which are: reading fluency, vocabulary knowledge, content knowledge, higher-level reasoning and thinking skills, cognitive strategies specific to reading comprehension, and motivation and engagement (2007, p. 6). The focus of this portion of the literature review is on the deficiency

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issues noted by Irvin and her colleagues (2007), specifically the insufficient vocabulary and content background knowledge, as well as issues surrounding lack of motivation and engagement.

Background Knowledge

According to Goodman and Rakestraw (2000), comprehension involves the construction of coherent mental representations of information. Constructing this mental representation through reading, they write further, requires readers to process the meaning of individual words and phrases and to figure out how these words and phrases relate to each other not only within the text itself, but in relation to an already established knowledge base. The contribution of background knowledge to reading comprehension became an active area of inquiry in the 1980s by the proponents of top-down theories in form of schema theory, because they favored a view of the reading process in which the activation of higher order ideas triggers thinking about finer details (Pressley, 2000).

Schema theory assumes that knowledge and experiences are organized in large, abstract, mental frameworks which are stored in long-term memory. When a reader comes to a part of the text that requires his attention, he activates his schema based on prior experience with the topic or text type. As soon as the connection is made, reading continues, and the new piece of information becomes part of the schema. Over time, new conceptualizations are built, and these new mental representations contribute to the understanding of text encountered at a later time.

While this conceptualization of the reading process appears logical in view of cognitive learning theories, schema theory has encountered its share of criticism (Grabe, 2009). Those critical of schema theory do not question the role of background knowledge in reading comprehension. Instead, they argue that the reading process also consists of facets that do not

require the activation of massive abstract knowledge that is at the center of schema theory

(Pressley, 2000; Grabe, 2009; Sadoski, Paivio & Goetz, 1991).

One point that both proponents and critics of schema theory agree upon is that

background knowledge is multifaceted and is activated from within the text (Alderson, 2000;

Goodman & Rakestraw, 2000; Jetton & Alexander, 2004). As Dole and her colleagues state,

> All readers, both novices and experts, use their existing knowledge and a range of cues
> from the text and the situational context in which the reading occurs to build,
> or construct, a model of meaning from the text. According to this view, even
> novice readers can behave like experts when presented with texts and tasks for
> which they possess appropriate knowledge. Conversely, even expert readers
> can be reduced to novices when presented with obscure or ambiguous texts.
> (Dole, Duffy, Roehler & Pearson, 1991, p. 241)

Grabe (2009) proposes that there are four types of background knowledge, namely world

knowledge, cultural knowledge, topic knowledge, and content knowledge. Jetton & Alexander

(2004) only list two types of knowledge. In their view, content knowledge consists of the breadth

of the knowledge in a specialized field (e.g., history, physics, mathematics), whereas topic

knowledge is related to the readers' familiarity with the subject or concepts contained in the

passage to be read (e.g., democratic forms of government, force and motion, surface area

calculations).

Cultural knowledge of the information presented, which represents the second type of

background knowledge proposed by Grabe (2009), has repeatedly been found to be a

determining factor of text comprehension in studies with L2 readers (Johnson, 1982; Pritchard,

1990). In his regularly cited study on the effect of cultural background knowledge on reading

comprehension strategies conducted with American and Palauan eleventh grade students, Pritchard (1990) identified two main findings. First of all, the students recalled significantly more text units in the culturally familiar passages than in the culturally unfamiliar ones, and the cultural familiar passages caused them to produce more elaborate recalls. Secondly, the cultural schemata appeared to influence the types of strategies that the students deployed (Pritchard, 1990).

Johnson's (1982) research also bears mention in relation to cultural content familiarity, even though her study was conducted with 72 advanced university ESL students. She studied the effect of students' prior cultural experience with a familiar aspect of a common American custom, Halloween, compared to information related to an unfamiliar aspect of the custom, and investigated whether pre-teaching of unfamiliar vocabulary words would impact recall as opposed to the presentation of the vocabulary during the reading event. The results of the study did not support the notion of benefits derived from vocabulary instruction prior to reading, as the exposure to the target vocabulary did not impact prior knowledge sufficiently to have a significant effect on reading comprehension. The only determining factor appeared to be prior existing knowledge (Johnson, 1982). Having established the importance of content and topic knowledge as well as cultural background knowledge, the question that arises next is whether there are certain other features within a text that require a reader's attention to the point that background knowledge needs to be activated.

Linguistic features. The variables that impact text complexity for individual readers from a linguistic point of view consist of vocabulary and syntax (Alderson, 2000; Koda, 2004). Numerous studies have shown strong reading-vocabulary relationships with students at various age groups and across different cultures and languages (Beck, Perfetti & McKeown, 1982;

Laufer, 1997; Qian, 1999; Qian, 2002; Stanovich, 1986; Stanovich, 2000; Thorndike, 1973). For example, in their study of twenty-seven elementary school children who received 5 months of intensive vocabulary instruction through semantic categories, Beck and her colleagues (Beck et al., 1982) established that the experimental group had not only learned more vocabulary than the control group, but showed better comprehension of texts where these words occurred.

Torgesen and his colleagues describe vocabulary knowledge as the "breadth and depth of knowledge about the meaning of words" (2007, p. 10). Before readers arrive at determining the meaning of a word, they need to recognize the word on the page, and they need to do so effortlessly and with a high degree of automaticity (Grabe, 2009; Stanovich, 2000). Automaticity in word recognition is important because decoding and comprehension compete for the reader's short-term memory capacity (Kern, 1985; Perfetti, 1985).

The number of words a reader must know to readily comprehend text is staggeringly high. A 98% threshold of known words to understand a text has been posited by different researchers (Carver, 1994; Hu & Nation, 2000). When they considered three text short novels, Hirsh and Nation (1992) discovered that knowledge of approximately 5,000 word families would be needed to complete the reading task at the 97-98% coverage threshold. Grabe (2009) cites reports of several vocabulary researchers who estimate that graduating high school students would be likely to have a lexicon of approximately 40,000 words.

When considering the running count of 2000-word academic text, Nation (2001) found that about 80% of the words were high frequency. They included both function words like "the" or "a" and content words such as "government", "adoption", or "represent". The remaining words involved a more specialized lexicon and were distributed among the three categories of academic vocabulary (9%), technical vocabulary (5%), and low-frequency (5%) (Nation, 2001).

Related to this text analysis Levine and Reves (1990) determined that second language readers of academic text deal more easily with special terminology than they do with general vocabulary.

Successful readers come to the reading task with a substantial vocabulary base which they further built up through exposure to text. Adolescents who do not possess a large enough vocabulary to be successful need to be instructed on selected new vocabulary (Beck, McKeown & Kucan, 2002; Torgesen et al., 2007). They also need to learn word analysis skills (Nation, 1990), as students after third grade learn new words both through inferring their meaning through the context and through knowledge of morphology (Graves, 2000). Strategies can assist readers to overcome comprehension issues when they come across unknown words by engaging in a "psycholinguistic guessing game" which involves the consideration of context clues (Goodman, 1976). Readers can also decide to derive the word's meaning through their knowledge of morphology, or they may employ their morpho-syntactic knowledge to determine the word's part of speech from its position in the sentence (Anderson, 1999; Grabe, 2009; Guarino & Perkins, 1986).

Syntax is the second linguistic variable that has been proposed as a factor in students' comprehension and ability to recall information (Grabe, 2009; Hudson, 2007). Grammar knowledge and grammar sensitivity have been shown to impact both the level of understanding and the process of reading (Siler, 1974; Siegel & Ryan, 1988). Investigating the effects of syntactic and semantic violations and their interaction on second and fourth grade students' oral reading performance, Siler (1974) found syntax to have a higher effect than semantics. Participants who violated sentences syntactically during the oral reading task also violated them semantically, but the reverse was not the case. He also noted that the syntactic and/or semantic violation remained intact across grade levels (Siler, 1974).

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Siegel and Ryan (1988) studied a total of 282 students aged seven through fourteen, half normally achieving students and half students with two different learning disabilities (reading and arithmetic) or with attention deficit disorder. In this study, grammatical sensitivity was measured through four distinct tasks, the ability to correct grammatically incorrect sentences, understanding of acceptable word order, control over regular and irregular morphological features, and the ability to remember varied grammatical structures. The researchers found that normally achieving students developed grammatical sensitivity in the early elementary grades, whereas students with reading disabilities became aware of basic grammatical language functions later and still lagged behind in middle school. Additionally, students with a reading disability scored lower on all tasks than the other students (Siegel & Ryan, 1988). These results illustrate that syntactical awareness or knowledge impacts the performance on reading tasks.

Form-related features. Text variables have been investigated by L1 and L2 specialists in numerous disciplines, including literacy, linguistics, communication, rhetoric, cognitive psychology, and sociology (Alderson, 2000; Hedgcock & Ferris, 2009). Research conducted in these fields has supported the assumption held in L1 and L2 reading research and instruction that texts have structures above the sentence level, and that patterns of organization directly influence how writers compose texts and how readers read them (Jiang & Grabe, 2007). Different terms have been utilized to describe this phenomenon, including rhetorical organization, discourse structure, text type, or text structure.

Meyer and Rice have described text structure as " how the ideas in a text are interrelated to convey a message to a reader" (1984, p. 319). According to Dole and his colleagues (Dole et al., 1991), knowledge of text structure encompasses both story grammar knowledge for narrative text and general knowledge of the overall or top-down structure of expository text. Meyer and

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Rice (1984) provide a valuable review of research studies that illustrate the role of knowledge about text structure in readers' ability to distinguish important from unimportant information as well as in recalling information.

Classroom research has shown that expository texts cause readers to experience more comprehension difficulty than narrative text (Taylor & Beach, 1984; Sáenz & Fuchs, 2002), but that text structure instruction can help both L1 and L2 students comprehend expository text (Carrell, 1985; Taylor & Beach, 1984). Sáenz and Fuchs (2002) researched the effect of text structure on reading fluency and comprehension with 111 high school students enrolled in remedial reading and special education classes. The participants read two narrative and two expository texts aloud and then verbally answered ten comprehension questions. The researchers reported that not only did expository text result in less fluent reading, but this type of text also significantly impacted the students' comprehension.

Taylor and Beach (1984) conducted a seven-week reading instruction study with a total of 114 middle school students who were assigned to one of two instruction groups or a control group. The experimental instruction group received instruction and practice in the production of a hierarchical summary of social study material covered in class. The second group received conventional directed reading lessons that required written answers with the same material, whereas the control group did not receive any special instruction on the material. Pre-post test and written recall analyses showed that the instruction and practice of hierarchical summary enhanced students' recall for relatively unfamiliar social studies material and resulted in higher post-test results compared to the other two groups for the passage of relatively unfamiliar text. Both the experimental group and the conventional instruction group had higher post-test scores on relatively familiar material than the control group. The researchers hypothesized that when

reading familiar material the rigor of the hierarchical summary procedure may not be necessary, as the students are able to process the gist of the material without it.

Although conducted with adult ESL students, Carrell's (1985) training study related to text structure deserves mention here because the texts used in the instruction were highly reflective of the types of text that students at the secondary level typically encounter. The five-week study involved 25 adult intermediate-level ESL students who were assigned either to an experimental group that received training on top-level rhetorical organization of expository discourse, or a control group that performed linguistic operations with the same texts that consisted of grammar exercises, sentence analysis, cohesion and vocabulary practice. Carrell found that the experimental group recalled significantly more information from the two texts read for the post-test than the control group in high-level idea units, medium-level idea units, and low-level idea units. Additionally, the experimental group's means for high-, mid- ,and low-level idea units recall were higher than those of the control group. Carrell concluded that the overt teaching about top-level rhetorical organization of text had facilitated the ESL students' reading comprehension.

Affective Elements

The impact of affective factors on learning outcomes has been investigated by educational psychologists for quite some time. Practitioners at all levels, but especially at the middle and high school levels have talked about the difficulty of working with disengaged students:

As anyone who has spent time with middle and high school students can attest,

attempting to build the skills of disengaged adolescents is a futile enterprise.

Whether expressed as defiant noncompliance or passive "checking out," the

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student who refuses to learn will succeed in that effort. (Learning Point

Associates, 2005, p. 6)

Specific to reading in the L1 setting, Guthrie and colleagues studied and presented empirical

evidence of the direct positive effect of motivation and engagement on reading comprehension

and learning (Guthrie, 2001; Guthrie & Wigfield, 2000; Wigfield & Guthrie, 1997; Guthrie,

Wigfield, Metsala & Cox, 1999). However, since their empirical work on Concept-Oriented

Reading Instruction (CORI) was conducted with students in elementary school, and focused on

the role of intrinsic motivation in facilitating reader engagement in instructional reading and

learning settings, this line of investigation is not directly connected to the present study.

As McKenna, Kear, and Ellsworth's (1995) national survey has shown, students'

attitudes toward recreational and academic reading changes considerably between first and sixth

grade, going from positive to indifferent. Given this trend of declining positive attitude toward

reading, students' attitudes in the upper middle and high school grades are likely to be similar if

not more pronounced. Secondly, the situational context of standardized reading achievement

tests does not lend itself to the application of engaged reading behaviors as described by Guthrie

and his colleagues. They cannot display self-directed behavior by starting and stopping their

reading "at appropriate times" (Guthrie, Wigfield & Perencevich, 2004, p. 57); they cannot be

socially interactive and question each other on the author's intent or their understanding of the

text; and they are most likely more driven by the extrinsically motivated performance goal of

obtaining as high a score as possible rather than being mastery-oriented. In short, the high-stakes

testing situation does not foster the kind of reading motivation in which the individual's long-

term "goals, values, and beliefs with regards to topics, processes and outcomes of reading"

(Guthrie & Wigfield, 2000, p. 405) come into full play as they would in an instructional situation.

A line of research on affective factors and reading comprehension that does offer the potential of linking the reading process to outcomes in the context of standardized testing is that of interest, especially in the case of situational interest which is short-lived and caused by either text or test (Krapp, Hidi & Renniger, 1992). In their examination of the multidimensional nature of learning from text, Alexander and Jetton (2000) identified, among others, the role of reading goals and interests as important elements in the reading process. Within interest, important analyses of learning theory and empirical research on motivation and interest were conducted by Schiefele (1991) who asserted that interest is always determined by content, and is directly related to specific activities, tasks, and topics or subjects.

Personal interest in the domain has been shown to affect reading comprehension by numerous researchers. For example, Alexander, Jetton, and Kulikowich (1995) reported on two experiments that investigated the interrelationship between subject-matter knowledge, interest, and recall of lengthy passages in physics and immunology. Although the research was conducted with undergraduate and graduate students and not with secondary school-aged students, the findings bear notice since no main difference was found between the undergraduate and graduate students, pointing to a stable phenomenon. Additionally, content-area expository text, as previously explained, presents a large proportion of text types and passages from which adolescent readers are expected to learn. Alexander et al. (1995) found that students performed lower on the written recall task than their peers when they had little topic or domain knowledge and reported general disinterest in said topic or domain. Other studies confirming such findings

have led to general agreement among L1 reading researchers that "a positive relationship exists between personal interest, prior knowledge, and comprehension" (Brantmeier, 2006, p. 91).

Second language reading research settings have not yet yielded such consensus. As Brantmeier (2006) and Grabe (2004) correctly state, SLA research has produced a significant amount of research findings that suggest a positive relationship between motivation, interest, and L2 learning. When applied to L2 reading research settings, however, there are not only significantly fewer studies, but the evidence presented indicates little effect of interest and topic knowledge on comprehension. Carrell and Wise (1998) did not detect a significant relationship between prior knowledge and topic interest on multiple choice tests in their sample of 104 Spanish-speaking students who were enrolled in an English for Academic Purposes program.

Similarly, Brantmeier (2006) reported on a study with young adult learners of Spanish in which she found that the participants' source of interest was similar to that in L1 studies, namely cohesion, prior knowledge, engagement, and emotiveness. However, the only source of interest that was related to the three different comprehension assessment tasks was unique to this L2 study: ease of recollection (Brantmeier, 2006). Also different from L1 research was her finding that situational interest in the content neither inhibited nor assisted written recall. Based on these findings, Brantmeier (2006) warned against the inclusion of interest as a firm factor in the Unexplained Variance dimension of Bernhardt's Compensatory Model of Second Language Reading (2005) without further exploration of relationships among sources of interest and L2 reading.

<u>English Language Learners</u>

The growth in immigrant populations that has become a topic of political discussion only relatively recently, especially during election cycles, has been evident to demographers and

educators for quite some time. Miller, Miller, and Schroth (1997) warned early on that public schools should pay attention to the prediction of ELLs in the system. Due to the young age of newcomers to the United States, "schools have felt the impact of population changes in the later part of the 20th century and the beginning of the 21st more rapidly and more dramatically than other social and governmental institutions" (Lessow-Hurley, 2003, p. 1). The ELL population represents indeed the fastest growing segment of students in public school systems across the United States (Genesee, Lindholm-Leary, Saunders & Christian, 2006).

In the federal literature, English language learners are designated as limited English proficient (LEP). Section 9101 (25) of the No Child Left Behind Act defines an LEP student as:

- an individual aged 3 through 21 enrolled or preparing to enroll in an elementary or secondary school who was not born in the United States or whose native language is a language other than English; or

- is a Native American or Alaska Native, or a native resident of the outlying areas who comes from an environment where a language other than English has had a significant impact on the individual's level of English language proficiency; or

- is migratory and whose native language is a language other than English and who comes from an environment where a language other than English is dominant and whose difficulties in speaking, reading, writing, or understanding the English language may be sufficient to deny the individual the ability to meet the state's proficient level of achievement on state assessments, the ability to successfully achieve in classrooms where the language of instruction is English; or the opportunity to participate fully in society.

Recent demographic studies have revealed that there are between 5.1 and 5.5 million

ELLs enrolled in public school systems around the country (Ballantyne, Sanderman & Levy,

2008; Short & Echevarria, 2005). Until recently, the largest numbers of ELLs in schools have

been concentrated in a few states, namely California, Texas, New York, and Florida, but new

pockets of growth are appearing throughout the nation. While these states' ELL population

growth is remaining relatively stable, some states have been experiencing growth rates greater

than 200% in recent years, and reported having an ELL population of at least 5% in the public

school systems during the 2005-06 school year (Klingner & Vaughn, 2004; National

Clearinghouse for English Language Acquisition, n.d.).

It is important to point out that roughly 57% of ELLs were born in the United States

(Batalova, Fix & Murray, 2005), with only 24% of ELLs in the elementary grades and 44% in

secondary school, respectively, having been born in a foreign country (Capps et al., 2005).

Concerns have been raised over the number of second and third generation ELLs whose English

language skills are lacking even after many years of schooling in the United States, and new

attention is being focused on these long-term ELLs (Menken, Kleyn & Chae, 2009).

Kindler examined state-reported data from the 2000-01 school year and found over 460

languages spoken by the ELL population (Kindler, 2002). She reported that the most commonly

spoken language during that school year was Spanish (79%), followed by Vietnamese, Hmong,

Cantonese, and Korean which added up to 5.6%. The most recent statistics in Florida listed 229

different languages during the 2008-09 school year. The detailed data mirror the cited large

number of Spanish-speaking students (74%), but differ from national trends in that eleven

percent of ELLs spoke Haitian-Creole, while Vietnamese, Portuguese, and Arabic rounded out

the first five positions, each language being spoken by 1.20, 1.18, and .80% of ELLs, respectively (Florida Department of Education, 2009).

Language and country of origin are by far not the only diversity factors among the ELL students. Instead, their diversity stems from a wide range of experiences and situations that directly affect their academic achievement in both palpable and more subtle ways. These factors include, but are not limited to, age of arrival in the United States, English language proficiency, levels of literacy in both their native language and English, sociocultural background, personal experiences in coming to and finding a place in American society, and prior educational experience (August & Shanahan, 2006; Kamil, 2003; Peregoy & Boyle, 2000; Short & Fitzsimmons, 2007).

Some ELLs arrive in the United States with high levels of academic knowledge and skills gained in their native country. Their main challenge is to learn enough English quickly enough to understand and be able to participate in American schools. Others arrive with limited schooling due to socioeconomic or political reasons. According to Ruiz-de-Velasco and Fix (2000), between 12 and 20% of middle and high school immigrants in the United states had missed two or more years of school. Students with these situational backgrounds require not only English language instruction, but intensive literacy and content instruction to build necessary background knowledge and skills to succeed academically. Academically, they indeed have to do double the work (Short & Fitzsimmons, 2007) of their native English-speaking peers. At the same time, these students and their parents have to learn about the educational system, school culture, and their new community.

In comparison to their English proficient peers, disproportionate numbers of adolescent ELLs qualify for free or reduced price lunch (Ballantyne et al., 2008). Demographic data also

show that 26% of ELLs come from homes where parents had not completed ninth grade, and where 35% had not completed high school. This compares to 4% and 9%, respectively, of parents of students who are proficient in English (Capps et al., 2005). All these socio-cultural, situational, and experiential factors, alongside the personal attributes that impact all students, contribute to the unique challenges that ELLs face to stay in school (National Center for Educational Studies, 2004) and to reach satisfactory performance levels on standardized assessments (Center on Education Policy, 2007; Short & Fitzsimmons, 2007).

Vast differences in achievement levels were reported in the 2005 National Assessment of Educational Progress between ELLs, those labeled former ELLs who are ELLs who had passed their state's English language proficiency test within two years prior, and non-ELLs. As already stated in the previous chapter, 27% of non-ELLs had scored below the basic level. This number stood at 34% for former ELLs, and climbed all the way to 71% for ELLs (Perie et al., 2005). At the state level the statistics proved equally disconcerting for the 2000-2001 academic year when over 81% of ELLs did not meet state norms for reading in English (Kindler, 2002).

Given the challenges ELLs face to attain academic achievement levels set by state standards and federal rules, the need for differentiation of literacy instruction and appropriate selection of English as a Second Language (ESL) programs for ELLs cannot be overstated and is repeatedly one of the recommendations made to teachers, school principals, and policy makers by reading experts (Kamil, 2003; Short & Fitzsimmons, 2007; Torgesen et al., 2007). However, as García states, "research on the development and instruction of reading comprehension for school-age English-language learners is relatively limited" (2000, p. 31). Short & Fitzsimmons (2007) voice similar concerns regarding the inadequate research base on the developmental needs of adolescent ELLs (Short & Fitzsimmons, 2007). Despite these limitations in terms of

the specific population of L2 (i.e., struggling secondary school-aged ELLs in the United States), educators can draw upon a wealth of research on L2 reading that can inform their practice.

<u>L2 Reading</u>

The fact that L1 reading research has borne undeniable and long-lasting influence on L2 reading research is readily acknowledged by experts in the field (Alderson, 2000; Bernhardt, 2000; Fitzgerald, 1995; García, 2000; Grabe, 1991; Grabe, 2009; Hedgcock & Ferris, 2009; Koda, 2004). For some time, as evidenced by Alderson and Urquhart's declaration, the widely held belief was that the reading process in L2 is highly similar to reading in the native language: "[…] it is not clear to what extent reading in a foreign language is different from reading in a first language" (1984, p. xv). This view held strong until the 1990s when Grabe pointed out that the two processes were very much the same, although L2 reading was subject to "a number of additional constraints on reading and its development" (1991, p. 11).

Children, even those brought up in bilingual contexts, typically learn to read in one language before they are taught to read in the second language. The onset of reading in the L2 may occur at a young age or later in life. The general understanding is that once these L2 learners encounter written text in the L2 for the first time, they have more world knowledge and more highly developed cognitive resources available than when they encountered written text in their native language for the first time (Grabe, 2009). On average, according to Grabe & Stoller (2002), children have approximately 7,000 words stored in their heads and have tacitly learned grammatical structures of their L1 when they begin to read it. Second language learners may not have that knowledge when they first come across text in the L2.

By its very nature, reading in the L2 denotes the presence of a first language. This fact points to the presence of cross-linguistic processes in L2 reading to which L1 readers do not need

to attend to (Bernhardt & Kamil, 1995; Koda, 2004). So while researchers spotlight many similarities between L1 and L2 reading, there are substantial differences that need to be considered as well. It is this interplay of similarities and differences between L1 and L2 reading that make L2 reading research "simultaneously a subfield and a microcosm of literacy issues" (Bernhardt, 2000, p. 804). The empirical investigations into this interplay that took place during the 1990s resulted in the only existing model of L2 reading upon which current investigations can be based.

Compensatory Model of Second Language Reading

Bernhardt arrived at the model as a result of several analyses of empirical L2 reading research that span thirty some years (Bernhardt, 2005). In its first iteration based on psycholinguistics and schema theory-oriented studies conducted the 1970s and 1980s, Bernhardt (1991) illustrated the relationship of error rate to the development of language proficiency. Greatly influenced by L1 reading research, the model encompassed lower-level processes such as phono-graphemic features, word recognition, and syntax as well as two higher-level features which consisted of reader background knowledge and perceptions. In the 1990s L2 reading researchers shifted their interest from psycholinguistic matters and schema theory to the investigations of the linguistic interdependence hypothesis (Cummins, 1979) and the linguistic threshold hypothesis (Cummins, 1976), both of them being rooted in the general field of second language acquisition (SLA). By the turn of the century, new findings along these lines of inquiry caused Bernhardt to reconsider her earlier conceptualization of the L2 reading process (Bernhardt, 2000; Bernhardt, 2005).

In the revised model (see Figure 1 in Chapter One), L2 reading is a depiction of the relationship between L2 reading comprehension (Y axis) and the development of L2 reading

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proficiency (X axis) (Bernhardt, 2005). Bernhardt (2005) proposes that the factors involved in L2 reading comprehension can be attributed to three dimensions. First Language Literacy contains lower-level skills such as alphabetics, oral/aural language and vocabulary and higher-level linguistic features, background knowledge, knowledge of text structure, and personal attributes of beliefs about word and sentence configuration. Based on the linguistic interdependence hypothesis, these skills, knowledge, and beliefs can be transferred into the L2 reading context to the extent that they are developed in the native language.

The second dimension, L2 Knowledge, is made up of learners' morpho-syntactic knowledge, existence or absence of cognates, and the linguistic distance that exists between the two languages in operation (Bernhardt, 2005). It bears noticing that questions of linguistic distance are important considerations in SLA and, by extension, in general L2 reading research since learners whose L1 exhibits relative closeness to the L2 in terms of cognate vocabulary and word order typically encounter fewer difficulties in comprehending the L2 than those whose have to deal with two languages that are largely unrelated. Since all participants in this study had the same language background (i.e., Spanish), however, issues of linguistic distance were not considered in this review of the literature.

Bernhardt (2005) noted that the shift in focus from general L1 reading theory to L2-specific variables was accompanied by an "acknowledgement of continuous, developmentally constituted variables" instead of the classic discrete variables previously employed. This change facilitated the application of multivariate designs and led to analyses of the contribution of L1 language literacy to L2 reading. Basing the weight distribution of the first two model dimensions on five studies, Bernhardt (2000; 2005) posited that L1 Literacy contributes 20% to L2 reading, whereas 30% is contributed by knowledge in the L2. With these two dimensions adding up to

only half of the variance in L2 reading comprehension, Bernhardt appended the dimension of Unexplained Variance to the model, hypothesizing that its elements would explain the remaining 50% (Bernhardt, 2005).

Unexplained Variance thus consists of factors that both L1 and L2 research have suggested as contributing factors to reading comprehension, factors that are exclusive neither to SLA theory nor to the L2 reading process, but for which no overarching descriptors had been found. Specifically, Unexplained Variance is comprised of factors such as cognitive strategies, interest in the text and engagement in the reading process, content and domain knowledge (Bernhardt, 2005).

As the model's name indicates, Bernhardt (2005) does not view the features within each dimension and the contribution of each dimension as linear operations. Instead, her intent was to "revitalize the conceptualizations of the second language reading process as a juggling or switching process in cognition" (Bernhardt, 2005, p. 140), similar to the compensatory processing Stanovich had suggested in 1980. This means that L2 readers can compensate for comprehension difficulty in one knowledge source by activating skills and knowledge from another dimension.

With the Compensatory Model of Second Language Reading situated and its dimensions and features described, it is now necessary to give a brief explanation of the two constructs derived from SLA theory.

Linguistic Interdependence Hypothesis

The linguistic interdependence hypothesis resulted from Cummins' work with bilingual education students in Canada during the 1970s. It started out as what Cummins (1979) called the developmental interdependence hypothesis, and which evolved into his Common Underlying

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Proficiency (CUP) model (Cummins, 1981). This hypothesis and the resulting model hold that a common set of proficiencies underlies both the first and second languages, and that the development of L1 and L2 skills are functionally interdependent (Cummins, 1979, p. 227). Ellis points out the importance of the notion of interdependence between the two "because it suggests that the development of full L1 proficiency confers not only cognitive and social advantages attendant on mother tongue use but also benefits the acquisition of L2 proficiency" (Ellis, 2008, pp. 307-308).

The level of competence a bilingual child attains is thus partially determined by the type and level of competence she has developed in her L1 by the time she is exposed to the L2 in an extensive manner (Cummins, 1979; Cummins, 1981). In other words, learning to read is accomplished only once. When a certain level of automaticity and fluency is attained in the L1, those underlying skills will transfer to the L2 reading context. Similarly, conceptual knowledge, subject-matter knowledge, reading strategies, and higher-order thinking skills that are paramount to good comprehension can be transferred and applied to the new situation.

Linguistic Threshold Hypothesis

The linguistic threshold hypothesis resulted from a review of existing literature on bilingual development published in the 1960s and 1970s and was also introduced by Cummins (1976). He suggested that the aspects of bilingualism which otherwise exert positive influence on a child's cognitive growth are not likely to come into effect before he has reached a certain minimum of linguistic competence in the L2. The linguistic threshold hypothesis is at times also referred to as the 'short-circuit' hypothesis based on the work of Clarke (1980) and Cziko (1980) who observed that some of their participants who had strong reading skills in L1, displayed poor reading behaviors when reading L2 text. They argued that these readers were short-circuited by

their lack of L2 competence in that they were unable to transfer their L1 cognitive skills to the second language reading context. In other words, their L1 reading skills did not suffice to compensate for the lack of L2 linguistic knowledge. This thought of a linguistic minimum or threshold necessary to facilitate comprehension in L2 reading was reflected in Alderson's now classic question "Is second language reading a reading problem or a language problem?" (Alderson, 1984)

Some have questioned if the linguistic threshold hypothesis may conflict with the linguistic interdependence hypothesis (Grabe, 2009). Others, however, do not subscribe to the view of two contradictory hypotheses. Bernhardt (2005), for example, views these two hypotheses as mutually beneficial. In terms of the interdependence hypothesis, she posits that instead of asking *if* language and literacy skills transfer, the question should be "*how much transfers*, *under what conditions*, and *in which contexts*" (emphasis in original) (Bernhardt, 2005, p. 138). Alternately, in regards to the linguistic threshold hypothesis, she argues that researchers should attempt to clarify the relationship of the three variables of linguistic competence (L2 Knowledge), literacy knowledge (L1 Literacy) and reading ability in the L2 instead of identifying the threshold.

<center>Reading Comprehension Strategies</center>

The above descriptions of reading models and reading processes, and the illustration of requisite skills and knowledge bases for successful reading in both a first and a second language, make it abundantly clear that the extraction of meaning from printed text is an active cognitive undertaking. As learning psychologists moved their focus away from the behaviorist view of sequential mastery of subskills and embraced a cognitivist based view of constructing meaning as a result of interactions between the reader, the text, and the context (Dole et al., 1991), the use

of comprehension strategies took center stage. Comparisons of successful and unsuccessful, good and poor, expert and novice, or skilled and less skilled readers have revealed that reading involves numerous simultaneous actions or strategies on the part of the reader (Bransford, Vye & Stein, 1984; Garner & Kraus, 1982; Garner & Reis, 1981; Kletzien, 1991; Knight et al., 1985; Jiménez et al., 1996; Paris & Myers, 1981; Pressley, Beard El-Dinary & Brown, 1992; Sheorey & Mokhtari, 2001). As a result of research findings on these comparison studies, leading adolescent literacy experts have recommended explicit comprehension instruction that is comprised of teaching reading strategies throughout the curriculum (Biancarosa & Snow, 2006; Kamil, 2003; Kamil et al., 2008; Short & Fitzsimmons, 2007; Torgesen et al., 2007).

Numerous descriptions and definitions of reading strategies have been proposed. Some have been described broadly as processing strategies that help readers make sense of text (Anderson, 1991; Pritchard & O'Hara, 2008). One definition that encompasses the vision of the interaction between the reader, the text, and the situational context under which the reading occurs was put forth by Graesser: "a cognitive behavioral action that is enacted under particular contextual conditions, with the goal of improving some aspect of comprehension" (2007, p. 6).

In addition to the identification and classification of reading strategies which will be described below, strategy researchers have also investigated the role that metacognition plays in comprehension. The term metacognition first appeared in the literature in the early 1970s (Brunning, Schraw, Norby & Ronning, 2004), and by the end of the decade learning psychologists had already concluded that metacognition plays a considerable role in all facets of learning, including oral communication, writing, problem-solving, memory, self-control, language acquisition, and, of course, reading comprehension (Flavell, 1979). Metacognition, in its most basic explanation is thinking about thinking. Some describe it as "knowledge of what we

know" (Grabe & Stoller, 2002, p. 46) or as "a cognitive process where one is aware of his or her own thinking" (Israel, 2007).

In terms of reading comprehension strategies, research has shown that readers have to be metacognitively aware of their actions or use of strategies to comprehend the text, and that good readers are able to reflect on their thinking and comprehension as they engage in the reading task (Baker & Brown, 1984; Baker, 2008). Sheorey and Mokhtari describe metacognitive awareness of reading strategies as "deliberate, conscious procedures used by readers to enhance text comprehension" (Sheorey & Mokhtari, 2008, p. 433).

Paris and colleagues (Paris, Lipson & Wixson, 1983; Paris, Cross & Lipson, 1984) differentiate three kinds of strategy knowledge: declarative, procedural, and conditional. Furthermore, they describe strategic readers as readers who know not only a set of strategies to use, but know how to put them into action, and when and why to employ them. In other words, readers have to monitor their comprehension of the text and adjust the strategies when a break-down of understanding occurs. Guthrie and Taboada (2004) offer a similar description of strategic readers. They explain that strategic readers are deliberate in their use of strategies, and that to perform this deliberate act, they need to have competence in the use of a number of strategies and be aware how strategies help in different situations. Additionally, they underscore, readers have to be motivated to use the strategies. These two portrayals align well with Schraw's explanation that regulation of cognition includes planning of strategy use and monitoring of understanding (Brunning et al., 2004). He also highlights the important role of evaluation after the strategy was employed to ensure that the comprehension problem was solved.

Much of the early investigations into reading strategies, as already stated, consisted of finding out what skilled readers do to comprehend text, compared to what unsuccessful readers

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do--or don't do. Because cognitive and metacognitive processes are neither easily nor directly observable, reading strategy researchers depend on readers' self-report measures to collect data on strategy use. These measures and the method of data collection are described next.

Data Collection Methods

One of the main means of identifying comprehension strategies employed by readers is through the use of verbal reports. The think-aloud is one such form. It is a process in which a reader verbalizes his reading process as he engages with a text. Afflerbach and Johnston (1984) posit think-alouds as a means of measuring the cognitive process of the reader, as well as a direct application of metacognition where readers can utilize verbalization to monitor comprehension. McKeown and Gentilucci (2007) recently argued for the inclusion of think-alouds not only as a data collection tool for reading comprehension research, but indeed for its instructional value in raising readers' metacognitive awareness of the strategies they implement. As such, they suggest, teachers can choose to use think-alouds as a way of modeling reading strategy use to the entire class, work one-on-one with students to find out what strategies are used, how they are used, and when they are implemented. Alternately, teachers can instruct students to engage in think-alouds in pairs or small groups (McKeown & Gentilucci, 2007).

A second way to collect data rooted in qualitative research methods is through the use of retrospective self-reports in the form of structured or unstructured interviews. In this method, the participants typically read a text and respond to some comprehension questions, at times before giving an account of their approach to understanding the text (Farr, Prichard & Smitten, 1990). Also an interview, but not conducted retrospectively in the context of a specific reading task, is the Burke Reading Interview (Goodman et al., 1987). Ten questions elicit responses about participants' thoughts of what other readers do to comprehend text or to repair understanding

when a break-down occurs, their own path of learning to read and reading behavior, as well as a self-assessment of their reading ability. The Burke Interview has been employed as a formal research instrument and has been used by teachers as an informal assessment tool used to gain insight about their students' existing awareness and use of comprehension strategies (Israel, 2007).

The use of think-alouds, reader responses elicited through the use of interviews, and reading questionnaires affords comprehension strategy researchers the opportunity to gain access into the thinking process of readers. Due to their labor-intensive nature, studies that employ qualitative methods of think-alouds and interviews are typically conducted with a limited number of participants. This verbalization of readers' thinking about and their understanding of the text, however, has proven beneficial to the development of the item statements of reading strategy assessments, inventories or questionnaires which can be employed with larger populations (Fitzgerald, 1995).

Metacognitive assessments differ from interviews or think-alouds in that they typically consist of multiple choice tests as in the case of the Index of Reading Awareness (Jacobs & Paris, 1987) or questionnaires that elicit students' self-rated responses of how often they use a list of strategies or how they feel about using them. They contain means of quantifying the students' responses (Israel, 2007). Recently, some researchers have come to question the accuracy of "off-line" self-report methods such as metacognitive questionnaires that are administered before or after the task because they have found evidence that people don't do what they say they do while reading or do not accurately reflect on what they did (Veenman, 2005).

The advantage of instruments that offer such quantitative measures is that they allow for more advanced statistical analysis in comparing groups of participants or in examining the

weight of certain strategies on the single or multiple variables under investigation. They are also

less intrusive than other data collection methods and are easier to administer to larger groups

(Veenman, Van Hout-Wolters & Afflerbach, 2006). The Metacognitive Awareness of Reading

Strategies Inventory (MARSI) is one instrument that asks for the students' estimate of how

regularly they use strategies (Mokhtari & Reichard, 2002; Mokhtari & Reichard, 2004; Mokhtari

& Reichard, 2008). It was designed for use in L1 academic reading contexts and consists of 30

items that measure students' use of comprehension strategies among three separate constructs.

The MARSI's counterpart for academic reading in an L2 reading context is called the Survey of

Reading Strategies (SORS) (Sheorey & Mokhtari, 2001; Sheorey & Mokhtari, 2008). It was the

instrument used for measuring strategy use in this study and will be further described in the next

section, as well as in Chapter 3.

Categorization of Comprehension Strategies

Descriptive studies of comprehension in L1 readers have revealed more than 30 cognitive

and metacognitive processes that take place during reading (Block & Pressley, 2002). In a meta-

analysis of cognitive reading processes conducted with ESL students in the United States

between 1980 and 1995, Fitzgerald (1995) estimated that over 50 different metacognitive

strategies had been reported across seven studies. As a result of such high numbers of cognitive

and metacognitive strategies found through reader self-report measures as described above,

researchers have devised various classification schemes to organize and describe them

(Anderson, 1989; Block, 1986; Mokhtari & Reichard, 2002; Pritchard & O'Hara, 2008; Sheorey

& Mokhtari, 2001).

Block (1986) separated the fifteen strategies L1 and L2 readers had reported through a

think-aloud procedure into two categories: *general strategies* which she portrayed as the type of

strategies readers used to gather and to monitor comprehension, and *local strategies* that can be described as efforts to understand specific linguistic units of the text that range from questioning and solving a word problem to rereading. Additionally, she identified whether the responses indicated that the participants tended to respond in *reflexive mode* or in *extended mode*. The former was described as actions which showed that the participants directed their attention away from the text and onto themselves, whereas in the latter the focus of their feelings and thoughts remained on the text (Block, 1986).

In his study designed to examine the difference in strategy use under two distinct situational contexts, taking a standardized test and reading an academic text, Anderson (1991) used twenty-eight Spanish-speaking students enrolled in an ESL program at an American university who reported their use of strategies under the two experimental conditions through think-alouds. Anderson (1991) identified forty-seven individual reading strategies and classified them into five distinct categories after consulting other researchers' categorization schemes. The first category, labeled *supervising strategies*, consists of strategies that are above the detail level of the text. They include metacognitive strategies such as stating failure or success in understanding and monitoring strategies like referring to previous passage, adjusting reading rate to increase comprehension or making predictions about a word or text content. The next two categories, *support strategies* and *paraphrase strategies*, contain mainly strategies that help readers make sense of the text at the paragraph, sentence, or even word level through skimming for general understanding, visualization of information, breaking lexical items into parts, translating words or phrases into Spanish, or speculating from information encountered thus far.

The category *strategies for establishing coherence in text*, contains strategies that are typically linked to linguistic, form-related, and topical background knowledge. Examples of

these strategies are relating the stimulus of a sentence to a personal experience, rereading, reacting to author's style or text's surface structure, and straight-out declarations of background knowledge connections. Lastly, Anderson identified 18 *test-taking* strategies that vary from selecting answers based on matching stem and/or alternatives to portions of the text, guessing without particular consideration or to simply fill the space, reading questions and options before reading the passage, changing answers, or skipping a question to return to it at a later time.

The most recent of the reading strategy studies that contain a classification of processing strategies is that of Pritchard and O'Hara (2008) who conducted a reading strategy instruction study with eleventh-grade Spanish-English bilingual students. As was the case in the above described studies, the students reported strategy use through a think-aloud. Twelve strategies were identified and placed in a framework of four strategy categories. In the *Monitoring Comprehension* group the researchers positioned four strategies that indicated instances in which the readers recognized that they had encountered a problem which led them to take action to address the problem. Two strategies, rereading and paraphrasing, were classified under *establishing intrasentential ties* as these strategies indicated the readers' attempt to understand a specific part of the text without connecting it to other portions of the text. Conversely, the two strategies listed under *establishing intersentential ties*, relating to previous portions of the text and extrapolating from information in the text, show that the readers had stepped beyond the immediacy of the sentence or paragraph. *Establishing intertextual ties,* finally, consists of four strategies that showed that the readers reacted to what they were reading and constructed understanding of the text.

The various categorization schemes of strategies evoked by readers who engaged in think-aloud protocols have assisted researchers in constructing assessment instruments that

measure the self-perceived use of reading strategies. The MARSI and the SORS, as already stated, are two such instruments used for measuring first and second language readers' self-perceived strategy use (Mokhtari & Reichard, 2002; Mokhtari, Sheorey & Reichard, 2008; Sheorey & Mokhtari, 2001). Both instruments consist of thirty strategies that belong to three separate constructs. *Global strategies* are techniques readers plan carefully and apply intentionally to monitor or manage their reading, such as activating background knowledge or the use of tables and figures. *Problem-solving strategies* measure the actions and procedures that readers use specifically to assist comprehension of difficult words or passages, repair loss of comprehension, or improve overall comprehension. The final category, *support strategies*, contains strategies that readers use at the word or sentence level, such as using a dictionary and underlining information, as well as at higher textual levels like paraphrasing portions or going back and forth within the text to find relationships between ideas.

Unless it is for the design of a research instrument such as the Index of Reading Awareness (Jacobs & Paris, 1987) or MARSI/SORS (Mokhtari & Reichard, 2002; Mokhtari et al., 2008; Sheorey & Mokhtari, 2001) described above, the categorization of comprehension strategies is not typically the purpose of research studies. Such taxonomies do offer, however, a convenient means to summarize strategy use, while providing rich descriptions of the thought processes associated with the objects of study. Reading strategies research has been applied to investigate many different variables associated with the reader, the text, and the situational context of the reading act. A brief summary of these variables rounds out the discussion of reading strategies research.

Reader, Text, and Situational Context Variables in Strategy Research

The examination of the number and types of strategies used by more and less accomplished readers was a popular investigation early on in the quest of determining which strategies were employed among both good and poor L1 readers (Paris & Myers, 1981), between L1 and L2 readers (Pritchard, 1990) and among L2 readers (Anderson, 1991; Carrell, 1989). Paris & Meyers (1981) reported three major findings based on two experiments with 70 successful and unsuccessful elementary school students. First, the good readers used significantly more monitoring than poor readers. Poor readers were also less successful in utilizing monitoring skills to resolve comprehension break-downs, and they appeared unaware that certain strategies had a negative impact on their comprehension (Paris & Myers, 1981).

The use of strategies of L1 readers compared to that of their bilingual counterparts has yielded interesting results that show the profound influence of language proficiency levels on L2 students' choice of strategies, although both groups reported using approximately the same number of strategies (Carrell, 1989; Jiménez et al., 1996; Knight et al., 1985; Sheorey & Mokhtari, 2001). Jiménez, García, and Pearson's (1996) study of 14 sixth and seventh grade students, eight bilingual students who were deemed as successful readers in English, three bilingual students considered marginally successful in reading English text, and three monolingual English speakers who were also regarded as successful readers, is frequently cited in this line of inquiry. The three researchers discovered that successful Latina/o readers had a unitary view of reading in which reading in English really means just learning another set of vocabulary and a phonological system. These same students also held the belief that knowledge of bilingual strategies (e.g., cognates and translations) contributed to their success (Jiménez et al., 1996).

When compared to the Anglo readers, Jiménez et al. (1996) found that successful Latina/o readers had the closest similarity with their less successful counterparts in their frequent need to identify unknown vocabulary. An important difference became apparent in that the moderately successful L2 readers thought that finishing the task was more important than reading comprehension. Additionally, this group of students displayed monitoring by identifying problems in comprehension, but they did not know how to resolve these problems, and they saw no difference in reading text in Spanish or in English. The authors suggested that these students approached all texts the same way and viewed bilingualism as an obstacle rather than a benefit through transference of knowledge. They thus stated that bilingual students should be instructed on the benefits of strategy transfer from reading in Spanish to reading in English.

Anderson (1991) found that more English proficient ESL students used a wider variety of metacognitive strategies and did so more frequently than the students with less well developed English skills. However, he did not detect any difference in the most frequently reported metacognitive strategies among the two groups. Carrell determined that among the 45 native Spanish speakers who participated in the study the students with higher English proficiency speakers used more global metacognitive strategies which she described as "text-gist, background knowledge and text organization" (1989, p. 125). These high proficiency students also appeared more persistent in the application of metacognitive strategies than the students with lower English proficiency levels.

Like Anderson (1991), Block (1986) found that ESL students used selected metacognitive strategies, but since her study involved native English speakers in addition to Spanish speakers, Block was able to compare the use of strategies between the two language groups. She reported that language background did not influence the types of strategies used, and

that the ESL students monitored comprehension quite similarly to their native English speaking peers.

Similar to Block's (1986) study, Sheorey and Mokhtari (2001) used proficient or advanced readers to investigate if high level competence in the second language affects the students' awareness of reading strategies or results in their using strategies similar to those used by comparable native-speakers. The researchers hypothesized that even though the two groups examined in the study had the requisite language proficiency for reading academic text at the college level, they would have different strategies as a result of their differences in social, cultural, and educational backgrounds.

The study findings revealed a difference between ESL and US students' use of support strategies with the ESL students reporting considerably higher use than their American peers (Sheorey & Mokhtari, 2001). Additionally, there was no difference in the reported usage of metacognitive and cognitive strategies reported by those US and ESL students who had rated themselves as "very good" or "excellent" readers, whereas the students who perceived themselves as low ability readers exhibited lower usage of these two categories of strategies. Within group differences became evident when the highly proficient and low ability students' usage of strategies was compared. The US high-ability group seemed to consider support strategies more often than the US low-reading-ability group, in contrast to the ESL students who held the support strategies in high value, regardless of reading ability. The authors deduced from the findings that both native and non-native students should be aware of the significant strategies required of readers in order to be proficient comprehenders (Sheorey & Mokhtari, 2001).

The vast majority of comprehension strategy research has been conducted with participants who were asked to read informational text that is representative of the type of text

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they would typically encounter in their respective learning environments. In recent years researchers have fine-tuned their attention on academic text to investigate various reading purposes (e.g., Bråten & Samuelstuen, 2004; Mokhtari & Reichard, 2008). In their study with 65 eleventh-grade students who completed the MARSI twice, the first time considering their strategy use while reading text for a class assignment and the second time reporting the ones they used when reading for entertainment or pleasure, Mokhtari and Reichard (2008) reported significant differences in the strategy use between the two reading purposes. The students indicated that they used global and support strategies more frequently when reading for academic purposes, but there was no statistically significant finding for problem-solving strategies between the two types of reading. Although the differences were not statistically significant, the data also revealed that more skilled readers employed the strategies they had identified less often than did the students with lower reading ability.

Bråten and Samuelstuen (2004) examined how reading for different study purposes, reading in preparation for a text, reading in preparation for writing a summary, and reading in preparation to a group discussion, affected the use of strategies among 269 Norwegian tenth-grade students. They also wondered whether the influence of reading purpose would be moderated by the students' prior knowledge of the topic. Four regression analyses with topic knowledge and reading purpose as predictors were conducted. Findings were that students did adjust the reading strategies to the reading purpose (Bråten & Samuelstuen, 2004). Additionally, several interactions with background knowledge were discovered. Students with higher levels of topic knowledge who read for test preparation, for example, reported using more memorization strategies than students who read for summary purpose. However, since no comprehension assessment task was used in the study, the researchers were unable to state whether the reported

strategies contributed to comprehension within the reading purpose (Bråten & Samuelstuen, 2004).

A limited number of researchers have investigated the use of comprehension strategies under testing conditions. Three studies were conducted with students in an L2 setting (Anderson, 1991; Phakiti, 2003; Purpura, 1997), and one with American college seniors reading in their native language (Farr et al., 1990). Strategy use was determined both by think-aloud and retrospective interview verbal protocols (Anderson, 1991; Farr et al., 1990) and through the administration of strategy use questionnaires (Phakiti, 2003; Purpura, 1997). As could be expected, testing strategies or test-taking style played an important role in all studies. Phakiti (2003) found a positive, but weak, relationship between the use of cognitive and metacognitive strategies and test performance. Furthermore, a statistically significant difference in the use of strategies was found among three levels of test performance, highly successful, moderately successful, and unsuccessful. Highly successful test-takers displayed significantly greater metacognition than the other two groups. The highly successful test-takers tended to be aware of how and why a strategy was employed (Phakiti, 2003).

Farr et al. (1990) coded the strategies reported through retrospective interviews and assigned a weight for each strategy a participant had listed, depending on the relative importance the strategy had for them. They identified three types of processing behavior: overall approach to the test task determined by whether the participants read any part of the passage before attempting to answer the questions, reading strategies, and test-taking strategies. The overlap of cognitive strategies for text comprehension and for test-taking was found to be considerable, but Farr et al. (1990) reported relatively few strategies that were categorized as reading comprehension strategies. By and large, the participants paid little attention to strategies that

provide an overall understanding of the text (Farr et al., 1990). The researchers also determined

that the participants were driven by getting to the questions as quickly as possible, whether they

engaged in partial or full passage reading before looking at the questions or not.

Summary

The construction of meaning from printed text is an active process that is based on

interaction between the reader, the text, and the situational context (RAND Reading Study

Group, 2002; Weaver, 2002). Most adolescent readers have mastered the basic reading skills that

allow them to read fluently, but many do not possess the ability to comprehend what they read

(Biancarosa & Snow, 2006; Brown, 2002; Greenleaf et al., 2002; Underwood & Pearson, 2004).

Consequently, they perform poorly on standardized measures of reading achievement, as

evidenced by the large percentage of students who do not possess partial mastery of skills to

perform academic work at grade level (Grigg et al., 2007; Lee et al., 2007; Organisation for

Economic Co-operation and Development, 2004; Perie et al., 2005).

The reading difficulties faced by native English speaking secondary school students are

even more pronounced for ELLs who are unable to meet state norms for reading in English in

disproportionate numbers (2002). Teachers, partially due to the large difference among ELLs in

terms of English language proficiency, background knowledge, and literacy skills in their native

language, struggle to help these students develop the necessary literacy skills to succeed in

school and pass high-stakes tests. One of the recommendations made by various groups of

literacy experts who have reviewed the skills needed to be a successful comprehender of the

multiple texts that surround society in the twenty-first century is that of explicit comprehension

instruction that is comprised of teaching reading strategies throughout the curriculum and for all

students (Biancarosa & Snow, 2006; Kamil, 2003; Kamil et al., 2008; Short & Fitzsimmons, 2007; Torgesen et al., 2007).

The theoretical and research foundations for the present study were provided in this chapter. The first section of this literature review contained a discussion of academic reading that included a description of the types of texts adolescent readers encounter in school settings and a presentation of the situational contexts under which they typically perform academic reading. In the second section, the needs of adolescent readers were illustrated, as were the types of knowledge required to comprehend text and the affective elements that impact success on standardized reading achievement tests.

A portrait of the growing population of English language learners and their needs was followed by the depiction of the Compensatory Model for Second Language Learning (Bernhardt, 2005) and the description of two linguistic hypotheses rooted in second language acquisition that have been shown to impact L2 learning and reading. The final section of the chapter consisted of a discussion of the role of metacognition and metacognitive awareness of reading strategies in the reading process, which was followed by a detailed presentation of reading strategy research.

The next chapter will present the details of how the current investigation of linguistic, cognitive, and affective factors that impact adolescent ELLs' performance on a state standardized reading achievement test was conducted.

CHAPTER THREE:
METHODOLOGY

The pertinent literature on the existing literacy crisis, the description of the Compensatory Model of Second Language Reading (Bernhardt, 2005), and the explanation of the three facets of reading presented in Chapter One and elaborated upon in Chapter Two provided the background of this study and led to the statement of purpose which is the investigation of linguistic, cognitive, as well as affective factors that impact adolescent ELLs' performance on a state standardized achievement test. The two objectives, (a) the exploration of grade-level academic reading achievement by examining the relationship between ninth and tenth grade ELLs' self-perceived use of reading strategies and their English language proficiency, and (b) the exploration of the Unexplained Variance dimension in Bernhardt's model through the investigation of the potential impact of motivation, engagement, and affect on ELLs' reading performance, form the framework upon which the study was designed and carried out. This process is described in the present chapter.

This chapter is divided into four primary sections. The first section restates the study questions and posits the hypotheses associated with the two quantitative research questions. Background information on the data sources utilized in this study is then provided, followed by the conceptualization of the research design. The presentation of the data collection makes up the fourth section. It starts with a detailed description of the study setting and participants, data collection procedures, and ends with a list of assumptions associated with the research design. The description of the statistical techniques for data analysis comprises the last section of the chapter.

Due to the scarce available literature on the relationship between the use of reading comprehension strategies and passing scores on standardized reading achievement tests in the K-12 context, this research study was exploratory in nature. An overarching question with two quantitative research questions and a qualitative research question were devised to address this lack in the current knowledge base.

The quantitative inquiries involved the impact of reading strategies and general language proficiency on reading performance on a standardized reading achievement test. Numerous prior comprehension strategy studies have looked for differences in strategy use among students at various L2 proficiency levels (Carrell, 1989; Jiménez et al., 1996; Knight et al., 1985; Sheorey & Mokhtari, 2001), but none have researched the impact of language proficiency in specific language skills areas. A decision was therefore made to investigate both overall English language proficiency (as measured by the CELLA Total Score) and the language proficiency in terms of proficiency in language modalities (i.e., listening/speaking, reading, writing). The overarching question that guided the quantitative inquiry of this study was:

- How do ELLs' reported use of reading strategies and their level of English language proficiency impact their score on a standardized reading achievement test?

This question was then investigated with two separate research questions which were:

1. What is the relationship between ELLs' use of reading strategies, their overall English language proficiency, and their reading achievement test score?

2. What is the relationship between ELLs' use of reading strategies, their English language proficiency in language skills areas, and their reading achievement test score?

For the purposes of this study, English language proficiency was determined by the results of the Comprehensive English Language Learning Assessment (CELLA), students' perceived use of reading strategies were measured by the Survey of Reading Strategies (SORS), and the performance on the standardized reading achievement test was determined by the developmental scale score on the reading portion of the Florida Comprehensive Achievement Test (FCAT). These measures are further described in the next section.

The objective of the qualitative portion of the study was not to inquire about specific cognitive or linguistic factors that may contribute to higher scores on the FCAT Reading. Rather, this investigation was designed more broadly to discover what factors may affect ELLs' performance on the test. The research question that guided this inquiry was: "How do English language learners approach a standardized reading test?"

Research Hypotheses

To address the two quantitative research questions, the study tested two research hypotheses concerning the impact of reading strategies and of English language proficiency on FCAT Reading scores:

H_1 – There is a significant relationship between ELLs' use of reading strategies, their overall English language proficiency, and their FCAT Reading score.

H_2 - There is a significant relationship between ELLs' use of reading strategies, their English language proficiency in language skills areas, and their FCAT Reading score.

Data Sources

As previously stated, Bernhardt's Compensatory Model of Second Language Reading (Bernhardt, 2005) describes the L2 reading process as consisting of two linguistic dimensions

exclusively linked to SLA theory, namely L1 Literacy and L2 Knowledge, plus a third dimension of Unexplained Variance that contains cognitive and affective factors that are also found in L1 readers. Four data sources were needed to carry out the investigations posited by the research questions.

Florida Comprehensive Assessment Test - Reading

The FCAT is a criterion-referenced test that measures students' achievement and progress toward the Sunshine State Standards (SSS), the state's curriculum framework, in grades 3-10 in reading and mathematics, grades 4, 8, and 10 in writing, and grades 5, 8, and 10 in science. English language learners may receive assessment modification such as extended time or the use of an English-to-heritage-language dictionary.

The *FCAT Handbook – A Resource for Educators* describes the content and format of the FCAT in detail (Florida Department of Education, 2005). Two types of text make up the FCAT Reading, namely informational and literary. Students are given six to eleven passages to read, each of them followed by eight to eleven items based on the passages. Passage length and item types vary between grade levels. For example, each passage contains approximately 800 words on the 9th grade test and approximately 900 words in the 10th grade administration. The 9th grade FCAT consists only of multiple choice items, whereas in the 10th grade students also have to carry out five to seven short response performance tasks and extended response performance tasks. Since the FCAT Reading is based on the benchmarks found in the Reading and Literature strands of the Language Arts SSS, four distinct content clusters are assessed: (a) Words and Phrases; (b) Plot and Purpose; (c) Comparison and Cause/Effect; and (d) Reference and Research.

The developmental scale scores (DSS) (ranging from 86 to 3008) and scale scores (ranging from 100 to 500) students obtain are translated into 5 achievement levels, with students scoring at levels 1-2 being considered as performing below grade level, students obtaining a level 3 being deemed as partially successful with grade level content, and students achieving levels 4-5 being considered as meeting high standards. Obtainment of at least a level 3 is required at third grade for promotion and in tenth grade for graduation with a regular diploma.

Unlike previous years when the FCAT Reading test also contained a norm-referenced test in form of the Reading subtest of the Stanford 9 and later the Stanford 10, the 2008-2009 FCAT administration did not contain any norm-referencing. Reliability and validity data for this new form of the FCAT was not available at the time the study was reported. The latest available information of internal consistency reliability of the FCAT dates back to the 2006 administration and was reported in form of Item Response Theory marginal reliabilities and a Cronbach's alpha internal consistency estimate. These values were reported as .922 and.896, respectively, for 9th grade and . 916 and .852, respectively, for 10th grade (Human Resources Research Orgnization & Harcourt Assessment, 2007, p. 59).

Comprehensive English Language Learning Assessment

Approximately six weeks after the administration of the FCAT to the general student 3-12 population, English language learners in Florida are required to take the CELLA to "measure the growth of students classified as English Language Learners (ELLs) in English language skills that they need to succeed in school" (Florida Department of Education, 2008). The CELLA is a four-modality English language proficiency assessment that was developed for a consortium of five states. As a result, the assessment is aligned with Florida's English language development standards (Educational Testing Service, 2005).

The test is developed for four different grade clusters: K-2, 3-5, 6-8, and 9-12. Students take the Listening and Speaking subtest at the level that matches their grade level. For example, students in grade 3 will always take Level B Listening and Speaking. The Reading and Writing sections may be taken either on grade level or at a lower grade level if doing so provides better information about students' literacy skills.

The four scale scores reported in the CELLA consist of a combined scale score for Listening/Speaking (ranging from 495 to 835), individual scale scores in Reading (ranging from 345 to 820) and Writing (ranging from 515 to 850), and a Total Score. The highest total score possible is 2,505. The reports also contain raw scores that give detailed insight into students' language skills in the four sub-skill areas, such as understanding and use of vocabulary or ability to form questions in the Listening/Speaking section or the ability to edit grammar and word choice in the Writing section. Students' scores are translated into four proficiency levels: beginning, low-intermediate, high-intermediate, and proficient. Both the total and the sub skill scale scores were used to address the two research questions.

Survey of Reading Strategies

The Survey of Reading Strategies (Sheorey & Mokhtari, 2001; Mokhtari et al., 2008) was selected as the instrument to collect students' perceived use of comprehension strategies while performing under a standardized testing condition. It is based on the Metacognitive Awareness of Reading Strategies Inventory (MARSI) whose overall reliability was reported in 2002 as .93 with internal consistency reliability coefficients for its three subscales given for Metacognitive strategies: .92, Cognitive strategies: .79, and Support strategies: .87 (Mokhtari & Reichard, 2002). Both instruments contain 30 items that measure students' self-reported use of reading strategies among three different constructs:

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- Global strategies – those carefully planned strategies readers employ to manage their reading or to monitor their comprehension during reading (13 items). Called Metacognitive in original MARSI.

- Problem-solving strategies – procedures that readers put into action during reading to repair understanding when comprehension becomes difficult or is lost (9 items). Called Cognitive in original MARSI.

- Support strategies – strategies that offer basic aid in comprehending the text (8 items).

Participants respond to each of the 30 items by indicating whether they deploy the named strategy "never or almost never", "only occasionally", "sometimes", usually", or "always or almost always" (Sheorey & Mokhtari, 2001). The level of score in each category indicates the reported frequency of usage with a higher score indicating more common use of this type of strategy.

The main difference between the MARSI and the SORS lies in two items that are attached to the support strategies factor (Mokhtari et al., 2008). The initial adaptation of the SORS resulted in the removal of two such items from the MARSI because they were not deemed true reading strategies based on the current literature. These two items were replaced with two strategies that would only be used by L2 readers (i.e., "translating from English into the native language" and "thinking about the information in both English and my mother tongue"). Other changes consisted of the rewording of some statements to make them more easily understandable for L2 research participants.

Additional modifications to the existing SORS were necessary to create a better fit of the instrument with the purpose of this study. First of all, to facilitate ELLs' understanding of the descriptions of each item, a modified version of the MARSI that has been written for students in

third grade and above and is being used by K-12 teachers was secured (Mokhtari, 2008, personal communication). This version was then translated into Spanish with the aid of a Spanish version of the SORS that had been utilized for research with adult L2 learners (Anderson, 2009, personal communication). The translation was then verified by a second translator who suggested slight rewording.

The second change to the published SORS was needed because the context of reading academic text for classroom activities under which participants typically complete comprehension strategy surveys differs from the setting of standardized testing setting. One strategy, namely reading aloud to aid comprehension, would not be allowed in a testing situation. Therefore, the item description was modified to state "I read aloud in my head to help me understand what I read". Similarly, the item "If I find something in a book that I think is not important, then I do not read it" was shortened by deleting the reference to the book, since the FCAT Reading test is comprised of distinct passages rather than entire books. Lastly, since only Spanish speakers were included in the study, the wording of the two items that are specific to L2 readers was adjusted. The statement "When reading, I translate from English into my native language" was changed to "When reading, I translate from English into Spanish" since it was anticipated that some students may identify themselves as entirely bilingual, and may not see Spanish as their native language. To ensure that these participants circle the answer "never" as is appropriate, the phrase "into my native language" was then changed to "into another language". The modified instrument used in this study is included in Appendix B.

Interview Protocol

While the first three data sources utilized for this study consisted of standardized test results and a slightly modified version of a validated research instrument and were used to

address the two quantitative research questions, the fourth and final data source was created for the specific purpose of addressing the qualitative research question. An interview protocol was developed to investigate ELLs' thoughts and feelings about reading comprehension on a standardized achievement test.

The interview consisted of eight open-ended questions. Three of the questions were partially inspired by the Burke Reading Interview (Goodman et al., 1987) in that the questions were intended to solicit students' responses to what strategies they deploy when encountering a difficult passage on the FCAT Reading, as well as what makes specific peers good readers and what they do when they don't understand something on the FCAT Reading. The remaining questions were aimed at investigating students' feelings about taking the FCAT Reading test, their difficulties encountered with text comprehension, their potential use of test-taking strategies, their engagement with the texts during the test, and their overall perception of reading ability. The interview protocol used in this study is included in Appendix C.

<u>Research Design</u>

This study adopted an ex-post facto correlational research design to answer the two quantitative research questions. Students' perceived use of reading strategies was assessed. The impact of these strategies, alongside the impact of English language proficiency on ELLs' performance on a standardized reading achievement test was then investigated by a multivariate analytic method. A *reading strategy* denotes "a cognitive behavioral action that is enacted under particular contextual conditions, with the goal of improving some aspect of comprehension" (Graesser, 2007, p. 6). *Reading strategy use*, then, relates to the deployment of individual reading comprehension strategies during the act of reading. *English language proficiency* denotes students' L2 knowledge, and *reading performance* refers to how well students perform on a

standardized reading achievement test intended to measure students' understanding of informational and literary text. The framework of the quantitative research design is illustrated in Figure 3.
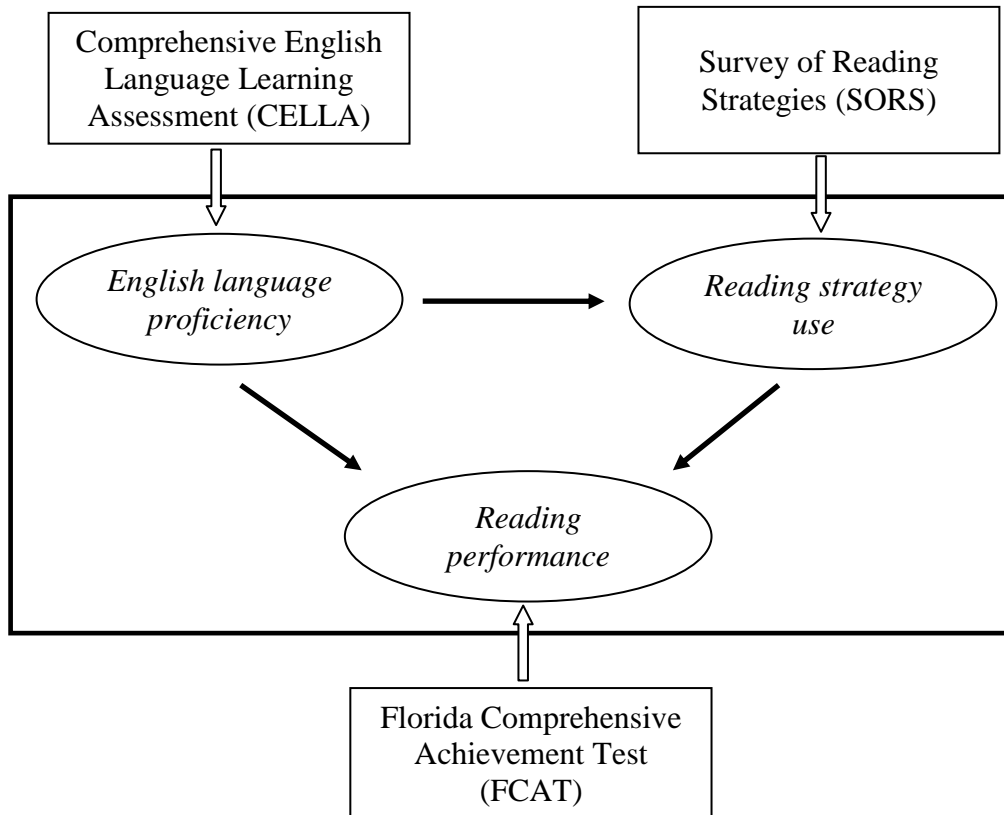
Figure 3. The framework for the quantitative research design

The central rectangle of Figure 3 depicts what the current study aimed to explore: the relationship among reading strategies, English language proficiency, and reading performance. These three factors are represented by the ovals inside the large rectangle. A thick, bold, single-headed arrow "➔" symbolizes an effect that one factor can exert on another. English language proficiency, here, influences both the use of reading strategies and reading performance. Reading strategies, however, do not affect English language proficiency, but they do have an effect on reading performance. Hence, reading performance is impacted by both English language proficiency and reading strategies. The data sources used to measure these three factors are listed

in the rectangles outside the main rectangle, and their relationship is represented by the unfilled single-headed "⇨ " arrow. The research design required the matching of each participant's reported reading strategy use obtained from the administration of the SORS, their FCAT Reading scores, in addition to their CELLA scores.

Multiple regression analysis (MRA) was chosen as the statistical method to examine the relationship among reading strategy use, English proficiency level, and reading performance because it not only allows for the establishment of a model as a whole, but also evaluates the contribution of each of the variables that are put into the model (Hair, Black, Babin, Anderson & Tatham, 2006; Pallant, 2007). Multiple regression analysis enables the study of relationships between a dependent and several independent variables, and is used for three main reasons, namely (a) to explore relationships between variables, (b) to predict outcomes, or (c) to test a theory (Shavelson, 1996). Researchers recognize the utility of MRA for its flexibility, adaptability, and its ability to promote both the analysis of theory based models and exploratory analysis (Hair et al., 2006; Pallant, 2007; Tabachnick & Fidell, 2007). Three different types of MRA exist: simultaneous or standard, stepwise, and hierarchical (Hair et al., 2006; Pallant, 2007).

Because no theory exists that would indicate the relative importance of reading strategies over language proficiency or vice-versa, standard MRA was chosen in this study to explore the impact of each of the variables on reading comprehension, and to potentially build a model that could then be evaluated. Two standard MRAs were conducted in the present study. In the case of the first, the variables chosen to determine the contribution of various factors on performance on a standardized reading achievement test consisted of one dependent and four independent variables:

- Dependent (criterion) variable = reading performance – FCAT Reading DSS

    o Independent (predictor) variable = use of Global reading strategies

    o Independent (predictor) variable = use of Problem-Solving reading strategies

    o Independent (predictor) variable = use of Support reading strategies

    o Independent (predictor) variable = English language proficiency – CELLA Total Score

Since the CELLA performance report supplies individual sub-skills scores in listening/speaking, reading, and writing, a closer examination of English language proficiency was possible. The variables chosen to determine the contribution of the sub-skills on performance on a standardized reading achievement test consisted of one dependent and six independent variables:

- Dependent (criterion) variable = reading performance – FCAT Reading DSS

    o Independent (predictor) variable = use of Global reading strategies

    o Independent (predictor) variable = use of Problem-Solving reading strategies

    o Independent (predictor) variable = use of Support reading strategies

    o Independent (predictor) variable = English language proficiency – Listening/Speaking sub-skill score

    o Independent (predictor) variable = English language proficiency – Reading sub-skill score

    o Independent (predictor) variable = English language proficiency – Writing sub-skill score

Individual interviews comprised the method to investigate the qualitative portion of the study which was put into place to investigate factors that are located in the Unexplained

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Variance dimension of Bernhardt's Compensatory Model of Second Language Reading

(Bernhardt, 2005). Keeping in mind that Bernhardt explicitly states that the factors in the three

dimensions interact with each other, with one more developed skill or knowledge compensating

for a less developed one, the intent of the interviews was to find out what factors may be of

importance to ELLs' performance on standardized reading achievement tests. The framework of

the qualitative research design is depicted in Figure 4.
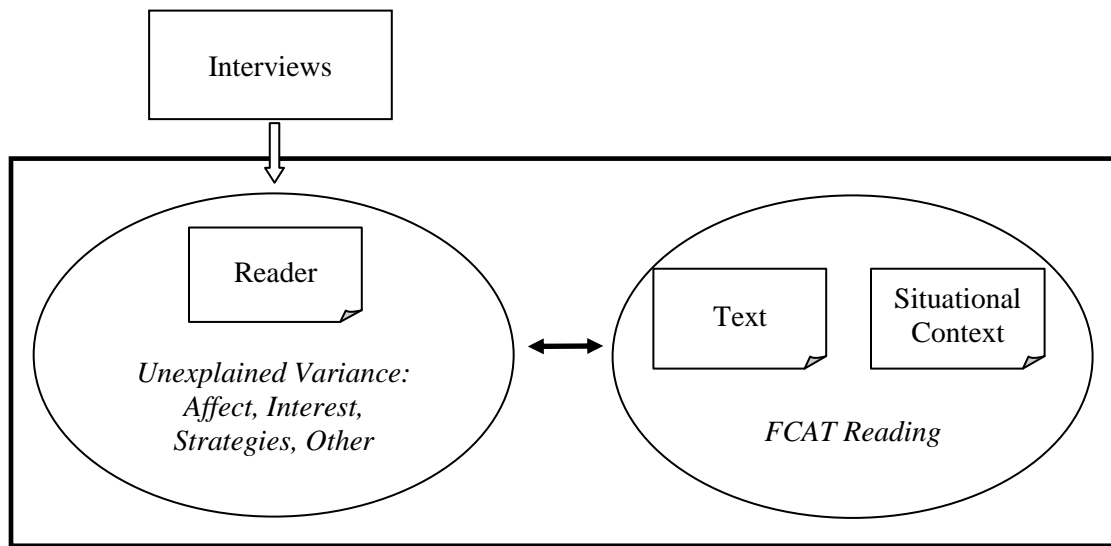
Figure 4. The framework for the qualitative research design

As was the case in Figure 3, the central rectangle of Figure 4 depicts the areas under

investigation. These two areas, Unexplained Variance dimension and FCAT Reading are

represented by the horizontal ovals inside the rectangle, and the thick, bold, double-headed arrow

"←→" symbolizes the reciprocal nature of the relationship, arising from the interaction of the

reader, the text, and the situational context of the reading act. The data source used to measure

the two areas under investigation, namely interviews, is shown in the small rectangle outside the

main rectangle and its relationship is again represented by the unfilled single-headed "⇨" arrow.

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Data Collection

Data collection for this research took place in two distinct phases. The first phase which consisted of the administration of the SORS to ninth and tenth grade ELLs, and the individual interviews took place in the last two weeks of the 2008-2009 school year, shortly after permission to conduct the study was obtained from the University of Central Florida's Institutional Review Board (IRB). The approval letter from IRB is contained in Appendix A. The second phase occurred fourteen weeks later and entailed obtainment of student-level FCAT and CELLA scores from this latest administration cycle. Before data collection could occur, however, several decisions in terms of planning for the appropriate study makeup, sample size, and data collection procedures had to be made. These decisions and their execution are detailed in this section.

Sample Size Determination

The first decision regarding data collection was to limit the study population to ninth and tenth grade native Spanish speakers. It was made for several reasons, primarily based on the fact that the last regular administration of the Reading FCAT takes place in tenth grade, and because grades nine through twelve form a grade cluster on the CELLA. The decision to further restrict the study population to speakers of Spanish was made both for practical and theoretical reasons. Spanish makes up by far the largest language minority group in this country as well as in Florida, and to obtain large enough a sample of each chosen language would have entailed the involvement of multiple school districts. Secondly, limiting the population to native speakers of one language only ensured that cross-linguistic factors such as different orthographic features and morpho-syntactic distance between the L1 and English did not become a factor.

Following the choice of an appropriate makeup of the study population was the determination of the appropriate size. In MRA, sample size is closely related to the chosen significance level and the number of independent variables, and different authors propose different guidelines to determine the appropriate sample size. One suggestion is that the minimum number of observations to independent variables cannot fall below a ratio of 5:1, with a preferred ratio at 15 or 20 : 1 (Hair et al., 2006). Shavelson, on the other hand, posits the minimum sample size at 50, and states that the "general rule of thumb is that there should be at least about 10 times as many cases (subjects) as independent variables" (Shavelson, 1996, p. 536). A third recommendation comes from Tabachnick and Fidell (2007, p. 123), who discuss the rule of thumb formula of $N > 50 + 8m$ (m signifying the number of independent variables). When taking into account that the second research question required six independent variables, these recommendations resulted in a rough sample size estimation of between 60 and 100; an uncomfortably large range that led to considerations of an inadequate population size.

Cohen's (1992) discussion of statistical power analysis was consulted to investigate a more precise sample size. The conventional 80% power at a .05 significance level to detect a medium effect size of .15 were chosen. The desired effect size is typically determined by the researcher based on literature. Since there is no existing prediction model of standardized reading achievement scores based on the use of reading strategies and L2 proficiency, the choice of a medium effect level was based on Cohen's (1992) explanation that it represents an effect that a careful observer could see. With these three determining factors set, the last step for sample size estimation depends on the number of independent variables. As previously described, the first MRA analysis consisted of a dependent variable and four independent variables, whereas the second was comprised of the same dependent variable and six independent variables. According

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to the tables included in Cohen's article, the proposed MRAs using these settings thus require a sample size of 84 for the first and a sample of 97 for the second analysis (Cohen, 1992).

Study Setting and Participants

The research study was conducted at four ninth grade ESOL Reading and four tenth grade sheltered Language Arts classes at a high school located in a large school district in the central Florida area. The ESOL Reading classes are attended by students who are eligible for ESOL services only. Taught by teachers who have satisfied the State of Florida ESOL endorsement requirements of 300 hours of training, these classes are the equivalent of mainstream intensive reading classes put into place by the school for students who have previously scored below a level 3 on the FCAT. Students in sheltered classes are taught the standard curriculum with instructional modifications designed to make the content comprehensible to the ELL students. Sheltered content classes are taught by teachers who have satisfied the State of Florida ESOL endorsement requirements. According to the teachers who taught the tenth grade sheltered Language Arts classes, two classes were comprised of beginning to low-intermediate proficient students, and two classes contained ELLs at low-intermediate to advanced levels of proficiency. The teacher in the ESOL Reading class stated that she taught students at all four proficiency levels at the same time.

The school is located in an urban area and its population of almost 4,000 students consists of close to 79% minority students of which 24% are classified as ELLs and thus eligible for ESOL services and testing accommodations under State and federal law (Florida Department of Education, 2008). As can be seen in Table 1 which provides an overview of FCAT Reading results for 2009, the school's population performed below both the district and the state average

in both the ninth and the tenth grade. Under the State of Florida's A+ plan, the school has earned a grade of C for the past five school years.

Table 1.

2009 FCAT Overview for Ninth and Tenth Grade: State-District-School

	State		District		School	
	9th	10th	9th	10th	9th	10th
Students tested	192,968	186,484	12,869	12,504	949	955
Mean Scale Score	316	305	316	305	305	287
Mean Developmental Scale Score	1,944	1,955	1,914	1,951	1,884	1,854
% level 3 and above	47	37	46	36	36	24

The SORS was administered to 120 native-Spanish speaking ELLs. Six participants were subsequently eliminated from the data set because their CELLA results contained invalidated or missing sub-skill scores. Of the remaining 114 students for whom full data sets consisting of SORS scores, FCAT scores, and CELLA scores were obtained, 43% were male and 57% were female. They have been living in the United States between five months and sixteen years, with a mean of six years across the two grade levels. Eighty-three percent of the participants identified themselves as native speakers of Spanish. This compared to almost 10% who indicated that English is their native language, and 7% who thought of themselves as bilingual speakers. Table 2 provides an overview of additional demographic information of the participants by grade, including the mean FCAT developmental scale score and the total CELLA score.

Table 2.

Overview of Study Participants by Grade Level.

	9th Grade	10th Grade
Grade	61	53
Mean Time Spent in the United States (in years)	7	5
Native Language		
Spanish	47	48
English	8	3
Bilingual (Spanish-English)	6	2
FCAT DSS	1,683	1,666
CELLA Total Score	2,226	2,212

Procedures

The participants completed the SORS during regular class time. Mokthari et al. (2008) recommend seven steps for a successful administration of the SORS. These steps were followed closely, with the addition or modification of steps one, two, six, and eight, which were undertaken to increase the reliability of the data in regards to the reading context that the study aims to examine (i.e., standardized testing). In summary the following procedure that consisted of eleven steps was implemented:

1. Displayed copies of previously released FCAT Reading passages for 9th and 10th grade, respectively, on overhead projector and asked students what this text reminded them of. Discussed with the class how we use different strategies when reading for different purposes.

2. Explained the study to the participants and distributed the instrument to each student.

3. Distributed the SORS to each student.

4. Asked the students to write their names, grade levels, student number, time in the United States, and native language in the spaces provided.

5. Read the directions aloud and worked with the students through an example provided.

6. Explained the response items to make sure the students understand the rating scale. A copy of the response items remained on overhead for the duration of the administration so that the students could refer back to them when needed.

7. Answered questions the students had about the instrument.

8. Asked the students to put themselves back in the position of test-taker on the day FCAT Reading was administered two months prior.

9. Asked the students to read each statement carefully and mark the appropriate response for each item.

10. Encouraged the students to work at their own pace.

11. Answered individual students' questions regarding items on the inventory.

The researcher visited each classroom on at least two occasions prior to data collection. The first time was to drop off the informed consent forms for the teachers to distribute and to observe the class so that the students had the opportunity to meet the researcher. The purpose of the subsequent visits was to pick up the returned informed consent forms and, in three classes, to bring in additional forms when students had indicated that they had lost their original package.

The interviews followed the administration of the SORS. The selection of participants was made based on (a) parents' consent to the audio taping of the interview, (b) students' indication that they would be willing to be interviewed on the assent form, and (c) teachers' assessment of language proficiency to ensure a range of proficiency levels. The interviews took place in the hallway while instruction resumed inside the classroom. Nine interviews were conducted, five of them with students in the ninth grade and four with students enrolled in the tenth grade.

Assumptions

Some of the underlying assumptions of this study are:

- The participants of the study understood the descriptors of the items on the instrument.

- The participants of the study attempted to place themselves in the position of a test taker on FCAT Reading testing day.

- The participants of the study responded honestly to the instrument items.

- The participants of the study were given sufficient time to read the sample text and respond to the SORS.

Data Analysis

The current study used the PASW 17.0 (Predictive Analytical Software, formerly known as Statistical Package for the Social Sciences-SPSS) statistical software package for analysis of the quantitative research questions. These analyses were composed of descriptive statistics and standard multiple regression analyses. A significance level of 0.05 ($p < 0.05$) was set.

Multiple Regression Analysis Procedures

Descriptive statistics on all variables (i.e., reading strategies, English language proficiency, and reading achievement) were performed as a first step. Strategy categories and test results, both for the CELLA and FCAT Reading, were described in terms of means, variability, and distribution of scores. In a next step, correlations for the variables were run to establish the direction and strength of the relationship between reading achievement and strategy use and reading achievement and English language proficiency. Finally, two MRAs, one with four independent variables (support strategies, problem-solving strategies, global strategies, and

CELLA total score) and one with six independent variables (individual strategy types and listening/speaking, reading, writing CELLA sub-skill scores) were then conducted to examine the relative contribution of these variables to reading achievement. In each analysis, Pallant's recommended three-step protocol of (a) checking the assumptions, (b) evaluating the model, and (c) evaluating each of the independent variables was followed (Pallant, 2007).

Pallant (2007) underscores that MRA is a statistical procedure that is not very forgiving if assumptions are violated. One assumption, adequate sample size, was met through careful planning, as described above. Other considerations for assumptions are: (a) multicollinearity (b) outliers, and (c) normality, linearity, homoscedasticity, and independence of residuals. These assumptions were checked during data analysis.

Multicollinearity occurs when there is a high correlation between independent variables which Tabachnick and Fidell (2007) suggest happens when bivariate correlations are at or above .90. Multicollinearity is not always apparent in the correlation matrix, and should be checked through inspection of the values of Tolerance and the Variance-inflation factor (VIF). Tolerance calculates multiple correlations of the independent variables in the model and indicates how much of an independent variable's variability is not explained by the other independent variables. A value of less than .10 suggests the presence of multicollinearity. Since VIF is inverse of Tolerance (Pallant, 2007), a value of ten or higher indicates multicollinearity. If these values are found, the researcher should consider removing one of the variables that are highly intercorrelated within the model.

Normality, outliers, linearity, homoscedasticity, and independence of residuals all refer to "various aspects of the distribution of scores and the nature of the underlying relationship between the variables" (Pallant, 2007, p. 149). Pallant advises to check the assumptions related

to the distribution of scores in the residual scatterplots when running the MRA. Residuals report the difference between the predicted and the obtained value in the dependent variable (Pallant, 2007).

Normal distribution of the data should be checked in a first step before MRA is run. Non-normal distribution of variables, identified by high values of skewness and kurtosis, or by the presence of substantial outliers, can distort relationships and significance tests. When data show signs of non-normality, bivariate or univariate cleaning of the data may need to be considered (Tabachnick & Fidell, 2007).

Outliers in MRA are data points that show a substantial difference between the predicted value and the actual value (Shavelson, 1996). Researchers can check for the presence of outliers through a visual inspection of two plots of the regression standardized residuals: the Normal Probability Plot (P-P) and the scatterplot. Data that meet the assumptions of MRA will lie in a relatively straight diagonal line that goes from the bottom left to the top right in the P-P plot. In the scatterplot, the majority of the data should be fall along the zero line in the graphic and be more or less rectangularly distributed (Hair et al., 2006; Pallant, 2007). Outliers can also be identified by inspecting the Mahalanobis distance that is produced when the MRA program is run. Cases that are higher than the critical chi-square value for the degrees of freedom that is equal to the number of independent variables may need to be removed from the data set for the analysis (Pallant, 2007). Lastly, unusual cases that are listed in the casewise diagnostics table when the program calculates the model, need to be investigated for the amount of influence they may have on the model as a whole. Tabachnick and Fidell (2007) advocate that cases with Cook's distance values higher than 1 may be problems.

Linearity is checked to ensure that the variables are related in a straight line rather than in a curvilinear fashion. A standard multiple regression can only accurately estimate the relationship between dependent and independent variables when there exists a linear relationship (Osborne & Waters, 2002; Pallant, 2007). The assumption of homoscedasticity is met when the variance around the regression line is the same for all values of the independent variable (Osborne & Waters, 2002; Hair et al., 2006). While slight heteroscedasticity has only minor effect on significance tests, marked heteroscedasticity can weaken the analysis because it increases the possibility of a Type I error (Osborne & Waters, 2002). Both linearity and homoscedasticity of the data can be checked through the inspection of the P-P and scatterplots.

The study data was examined for potential violation of normality and outliers prior to running the MRAs. All assumptions were also verified after the data was run through the MRA procedure, before commencing with the next steps which consisted of building the model and examining the model to evaluate the contribution of each independent variable to the performance on the standardized reading achievement test.

Interview

Each of the nine case study interviews was recorded on a handheld digital recorder. The analysis began with the creation of a preliminary list of topic categories based both on those interview questions that were intended to solicit responses in specific areas (i.e., strategy use, feelings about the FCAT Reading), as well as on hypothesized responses to the more openly formulated questions. Upon transcription of all questions and responses and the verification of the transcripts to ensure accuracy, the original list of topics categories was adjusted, based on initial classification of topics brought up in the responses. Subsequent reviews of the transcripts identified patterns of responses which were coded, analyzed, and then reported.

Summary

 This chapter provided a description of the methodology employed to design and carry out the exploration of linguistic, cognitive, and affective factors that impact performance on a standardized reading achievement test. The research questions were restated, and associated hypotheses were posited at the beginning of the chapter. The data sources and measurements used in the study were then explained before the frameworks for both the quantitative and the qualitative research designs were presented.

 After the depiction of the background and the planning phase of the study, the data collection was described in full, including the study setting, the study participants, and the data collection procedures. The data analysis process was explained in the final section of the chapter. The next chapter will describe the execution of the analysis.

CHAPTER FOUR:
ANALYSIS

This chapter elucidates the findings of the present study, which will be introduced based on the order of the study questions. It begins with a restatement of the research questions and associated hypotheses. The description of the sample and the descriptive statistics for each instrument utilized in the study are then given. The final section consists of the results of the multiple regression analyses (MRA) and the qualitative analysis, respectively.

Research Questions

This study was designed to explore linguistic, cognitive, as well as affective factors that impact adolescent ELLs' performance on a state standardized reading achievement test. Two quantitative research questions were chosen to answer a guiding question regarding the impact of language proficiency and the use of reading comprehension strategies on performance on a standardized reading achievement test. A qualitative research question was also considered to deepen the understanding of English language learners' use of reading strategies while at the same time investigating additional factors that may impact how these students approach a standardized reading achievement test.

Quantitative Research Questions and Hypotheses

The individual research questions and hypotheses considered to answer the overarching guiding question of "How do ELLs' reported use of reading strategies and their level of English language proficiency impact their score on a standardized reading achievement test?" were:

- What is the relationship between ELLs' use of reading strategies, their overall English language proficiency, and their reading achievement test score?

H$_1$ – There is a significant relationship between ELLs' use of reading strategies, their

overall English language proficiency, and their reading achievement test score.

- What is the relationship between ELLs' use of reading strategies, their English

    language proficiency in language skills areas, and their reading achievement test

    score?

    H$_2$ – There is a significant relationship between ELLs' use of reading strategies, their

    English language proficiency in language skills areas, and their reading

    achievement test score.

In this study, the students' reading achievement was measured by the developmental

scale score (DSS) they obtained on the reading portion of the Florida Comprehensive

Achievement Test (FCAT Reading). Their English language proficiency levels were obtained

from the results of the Comprehensive English Language Learning Assessment (CELLA).

Overall English language proficiency was determined by the total score on the CELLA, and

proficiency in different language modalities was established by the students' scores on the test's

sub-skills scores of Listening/Speaking, Reading, and Writing. Finally, use of reading strategies

was measured by the responses students gave on the Survey of Reading Strategies (SORS), and

consisted of the three categories of Global, Problem Solving, and Support strategies.

The analysis of the quantitative research questions was performed with PASW 17.0

statistical software package (Predictive Analytical Software, formerly known as Statistical

Package for the Social Sciences-SPSS). These analyses were composed of descriptive statistics

and multiple regression analysis (MRA). A significance level of 0.05 ($p < 0.05$) was set.

The quantitative inquiry was narrowly focused and examined the relative contributions of reading strategy use and English language proficiency on reading achievement on a standardized reading achievement test. The qualitative research question of the study, on the other hand, was more broadly phrased with the goal of possibly triangulating the students' self-perceived use of reading strategies while investigating additional factors that may impact ELLs' success on the test. Individual interviews were conducted to answer the question "How do English language learners approach a standardized reading test?"

<u>Initial Data Screening</u>

The participants in this study were ninth and tenth grade native Spanish-speaking students enrolled in ESOL Reading and sheltered Language Arts classes in an urban public high school in the central Florida area. The data collected through the administration of the SORS yielded a potential sample of 120 students which was subsequently reduced to 114 due to missing or invalidated CELLA scores.

Initial checking of normal distribution of the data revealed high kurtosis in the distribution of FCAT DSS and CELLA reading scores. The data was further screened using standardized residuals and identified the presence of two outliers in the FCAT DSS data whose maximum values were -3.63 and -3.37, respectively. Outliers in MRA are defined as cases that have standardized residuals of more than an absolute value of 3 (Tabachnick & Fidell, 2007). With a sample of 114, these two cases had the potential of strong influence on the analysis. After removal of these two outliers, the dataset continued to show problems with influence statistics caused by two cases whose Mahalanobis distance values exceeded the critical value of 22.46 based on the six independent variables in research question by 16.43 and 11.54, respectively.

Outliers identified through the Mahalanobis distance exert greater influence on the slope or coefficients of the regression equations than the rest of the population. Therefore, a decision was made to delete these two cases from the dataset as well, leaving 110 cases for the final analysis.

<div align="center">Description of Sample</div>

Descriptive statistics for all scales associated with the MRA (i.e., FCAT DSS, CELLA Total score, CELLA Listening/Speaking, CELLA Reading, CELLA Writing, Global strategies, Problem Solving strategies, Support strategies) were run to gain an initial feel for the data in terms of participants' self-perceived use of comprehension strategies, their English language proficiency, as well as their FCAT Reading scores. The results of these inquiries are reported here.

Sample Population

Of the 110 study participants used for the analysis, 62 (56%) were female and 48 (44%) were male; 60 students (54.5%) were enrolled in grade nine and 50 (45.5%) in grade ten. They had been living in the United States between five months and sixteen years, with a mean of six years. Although all students were identified as native Spanish speakers by their teachers, they were asked to name their native or first language on the SORS to gain insight into how they perceive of themselves linguistically. Ninety-two participants (84%) listed Spanish as being their native or first language, 11 (10%) listed English, and 7 (6%) wrote "Both", indicating that they thought of themselves as fully bilingual speakers.

Florida Comprehensive Achievement Test - Reading

The mean FCAT Reading developmental scale score among the 110 participants in the study was 1,685.34 (median = 1,688), with scores ranging from 1,099 to 2,137. When translated

into the state's 5-level achievement level rubric, the data show that no students performed at

advanced levels, and that only a few participants' scores fell within a level 3, the level deemed

by the state of Florida as partially successful with grade level content. The great majority of the

participants (96.4%) performed below grade level. These results were to be expected, given the

existing evidence of ELLs' difficulty in passing high-stakes standardized achievement tests

(Berman & Biancarosa, 2005; Center on Education Policy, 2007; Kindler, 2002; Short &

Fitzsimmons, 2007). The sample's achievement was highly representative of the State average

scores of ELLs for the 2009 administration of FCAT Reading (Florida Department of Education,

2009). The distribution of achievement levels for both the study sample and the State as a whole

are detailed in Table 3.

Table 3.

FCAT Achievement Level Percentage for Sample and State

	Sample		State
FCAT Achievement Level	N	%	%
Level 1	85	77.3	77.5
Level 2	21	19.1	16.5
Level 3	4	3.6	5.0
Level 4	0	0	1.0
Level 5	0	0	0.5
Total	110	100.0	100.0

Survey of Reading Strategies

The SORS, as described in Chapter Three, is a 30-item instrument that measures

students' perceived use of comprehension strategies while engaged in academic reading among

three constructs: Global Strategies, Problem Solving Strategies, and Support strategies. The level

of the average score in each category indicates the reported frequency of usage with a higher

score indicating more common use of this type of strategies. The instrument's developers have set levels of 2.4 or lower as Low usage, 2.5 - 3.4 as Medium usage, and 3.5 - 5 as High usage (Sheorey & Mokhtari, 2001). Based on their responses on the SORS, the study's participants perceived of themselves as frequent users of comprehension strategies during FCAT Reading, especially of strategies in the Support category ($M = 3.74$, $SD = .78$) (see Table 4). The standard deviation in the support strategies category is quite large, indicating a great deal of variance in the way the students reported using the strategies within this category.

Table 4.

Average Strategy Use for Total SORS and Individual Categories

Strategy Category	N	Mean	Std. deviation	Variance
Global	110	3.50	.54	.29
Problem Solving	110	3.46	.46	.21
Support	110	3.73	.78	.61
Total SORS	110	3.55	.48	.23

It is interesting to note that these participants reported higher use of strategies in all three strategy categories than did participants of several studies conducted with the MARSI and the SORS (Mokhtari & Reichard, 2008; Mokhtari, Reichard & Sheorey, 2008; Sheorey & Mokhtari, 2001).

Comprehensive English Language Learning Assessment

The CELLA performance data utilized for this study consisted of a combined scale score for the entire test, as well as three sub-skill scores that show performance in different language modalities. The scores for this sample resulted in mean scores for Listening/Speaking ($M = 742.75$, $SD = 46.41$), Reading ($M = 756.88$, $SD = 23.28$), Writing ($M = 726.19$, $SD = 30.65$). The range of scores varied considerably across the three sub-skill areas (Table 5).

Table 5.

Descriptive Statistics for CELLA Scores

Performance	N	Range	Minimum	Maximum	Mean	Std. Deviation
Listening/Speaking	110	255	580	835	742.75	46.41
Reading	110	133	667	800	756.88	23.28
Writing	110	181	626	807	726.19	30.65
Total	110	492	1,907	2,399	2,225.86	89.31
Valid N (listwise)	110					

An inspection of the distribution statistics revealed that all sub-skills areas showed varying degrees of kurtosis (Listening/Speaking = 2.0; Reading = 1.81; Writing = 1.22), but none of them were above the absolute value of 2.0 within which Lomax recommends skewness and kurtosis statistics should fall when testing normality assumptions for MRA (Lomax, 2001). The clustering of scores at the higher end that resulted in the negative skewness was not altogether surprising, given that the average time the students in the sample had lived in the United States was six years, which has given many of them some time not only to learn oral skills, but also to start building the academic literacy skills measured on the CELLA. Research has shown that most ELLs require between five and seven years to become proficient enough to succeed in mainstream classrooms (Cummins, 2000), although recent attention has been drawn to the high number of long-term ELLs who require more time than this average (Menken & Kleyn, 2009).

Interview Participants

Nine interviews were conducted immediately following the administration of the SORS. Of the participants, five were females, and four were males. Table 6 displays further descriptive information about the participants, including the pseudonym used for reporting, grade, time spent in the United States, reading achievement level, and English language proficiency. The

participants' FCAT developmental scale scores ranged from 1,402 to 1,852, with an average

score of 1,683 among the sample. Translated into the state's 5-level achievements, the sample

data show that all students reached a level 1 or level 2, thus performing below the level deemed

by the state of Florida as partially successful with grade level content.

Table 6.

Interview Participant Information

Pseudonym	grade	Years in US	FCAT level	CELLA Total	CELLA Group
Emilia	9	8	1	2,168	low intermediate
Valeria	9	14	1	2,234	high intermediate
Clara	10	2.5	1	2,218	high intermediate
Alejandro	10	8	1	2,204	high intermediate
Jorge	10	0.5	1	2,172	low intermediate
Maria	9	1.25	2	2,266	proficient
Adriana	9	3	2	2,331	proficient
Marcelo	9	3	2	2,202	high intermediate
Raul	10	4	2	2,258	high intermediate

To add to the existing knowledge base that has shown the impact of L2 language

proficiency on reading achievement (e.g., Alderson, 2000; August, Carlo, Dressler & Snow,

2005; Bernhardt & Kamil, 1995; Cohen, 1998; Genesee et al., 2006) the teachers' assessment of

their students' language proficiency was elicited with the hope of obtaining a minimum of two

participants at each proficiency level (beginning, low intermediate, high intermediate,

proficient). This goal, as evidenced in Table 6, was not achieved. Based on the range of scores

by proficiency level on the 2009 CELLA Interpretative Guide (Florida Department of Education,

2009), none of the interview participants was at the beginning level, but the remaining three

proficiency levels were represented in the sample. At the time of the interviews, five of the

participants had spent three or fewer years in the United States, two had been living in this

country for eight years, and one was born here. When comparing the brevity of stay in the United States with their language proficiency standing, it appears apparent that the two proficient participants had received substantial exposure not only to socially spoken English but also to academic English in their home country before their arrival. Similar arguments could be made for Raul who had missed the proficient level by two points, despite having lived in the United States for only four years.

Correlations

Correlations were run to establish the direction and strength of the relationship among all variables. A visual inspection of the scatterplots indicates a positive relationship between the FCAT developmental scores and all sub-skill areas contained in the CELLA (see Figure 5).
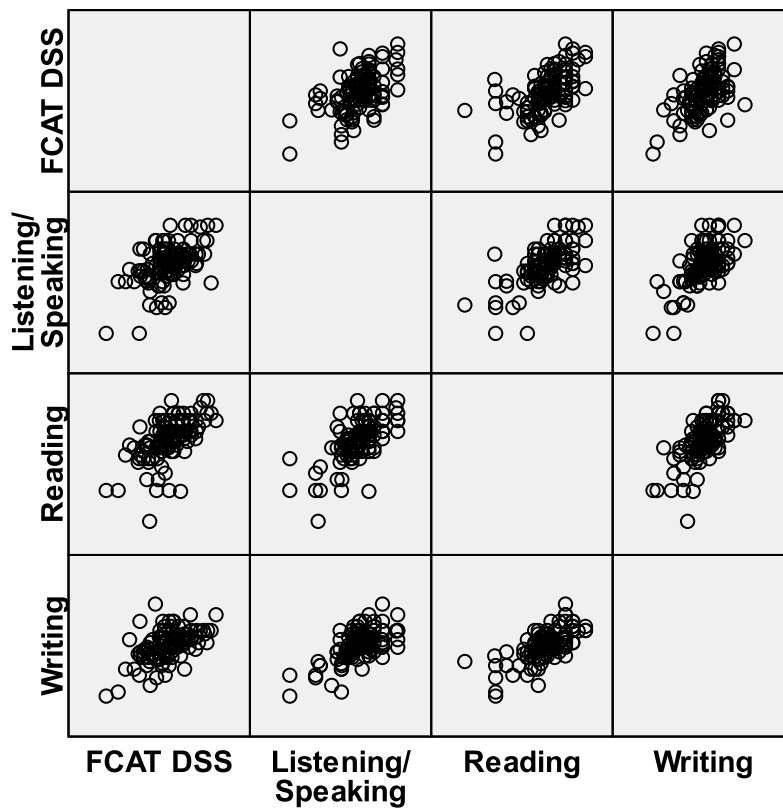
Figure 5. Scatterplot matrix of FCAT DSS and CELLA sub-skills correlations.

The correlation between FCAT DSS and CELLA scores was a moderate one with Pearson product-moment correlation coefficients ranging from .524 for the relationship between the FCAT DSS and Listening/Speaking sub-skill area to .585 for the relationship between the FCAT DSS and the Reading sub-skill area (see Table 7). Since it has been reported that the CELLA was aligned with Florida's approved English Language Proficiency Standards during the development of the test (Educational Testing Service, 2005), a positive relationship between the FCAT DSS and the CELLA scores was expected. Also expected were the high positive relationships among the three CELLA sub-skills scores.

Table 7.

Pearson Correlation Matrix among FCAT and CELLA Scores

	Listening/Speaking	Reading	Writing
FCAT DSS	.524**	.585**	.543**
Listening/Speaking	--	.668**	.661**
Reading		--	.696**
Writing			--

** Correlation is significant at the .01 level (2-tailed)

The second set of correlations investigated was that between the FCAT DSS and the strategies measured by the SORS. Given the results of prior research on the relationship between reading comprehension and reading strategies (Farr et al., 1990; Phakiti, 2003; Sheorey & Mokhtari, 2001) moderate relationships between these measures were expected. However, the scatter plot matrix (Figure 6) indicated that a positive relationship exists among the three factors measured by the SORS, but not between the FCAT DSS and the strategies on the SORS.
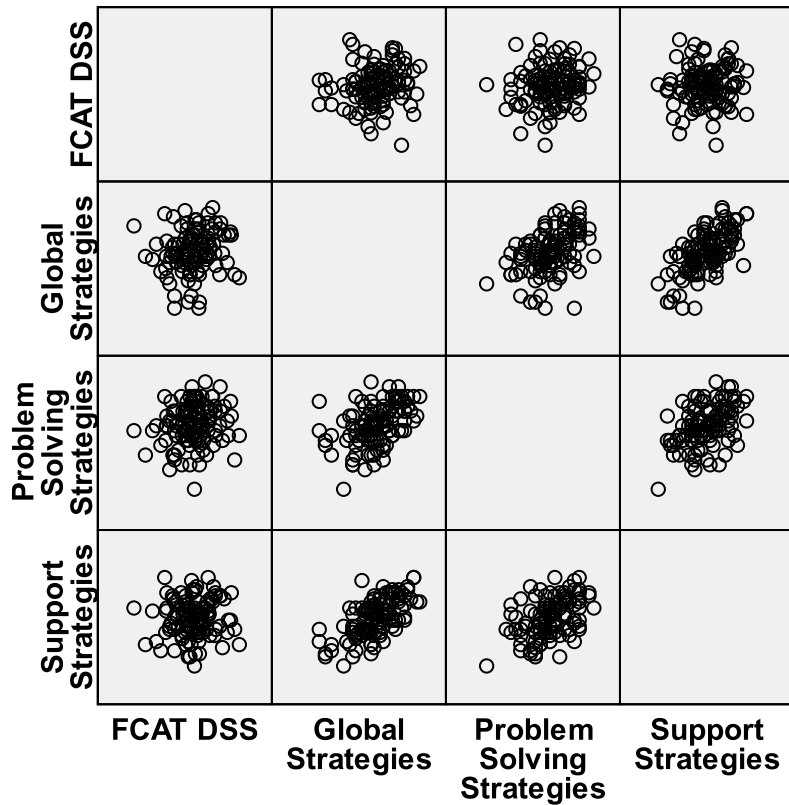
Figure 6. Scatterplot matrix of FCAT DSS and SORS categories of strategies.

A review of the Pearson product-moment coefficients for these variables confirmed the visual

inspection of the relationships between FCAT DSS and the strategies categories on the SORS.

No significant correlation was found between the FCAT DSS and the strategies, but significant

correlations exist among the three SORS categories. There was a strong, positive correlation

between Global and Support strategies ($r = .66$, $n = 110$, $p < .01$). The correlations between

Global and Problem Solving and between Problem Solving and Support strategies were

moderate. The values for all correlations are contained in Table 8.

Table 8.

Pearson Correlation Matrix among FCAT and Reading Strategies

	Global	Problem Solving	Support
FCAT DSS	.124	.164	.049
Global	--	.442**	.655**
Problem Solving		--	.474**
Support			--

** Correlation is significant at the .01 level (2-tailed)

<u>Research Question Results</u>

Final Data Screening

Multiple regression analyses are based on several assumptions. The data for both quantitative research questions were screened and each assumption was then assessed. The first assumption is that of adequate sample size. Cohen's (1992) discussion of statistical power analysis was used to establish the required minimum sample size for this study. For the second research question that contained the larger number of independent variables, namely six, Cohen recommended a sample size of 97. After removal of the four problem cases as previously described, this study had a sample size of 110 which did not violate the assumption of adequate sample size. Multicollinearity and singularity were examined next. Singularity issues arise when one independent variable is comprised of other independent variables (Pallant, 2007). Since the total CELLA score was not simultaneously included with the sub-skills scores, and reading strategies were always included individually rather than as a total score, this assumption did not appear to be violated. Multicollinearity was tested through the examination of intercorrelations of predictor variables (see Tables 9 and 11). No intercorrelations of .90 or higher that would

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indicate presence of multicollinearity (Pallant, 2007) were found, indicating that this assumption was not violated, either.

An examination of the scatter plot and the normal P-P plot of regression standardized residuals of both MRAs revealed linear relationships among the variables, pointing to both the independence and a normal distribution of the residuals (Figures 7 and 8). Due to the removal of the four outlier cases that had borne influence on the original data set, no outliers were found during the screening of the sample set used in the analysis. The screening of the data as described indicated that it was appropriate to proceed with the two MRAs and to examine their results.
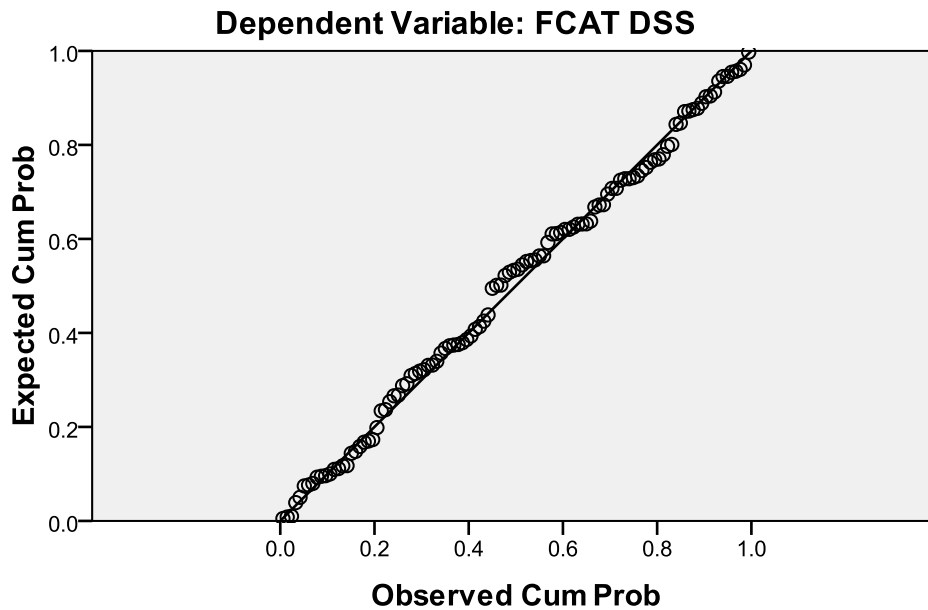
Figure 7. Normal P-P Plot of Regression Standardized Residual: Research Question 1
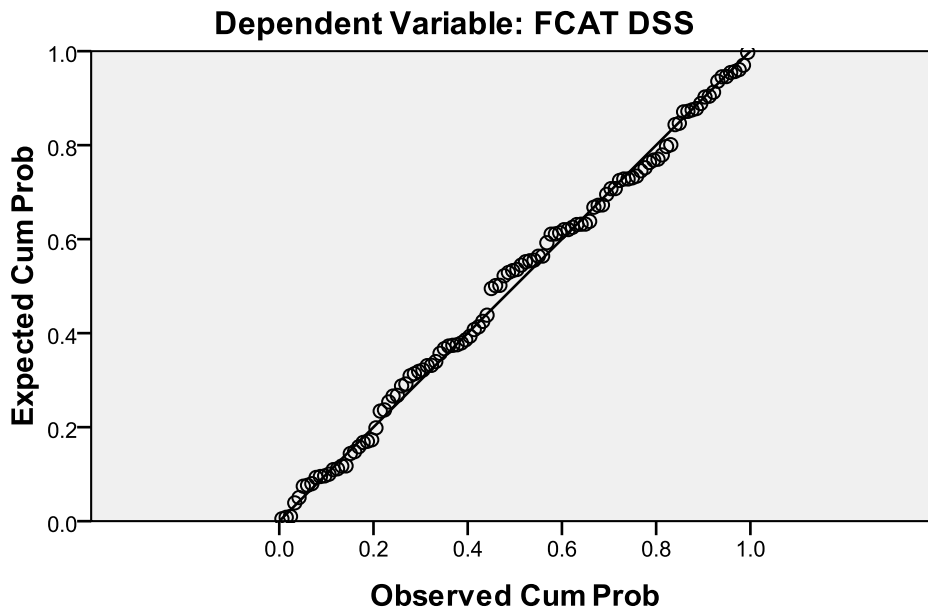
Figure 8. Normal P-P Plot of Regression Standardized Residual: Research Question 2

Quantitative Research Question 1

The first research question was directed at examining the relationship among the

independent variables of categories of reading strategies (Global, Problem Solving, and Support)

and overall English language proficiency with the dependent variable, reading achievement. The

hypothesis was that there exists a relationship between ELLs' use of reading strategies, their

overall English language proficiency, and their reading achievement as measured by the FCAT

developmental scale score.　　To examine this relationship, intercorrelations were examined, and

a standard multiple regression analysis was conducted. Multiple regression predicts the amount

of variance accounted for in one criterion variable by a set of predictor variables (Hair et al.,

2006).

The use of Global reading strategies, Problem Solving reading strategies, Support

strategies and the total CELLA score were entered into the multiple regression. The correlation

results in Table 9 show that the relationships between the variables ranged from -.028 to .655.

Table 9.

Intercorrelations for Reading Achievement and Four Predictor Variables (N = 110)

Variable	1	2	3	4
FCAT DSS	.608**	.124	.164*	.049
Predictor Variables				
1. CELLA Total Score	--	.067	.124	-.028
2. Global Strategies		--	.442**	.655**
3. Problem Solving Strategies			--	.459**
4. Support Strategies				--

*p < .05 **p < .001

The multiple regression model with all four predictors produced R^2 = .38, $F_{4,105}$ = 16.11, p < .001, suggesting that about 38% of the variance in reading achievement was accountable by the set of predictors.

As can be seen in Table 10 which contains the unstandardized coefficients (b) and the standardized coefficient (β), the significance levels, as well as the squared semipartial correlation (sr^2), the CELLA Total Score had a significant positive regression weight, indicating that students with higher English proficiency were expected to have a higher reading achievement. This means that for every point that the CELLA Total Score increases, the FCAT DSS increases by 1.25 points holding Global, Problem Solving, and Support strategies constant.

The derived equation for this model is: Reading Achievement = -1,259.69 + 1.251(CELLA Total Score) + 1.522(Global Strategies) + 2.949(Problem Solving Strategies) + -.029(Support Strategies).

Table 10.

Multiple Regression Summary for Four Variables Predicting Reading Achievement

Variable	b	β	sr^2
Reading Achievement (Constant)	-1,259.69		
CELLA Total Score	1.251	.596*	.344
Global Strategies	1.522	.057	.001
Problem Solving Strategies	2.949	.065	.003
Support Strategies	-.029	-.001	.000

*p < .001

However, an examination of the coefficient matrix revealed that despite arriving at a statistically significant model with four predictor variables, only one variable, English language proficiency as measured by the total CELLA score made a statistically significantly unique contribution (β = .596) to the model. It also made the largest total contribution (34.5% to the total R^2 of 38%), meaning that the use of all reading strategies combined made only a small contribution to the variance in reading achievement.

Quantitative Research Question 2

The second research question afforded a different look at the impact of proficiency level while still investigating the use of reading strategies. Instead of considering English language proficiency as a whole, it was studied by individually exploring the language modalities of listening/speaking, reading, and writing. The hypothesis was that there exists a relationship between ELLs' use of reading strategies, their English language proficiency in language skills areas, and their reading achievement as measured by the FCAT developmental scale score.

To examine this relationship, intercorrelations were examined, and a second standard multiple regression analysis was conducted. The predictor variables of Global strategies,

Problem Solving strategies, Support, CELLA Listening/Speaking scores, CELLA Reading

scores, and CELLA Writing scores were entered into the multiple regression. Table 11 displays

the relationships between the variables which ranged from -.009 to .696.

Table 11.

Intercorrelations for Reading Achievement and Six Predictor Variables (N = 110).

Variable	1	2	3	4	5	6
FCAT DSS	.524**	.585**	.543**	.124	.164*	.049
Predictor Variables						
1. CELLA Listening/Speaking	--	.668**	.661**	.030	.126	-.013
2. CELLA Reading		--	.696**	.157*	.063	-.065
3. CELLA Writing			--	.053	.087	-.009
4. Global Strategies				--	.442**	.655**
5. Problem Solving Strategies					--	.459
6. Support Strategies						--

*p < .05 **p < .001

A statistically significant model ($F_{6, 103}$ = 11.61, p < .001) with the three language modalities of

Listenting/Speaking, Reading, and Writing, and with the three strategy constructs of Global,

Problem Solving, and Support accounted for 40.3% of the variance in reading achievement. The

prediction equation, based on the unstandardized coefficient values presented in Table 12 is:

Reading Achievement = -1,893.73 + .62(Listening/Speaking) + 2.78(Reading) + 1.18(Writing) +

-.33(Global Strategies) + 4.19(Problem Solving Strategies) + 1.23(Support Strategies).

Table 12.

Multiple Regression Summary for Six Variables Predicting Reading Achievement

Variable	b	β	sr^2
Reading Achievement (Constant)	-1,893.728		
CELLA Listening/Speaking	.622	.154	.011
CELLA Reading	2.784	.346*	.047
CELLA Writing	1.182	.193	.016
Global Strategies	-.332	-.012	.000
Problem Solving Strategies	4.189	.092	.006
Support Strategies	1.233	.041	.000

*p < .005

Further examination of the correlation figures presented in Table 12 revealed that of the

six independent variables, only one made a statistically significantly unique contribution to the

model. It was again a measure of English language proficiency, specifically the CELLA Reading

sub-skill (β = .346). Neither of the two other sub-skill areas measured by the CELLA, nor the use

of reading strategies contributed significantly to the model. However, the CELLA Reading score

made a very small total contribution (4.7%) to the total R^2 of 40.3%.

Qualitative Research Question

The review and analysis of the interview transcripts yielded three factors that impact how

the participants approach FCAT Reading, each factor containing subcategories. The themes

which consist of affect, strategies, and perseverance will be described in this sequence. Since the

interviewees were all L2 learners, their verbal responses contained grammatical mistakes, self-

corrections, and occasional pauses to think about the wording they wanted to use. Additionally,

their speech was frequently peppered with "like" as is also typical in the mainstream adolescent

population. When quotes are included to highlight students' opinions, the original wording was

used to keep their voice authentic, but pauses of 2 or more seconds are indicated in brackets to signal the reflection time.

Affect. As would be expected, all participants expressed being emotionally affected by taking the FCAT. Testing anxiety, articulated by the participants as being "nervous" or "worried", was a recurrent theme. They expressed various reasons for being nervous, such as the difficulty of the material, low English language proficiency, unfamiliarity with standardized testing, or the pressure that arises from having an entire year's worth of learning and test preparation measured by one test. Emilia, like Alejandro, expressed general concerns about being well enough prepared. She also found it hard to concentrate on reading and answering questions due to her anxiety: "…[a]nd all the stuff that goes through my head. Should I make it [self-corrects] am I gonna make it? Do I know how to do my work?" A ninth grader, she then went on to explain that she also was stressed about taking the FCAT because she knew the test would be harder in the upcoming school year, the year when she will have to pass it as part of the graduation requirement. Two participants stated that while they started out feeling nervous, they became more relaxed once they got into the test and managed to concentrate on the task at hand.

Testing anxiety is naturally connected to wanting to "pass" or "not fail", in this case FCAT Reading. It was apparent that all participants knew how important it is to score high enough on the test to reach a level 3. The motivations that appeared to be at the foundation of the desire to pass can be attributed to a fear of potential retributions to the person's immediate needs. Marcelo conveyed uncertainty about what would happen to his continued participation in the ESOL class if he didn't pass, although he did not elaborate on that point when asked about it. Adriana's motivation was one of wanting to go into tenth grade free to take electives rather than being enrolled in another intensive reading class designed to improve her reading skills.

In addition to experiencing fear or testing anxiety, several participants stated that they were frustrated when taking the FCAT. They evoked unfamiliarity with standardized testing, the length of time it takes them to complete the test, as well as the perceived difficulty level as reasons for their frustration:

Adriana: At the beginning I was frustrated because I was reading and I had no idea what I was doing and I did it carefully, I was slowly reading it and rereading it again, and then it took me 20 minutes to read the first passage because I did it so slowly.

English language learners classified as LEP in Florida can receive additional time to complete the test. The fact that she was forced to read slowly to understand thus did not create any testing anxiety in Adriana. However, she was frustrated because she didn't want to be stuck in the testing room instead of going to regular class with her friends. Additionally, Adriana was frustrated because she did not appear aware that reading slowly to understand is a reading strategy that she could use to her advantage. In her eyes, taking time to comprehend was an unpleasant effect that arose from being unsure of herself and the task at hand.

Strategies. Four interview questions were posed to elicit the participants' strategy use while taking the FCAT Reading. Two separate categories were derived from the responses: Reading comprehension strategies and testing strategies. The students' verbalization of the reading comprehension strategies they used during the FCAT Reading were coded, compared to the strategies contained in the SORS, and finally classified within the SORS' three categories of global, problem solving, and support strategies. Eleven strategies were identified, six of which were reportedly used by at least a third of the interviewees. As can be seen in Table 13 that summarizes the coding scheme and frequency of reported strategy use among the nine

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interviewees, all strategies but one were also found on the SORS. This strategy, rereading to fully understand, as opposed to rereading difficult parts was classified as a Global strategy because its purpose is one of managing the reading rather than improving comprehension as a result of a perceived problem or supporting understanding during the act of reading (Mokhtari et al., 2008). This strategy was verbalized by only one participant.

Table 13.

Verbal Report of Strategy Use

Strategy Category	Strategy	Count
Problem Solving	Rereading difficult parts	9
Support	Use of bilingual dictionary	8
Global	Taking overall view of text before starting to read	6
Global	Guessing content of text during reading	4
Global	Use of context clues	3
Problem Solving	Guessing meaning of unknown words	3
Global	Use of tables and pictures in text to increase understanding	1
Problem Solving	Stop reading to think	1
Problem Solving	Try to picture or visualize information	1
Global	Activation of background knowledge	1
Global*	Reread entire text to increase understanding	1

Note: *Strategy not contained in SORS

The most frequently reported strategies were rereading difficult parts and the use of a dictionary to resolve vocabulary issues. The latter would typically not be found under standardized testing conditions, but is an allowed accommodation for ELLs who are classified as LEP. Vocabulary was identified as the main difficulty encountered in the FCAT Reading, and when asked what they do when they come to something they don't understand, it was often the lack of understanding individual unknown words that the students reported trying to resolve. It is important to note that several students referred to reading as "putting all the words together."

Overall, the participants did not seem to be cognizant of diverse ways to gain understanding of unknown words. Other than using the dictionary, which Jorge said he used about 70% of the time, only three participants indicated that they at times simply guessed meaning of unfamiliar words. Of these three participants, Emilia also mentioned the use of synonyms as the first way to resolve the problem. She then ranked guessing the meaning of the words as the second option, followed by resorting to the use of the dictionary.

When asked what they do if rereading a sentence or paragraph doesn't help resolve the identified break-down in comprehension, three participants responded that they look for context clues in surrounding sentences, and four participants said that they typically just guess and move on. Overall, they brought up one or two ways to resolve a comprehension issue (typically rereading in first rank). Clara, however, offered a few more solutions: "I look in the dictionary or I read it like two or three times or I keep reading until something gets my mind [2 second pause], or if I don't know, I just guess." The reassessment of comprehension once a strategy had been deployed was notably absent in the participants' responses, although it was somewhat implied in those students who listed more than one strategy in a response or when prompted to describe another strategy if the first one would not resolve the comprehension breakdown.

The global strategy "taking overall view of text before starting to read" was mentioned by six out of the nine participants, suggesting that it is one strategy that is explicitly taught by all three teachers in whose classes this study was conducted. Strikingly, all six participants said that they took this overall view of the text through reading the titles, looking at pictures and captions. Skimming was not mentioned at all as a means to gain a first impression of the text.

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In addition to comprehension strategies, a few test-taking strategies were reported. Three interviewees indicated the same sequence of actions upon opening the FCAT Reading booklet, and one had a slight variation of the order.

> Valeria: I read through the questions first so I know what's gonna happen, what to look for while I am reading. Uhm, and then I look at the pictures to help me. I look at the context at the bottom of the pictures if they have any, and then I begin reading the…the selection.

> Marcelo: I read the picture and then I saw the questions and then I read [the passage].

Two interviewees also indicated that they used the initial glance at the text described above as a reading strategy in a way that can be viewed as a test-taking strategy. Both of them said that they use it as a means to assess the sequence in which they would read the different passages contained in the FCAT, although one used the criterion of perceived text difficulty and the other the length of the passage to decide.

Even though they stated that they read the entire text before going on to answer the questions, Clara and Raul revealed that they then sometimes use the wording of the response items to find the answer in the passage when they feel that they hadn't understood the text. Clara declared that she had used this strategy on one occasion because she did not want to reread a difficult text or an unclear passage.

When asked what strategies friends whom they deemed to be successful readers who do well on the FCAT may use to get good scores, the participants were not able to provide answers other than listing the same strategies they had indicated. It seems that these are not conversations that the students have amongst themselves, nor was the topic brought up in class in preparation to the test.

Valeria: Uhm, I never really asked. But I know there are some readers, some of my

        classmates that do pretty much the same thing as me, I guess. I guess they do a

        little more, I guess. I don't know. … I think they might just, uhm [4 seconds

        pause]. We were taught to reread, so they might just do the same thing.

Maria was the only one who thought her friend may use additional strategies, such as setting a

purpose or a goal for her reading. She also ventured the guess that her friend may concentrate

more than she does. This same thought was voiced by Raul who speculated that his friend

"concentrates in the FCAT and reads everything and like repeats the reading she needs to."

        Unlike Maria and Raul who thought their friends may engage in specific behaviors that

improve their FCAT score, two participants thought the personal attribute of wanting to do well

in school was the key to achieving a high score. They implied that their friends' good study

habits and desire to get good grades impacted the way they approach FCAT and stay engaged

with the task at hand.

        Perseverance. Whereas affect and strategy use were anticipated themes prior to the

analysis of the interview transcripts, partially because a number of questions had been

constructed to investigate these very topics, this third theme of perseverance emerged from the

repeated working of codes given to various responses. Across the nine interviewees, several

obstacles to what are known contributors to reading achievement were noted.

        The first one, quite obviously, is the language barrier that these students naturally

encounter in everyday life, and when engaging in academic tasks, including taking this reading

achievement test in an L2. As was previously pointed out in Table 6, the majority of the

interviewees have reached an intermediate proficiency level in English. They can by no means

be considered standing on equal footing with native English speakers who also encounter

difficulty with passing standardized tests. Several interviewees alluded to the language barrier. Specifically, they identified morpho-syntactical issues. Emilia, Maria and Marcelo declared that "big words", "really hard words", or simply "a lot of word that sometimes you don't know" made the FCAT difficult for them. Alejandro also appeared to have difficulty at the lower levels of comprehension. He said that he was "trying to do [his] best putting all the words together." In subsequent responses it became apparent that Alejandro's solution of trying hard was not restricted to the testing situation. Instead, as Maria stated, the solution to overcoming linguistic difficulties is to "…read…and practice, alright…oh, like practice with American people don't speak Espanish at home, that so when the FCAT time comes you'll like speak English better."

Another hindrance to doing well on the FCAT that the students identified was connected to the actual texts. Most likely also caused by the linguistic barriers or by less well developed literacy skills in either their L1 or in English, two students thought that the passages were simply too long or that there were too many of them. They felt pressed for time to give these passages the needed attention. One participant also articulated that he at times had problems understanding the questions or answer options. When asked what they had done to overcome these problems during the last FCAT administration, all three replied that they read very carefully and tried to figure out as much as they could, sometimes through the use of comprehension strategies.

The interviews also revealed an apparent lack of interest in the passages of the test. Four of the interviewees said that they dreaded the passages. Clara and Valeria expressed almost identical views:

Clara: Because most of the time the story that they give us is not really like

interes…interesting for us. They really boring and really long so that is why I

fall asleep.

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Valeria: Like, uhm, cause sometimes the things that they give us aren't really all that fun

stuff and sometimes I get nervous cause I think like I'm just gonna give up and

stop reading because it's not fun…it's not interesting.

Yet, despite the participants' disinterest in the texts used to measure reading achievement, it was abundantly clear that they did their best to stay on task. They indicated that they concentrated, read carefully, even if it "took [them] a really long time", reread not only difficult sentences or paragraphs but indeed entire test passages, and carefully examined the questions and answer options so that they could obtain a good score on the FCAT.

Summary

Chapter Four provides an analysis of the data collected to examine linguistic, cognitive, as well as affective factors that impact adolescent ELLs' performance on a state standardized reading achievement test. Three data sources were used to investigate the overarching quantitative research questions of "How do ELLs' reported use of reading strategies and their level of English language proficiency impact their reading achievement?" Through multiple regression analyses two models of reading achievement as measured by the FCAT Reading developmental scale score were built and evaluated. Both models were statistically significant and explained 38% and 40% variance in reading achievement, respectively, but in both cases only one predictor variable was found to be a statistically significant contributor to the model.

The analysis of individual interviews with nine students who had also participated in the quantitative portion of the study yielded the discovery of three themes that describe how English language learners approach a standardized reading achievement test which was the qualitative research question. These themes are affect, strategy use, and perseverance.

Chapter Five will interpret these findings, describe the limitations of this study, offer

implications for adolescent literacy instruction, and recommend further research.

CHAPTER FIVE:
DISCUSSION AND CONCLUSION

This chapter summarizes an investigation of linguistic, cognitive and affective factors that impact adolescent English language learners' (ELL) performance on a state standardized reading achievement test. It begins with a summary of the purpose of the study. The major findings of the study and the limitations inherent as a result of the design and the sample are then explained. The chapter will conclude with a discussion of implications for classroom instruction and with recommendations for future research.

Purpose of the Study

There is a critical need to provide literacy instruction for adolescents that will prepare them to become fully functional members in today's information-dense, fast-paced, fast-changing global society; literacy instruction that increases text comprehension of traditional, print-based texts, as well as the new electronic and multimedia information (Biancarosa & Snow, 2006; Heller & Greenleaf, 2007; Kamil et al., 2008; Moore et al., 1999); literacy instruction that helps develop critical thinking skills, problem-solving skills, and communication skills (Berman & Biancarosa, 2005; Carnevale & Desrochers, 2001; U.S. Department of Labor, 2008). The explicit teaching of reading comprehension strategies by all content teachers in the secondary grade level has been proposed as a means to develop these higher level skills for all students and to increase comprehension in struggling adolescent readers who have mastered basic reading skills but are unable to wholly comprehend the texts they read (Biancarosa & Snow, 2006; Short & Fitzsimmons, 2007; Torgesen et al., 2007). However, the impact of interactions of factors unique to reading in a second language (L2) with those that are common to all readers has not been sufficiently researched to make sound instructional decisions for English language learners

(ELLs) who, by definition, do not possess the same level of English language skills as their native-English speaking peers.

The purpose of this study was to investigate linguistic, cognitive, as well as affective factors that bear influence on adolescent ELLs' performance on a state standardized reading achievement test. The study's design was driven by two distinct objectives. The first objective was to build a prediction model of grade-level academic reading achievement by examining the relationship between self-perceived use of reading strategies and English language proficiency in adolescent ELLs. The reading portion of the Florida Comprehensive Achievement Test (FCAT) was used as the measure of reading achievement, the Comprehensive English Language Learning Assessment (CELLA) served as the measure of English proficiency, and the use of reading strategies was obtained through the administration of the Surveyof Reading Strategies (SORS) (Sheorey & Mokhtari, 2001).

Together, these three measures allowed for a simultaneous investigation of the three facets of reading comprehension, the reader, the text, and the situational context (Grabe & Stoller, 2002; RAND Reading Study Group, 2002; Weaver, 2002). These variables also allowed for a quantitative examination of factors that are attributed to two dimensions of the Compensatory Model of Second Language Reading, namely L2 Proficiency and Unexplained Variance (Bernhardt, 2005). In the case of the latter, strategy use was the factor examined.

The second objective focused more closely on the impact of two reader-specific factors that fall in the Unexplained Variance dimension of Bernhardt's (2005) model. The aim of the qualitative portion of the study was to deepen the understanding of ELLs' use of strategies during a standardized reading test, while also investigating affective factors that may impact their performance on this measure of academic achievement.

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<u>Summary of Major Findings</u>

The multiple regression analyses yielded two statistically significant models of reading achievement with English proficiency and reading comprehension strategies as predictor variables. The first model explained 38% of the variance in scores, and the second model explained 40%. The finding of the relationship of L2 proficiency and reading strategies to reading comprehension was anticipated in view of the Compensatory Model for Second Language Reading (Bernhardt, 2005). The relationship is already established by several decades of descriptive and correlation research in L2 reading research (e.g., Block, 1992; Carrell, 1989; Jiménez et al., 1996; Knight et al., 1985; Sheorey & Mokhtari, 2001) and served as a base to build Bernhardt's (2005) original L2 reading models and final model as described in Chapter Two.

Linked to this first finding is the second finding which was revealed through closer examination of the two prediction models. Only L2 proficiency made statistically significant unique contributions to the models. In the case of the first model that contained four predictor variables, overall language proficiency and three individual categories of reading strategies, L2 proficiency contributed to all but 3.5% of the variance in reading achievement.

In the case of the second model which examined L2 proficiency in greater detail by utilizing as predictor variables the sub-skill scores of Listening/Speaking, Reading, and Writing in addition to the same three categories of reading strategies from the first model, only the Reading sub-skill variable provided a statistically significant unique contribution. The contribution, however, was very small ($sr^2 = .047$). This finding suggests that there may have been overlap among the other variables in the model (Pallant, 2007). The calculation of further models that contain different combinations of L2 proficiency and strategy use may improve the

two models, both in terms of total variance explained and in terms of unique contributions of the predictor variables to the model.

The non-significance of reading strategies in the prediction models is inconsistent with much of the prior research that found positive relationships between strategy use and comprehension through collection of think-alouds or interviews (Anderson, 1991; Pritchard & O'Hara, 2008; Knight et al., 1985) and through self-report measures of reading strategies (Carrell, 1989; Padron & Waxman, 1988). It does, on the other hand align with a recent study that found significant correlations among four different self-report measures of metacognitive awareness of strategies, but low correlations between the main self-assessment instrument under investigation and reading achievement (Sperling, Howard, Miller & Murphy, 2002). The result is also consistent with the results of three studies (Cromley & Azevedo, 2004, 2005, 2006) involving the Metacognitive Awareness of Reading Strategies Inventory (MARSI), the first language (L1) reading equivalent to the SORS, in which low correlations between reading comprehension and strategy were noted.

Despite some evidence that self-report measures of reading strategies may not correlate with comprehension as well as concurrent verbal reports do, the fact that none of the three strategy categories made a significant contribution to the models was unexpected. This researcher anticipated that at least two strategy categories would contribute. Especially anticipated was a contribution of Problem Solving strategies since these are the localized techniques readers employ when a problem with understanding arises. The second strategy category that was expected to show significance in the model was that of Support strategies due to these strategies' function as support mechanisms such as using a dictionary or underlining important text so that it can be easily found or recalled with less effort later.

The self-report data obtained through the SORS revealed a different picture than predicted. While Support strategies were reported being used the most frequently by all participants ($M = 3.73$; $SD = .78$), this category is only slightly higher than the second most frequently reported strategy category, Global ($M = 3.5$, $SD = .54$). Problem Solving strategy use was the least often reported ($M = 3.46$, $SD = .46$) and actually falls just below the high use range determined by the instrument developers (Mokhtari & Reichard, 2002; Sheorey & Mokhtari, 2001).

There are several factors that could have led to the result that none of the strategy categories made a significant contribution to the prediction model. The first reason is explained by conceptualizations of reading such as Bernhardt's (2005) Compensatory Model for Second Language Reading that describe the contribution of numerous variables, including decoding, background and vocabulary knowledge, strategies, and affective factors, to effective reading. Any combination of these factors could have borne sufficient weight in this investigation to render the use of strategies statistically non-significant. Based on findings stemming from the verbal protocol analysis discussed below, it is highly likely that the participants' lack in the area of vocabulary knowledge represented an important factor. This hypothesis is reflected in Alderson's findings that "Measures of a reader's vocabulary knowledge routinely correlate highly with measures of reading comprehension, and are often, indeed, the single best predictor of text comprehension" (Alderson, 2000, p. 35).

The second reason for the statistical non-significant contribution of comprehension strategies in the two prediction models lies in the frequency of all strategies the participants reported having used while taking the FCAT. It is possible that the report of strategy use was inaccurate in that the participants simply reacted to recognizing strategies in the thirty strategy

statements rather than thinking about how often they had actually used these strategies during FCAT. Their self-perception of strategy use would thus have been reflective of their general use of strategies while reading instead of the strategies they had employed during the specific situational context of reading in a standardized reading achievement test.

This hypothesis is supported by the developers of the MARSI who write that the instrument was designed to assess readers' "awareness and perceived use of reading strategies while reading academic or school-related materials (Mokhtari & Reichard, 2002, p. 251). Research has shown that readers adapt to the purpose for reading and employ different strategies depending on the situational context (Bråten & Samuelstuen, 2004; Magliano, Trabasso & Graesser, 1999). Differences in strategy use depending on the purpose of the reading task have also been found in studies involving the MARSI. Eleventh grade students reported using strategies more frequently when reading for study purposes as compared to reading for entertainment (Mokhtari & Reichard, 2008). Mokhtari et al. (2008) discovered significant differences between perceived general strategy use and perceived strategy use reported immediately upon reading a specific text.

The analysis of interview responses brought forth a different picture of strategy use than the one that emerged from the quantitative analysis. As was predicted for the entire study, the two most frequently reported strategies fall in the categories of Problem Solving (rereading difficult parts) and Support (use of bilingual dictionary), and they were used by all nine and eight participants, respectively. This finding is somewhat inconsistent with research conclusions that more advanced L2 learners were inclined to activate prior knowledge, make inferences, and overall use more top-down strategies than less proficient students who relied on local or bottom-

up strategies (1989; 2007), as seven of the nine interviewees were at either high-intermediate or advanced proficiency levels.

The low reported use of strategies is reflected in Kletzien's (1991) study in which strategy use declined for poor comprehenders as texts became more difficult. FCAT Reading passages were difficult for the participants in this study, as evidenced by the results showing that only four of the 110 students achieved a score high enough to reach level 3. While the participants in Kletzien's (1991) study also reported depending on making inferences in addition to using key vocabulary and rereading, higher level cognitive strategies and metacognitive strategies were rarely mentioned by the interviewees in this study.

The focus on resolving bottom-up issues can at least partially be explained by language proficiency, but it does bring up the question of L1 literacy levels. The average length of time the participants have lived in the United States was six years for the entire sample and just under five years for the nine interviewees. This means that the majority of participants had attended school in their home country, suggesting that they had developed basic literacy skills prior to immigration. Although no specific data was collected regarding the level of L1 literacy skills, the interview analysis revealed that participants, as a whole, were unable to transfer higher level skills to the L2 reading context.

The inconsistency between the high frequency of all 30 strategies reported on the SORS and the much lower count of eleven strategies verbalized in the interviews constitutes the third major finding of his study. It coincides with Phifer and Glover (1982) who discovered that not all participants actually employed the strategies they had reported using on a metacognition form. Mokhtari, Reichard, and Sheorey (2008) established that the rewording of the MARSI strategy statement to past tense and administering the instrument immediately following a reading task

led to the reporting of actual strategies used, as compared to the present tense wording of the statements which measures perceived strategy used in a typical, but not specific, reading task.

The strategy descriptions used in the present study were phrased in present tense. Even though the researcher explained that the purpose of the study was to find out what strategies they had used while taking the FCAT Reading and repeated this statement during the administration of the SORS, the participants may still have reported on the strategies they use when reading in general. After all, it is during classroom instruction that they are typically reminded to make use of comprehension strategies. Future studies that examine the use of reading strategies for a specific situational context such as a recent test should consider using past tense in the item descriptions.

The timing of the data collection at the end of the school year may also have contributed to the discrepancy between self-reported strategies and strategies described during the interviews. There was a gap of nearly eight weeks between the last official testing date of FCAT Reading for 2008-09 school year and the collection of the SORS data. The researcher was fully aware that this lapse of time did not present an ideal situation to obtain post-testing student reports of strategy use. It was nonetheless unavoidable due to the fact that classroom access was not granted before the end of all standardized tests, and the CELLA testing window commenced approximately three weeks after FCAT and lasted four weeks. It is likely that the time elapsed since the FCAT Reading was too long for the participants to really put themselves back in the position of test-taker on the day they responded to the SORS. The face-to-face interaction and the regular inclusion of phrases like "on the FCAT Reading" included in the interview questions may have facilitated the interviewees' recollection of feelings and actions during the test and thus may have resulted in more accurate reporting.

Fourth, the interview data suggest that the students possessed very little metacognitive competency (Baker & Brown, 1984). The SORS data may have divulged the students' declarative knowledge of strategies, but little procedural or conditional knowledge of strategies was evident in the interviews (Paris et al., 1984). The students were able to verbalize less than a dozen strategies that they or their supposedly successful friends use when taking FCAT. Furthermore, they did not report monitoring their understanding or checking if the strategies they had used had indeed helped resolve their comprehension difficulty. In other words, they did not display thoughtfulness in the reading process (Pearson, Roehler, Dole & Duffy, 1992). Additionally, the students seemed to notice perceived weaknesses related to language proficiency and problems with the text, but they did not appear to recognize the strengths they may bring to the reading task which would be a sign of readers who possess high metacognition (Baker, 2002).

The fifth and last major finding of this study was expected and lies in the high probability that affective factors played an important role in the scores the participants obtained on the FCAT. Specifically, testing anxiety which was expressed in terms of not wanting to fail, nervousness due to the high stakes nature of the test, participants' insecurity about their language abilities, as well as frustration over the long time it took them to complete the test may have taken attention away from the task at hand. This finding relates to the situational context in which the students had to show text comprehension and is in line with research and opinions expressed by critics of high-stakes testing who have argued the negative effects of testing anxiety on metacognitive thinking (Everson, 1992) and on strategy use (Farr et al., 1990; Guthrie, 2002). On the other hand, the perseverance in overcoming multiple perceived and real difficulties evident in the responses of several interview participants indicated that for them this once-a-year

high-stakes test has not had the long-term effects of diminished motivation to try hard in instructional situations that some researchers have discussed (Paris, 2000; Paris et al., 1991). Observational data and teacher assessment regarding participants' overall engagement in learning would have added a level of confidence in this interpretation of the affective factors and should be considered in future research.

<u>Significance of Findings</u>

One important contribution of this study is that it extends the application of Bernhardt's (2005) Compensatory Model for Second Language Reading into the situational context of standardized reading achievement testing, thus introducing a heightened level of affective factors that are likely to impact reading comprehension. It also introduces the presence of test-taking strategies that should be further examined in future research. To this researcher's knowledge, no prior study has examined ELLs' performance on a high-stakes standardized English reading achievement test within the theoretical framework provided by the model.

Language proficiency level was found to be the key variable for predicting standardized reading achievement scores. Linked to language proficiency, the results of the interview responses suggest that lack of vocabulary knowledge was a major impediment to the participants' performance on FCAT and may have prevented the application of higher level reading strategies. This study addresses a gap in the literature on the instruction of adolescent ELLs in the United States who increasingly have to pass high-stakes reading achievement tests in English long before they have developed the linguistic ability to do so (Abedi, 2004; Rossell, 2005).

Also within the vein of the Bernhard (2005) model, this study qualitatively examined the impact of affective factors and of cognitive strategies. It adds to the existing literature on self-

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perception of strategic competence by showing an apparent discrepancy between perceived use of strategies as reported on a self-assessment instrument versus strategy use described during a verbal report.

Limitations

Generalizability is the main limitation of this research and is the result of the study population and methodology. The first population-related limitation stems from the fact that all participants had the same linguistic background, Spanish. Different findings may have emerged with participants from various language backgrounds. When working with students whose L1 has different orthographic features than English, or with students whose L1 has greater morpho-syntactic distance with English, cross-linguistic factors that did not enter into the equation in this study need to be considered carefully. Second, no information regarding the participants' L1 literacy skills were collected. No claims of typical distribution of L1 literacy ability can be made for this group of learners.

Methodologically-related limitations include the measures of English language proficiency and reading achievement. The FCAT is specific to Florida and measures progress toward that state's curriculum framework. The CELLA was developed for a consortium of states consisting of Florida, Maryland, Michigan, Pennsylvania, and Tennessee, and is thus used beyond the borders of this state. However, it is unclear how well this assessment correlates with the curriculum standards assessed in these states' standardized measures.

Implications for Practice

The findings of this study highlight the importance of English language skills when the object of the standardized assessment is reading in English. This could have curricular implications for providing the right kind of instruction for the ELL population. Teachers whose

primary responsibility it is to teach reading, be that in intensive reading programs designed for students who have previously scored below a level deemed at grade level or in sheltered language arts classes, need to assist their ELLs in English language development at the same time as they teach reading skills. Vocabulary development, for example, should not only include semantic mapping and word structure analysis that have been shown to be effective practices (Anderson, 1999; Carrell, Pharis & Liberto, 1989; Grabe, 2009; Guarino & Perkins, 1986; Koda, 2004), but should also contain instruction in the use of cognates in which students' knowledge of their L1 can become an asset (Fraser, 1999; Paribakht & Wesche, 1999).

By conjointly increasing the students' lexical knowledge and giving them the means to deal with unknown vocabulary that does not require the immediate and indiscriminate use of a dictionary, students can become more fluent readers (Grabe, 2009; Prichard, 2008). Fluent readers are less limited to employing bottom-up strategies and can attend to higher level reading comprehension strategies that may improve their understanding of the text.

The results of the qualitative portion of this study make a strong case for the inclusion of strategy instruction that contains the raising of metacognitive awareness. Although metacognitive knowledge makes bigger contributions to comprehension at higher proficiency levels than at lower levels (Grabe & Stoller, 2002), all students can benefit from improved metacognitive abilities, especially ELLs in secondary school who may possess L1 literacy skills that they can transfer to the L2 reading context. The repeated use of think-alouds and self-assessment instruments or questionnaires can provide teachers with important information on current students' strategy use which allows them to design appropriate strategy instruction (Padron & Waxman, 1988; Israel, 2007). It can also help raise students' metacognitive awareness, increase their use of strategies, and improve their self-perception in that they start to see themselves as good readers (Johnson, 2005).

Raising awareness of metacognition, improving self knowledge, and improving regulatory

skills are some of the instructional strategies Schraw (1998) suggests for the teaching of

metacognition. However, McKeown & Gentilucci warn teachers of the danger of "selecting

strategies that purport to be useful tools for improving all students' development" (McKeown &

Gentilucci, 2007, p. 146) when working with ELLs. Instead, they recommend careful consideration

of L2 research findings, due to the complexity of the process of reading in a second language.

<div align="center">Recommendations for Future Research</div>

This study was a first exploration into the prediction of standardized reading achievement

scores based on the Compensatory Model for Second Language Reading (Bernhardt, 2005). Results

suggest that future research into the model under the situational context of standardized testing needs

to include additional variables, at the very least a measure of L1 literacy. This is first of all necessary

to validate the 20%, 30%, 50% distribution of the three dimensions in the model. The addition of an

L1 literacy variable may also yield more precise test score prediction models that show the impact of

various reading strategies on reading achievement. Moreover, it may lead to the potential

identification of a threshold of L2 language proficiency that indicates what types of strategies are

most beneficial for students at various proficiency levels.

The addition of a measure of vocabulary knowledge may benefit researchers and teachers

alike as it may offer more detailed insights into L2 language knowledge that is not directly

discernable in language modality scores (i.e., listening/speaking, reading, writing in the case of this

study). This information may lead to the confirmation of the 27% contribution of word knowledge

and 3% contribution of grammar knowledge to Bernhardt's (2005) L2 Language Knowledge

dimension, and would give teachers additional point of reference in their students' current abilities

and needs for future instruction.

The timing of the data collection on strategy use should be as close to the actual testing event as possible to enable participants to accurately recall their strategy use. If the testing schedule or school policy prevent the abutting of the two events, an alternative should be found. Many states supply practice tests in preparation for the actual achievement test. Such a practice test that simulates the test administration could be used, and the strategy self-assessment could be administered in the same session. Under this scenario, the instrument that elicits the frequency of strategies should be worded in past tense, as was done in Mokhtari et al.'s (2008) study to allow the students to indicate the strategies they had actually used.

Additionally, because the situational context of showing comprehension of text during a standardized achievement test differs from the typical school-related reading task, the thinking process of test takers needs to be taken into consideration when conducting this type of research. Self-assessment measures of strategy use should be appended with a few questions regarding the overall approach taken when taking a test to account for this difference in situational context (Farr et al., 1990). This information may provide insights into productive reading comprehension strategy use under testing situations.

Future research should also include quantifiable measures of affective factors such as interest in the test passages, motivation, and anxiety. These measures would add further depth to the standardized test score prediction model. The results of this research demonstrate the power of student verbal reports as a means to discover potential misconceptions or over-estimations of strategy and to find out about students' attitudes toward learning and the testing situation. Teachers need to know as much as possible about the factors that impact student performance, and rich data that contain the students' voice is a useful source of information.

Summary

The results of this study show that the linguistic and cognitive factors that impact reading comprehension in school-related reading situations (i.e., in class activities or homework assignments) play the same role in the situational context of testing. While students' standardized achievement test performance should naturally increase as the students become more proficient in English, it is important to remember that the acquisition of academic language takes considerably longer than the acquisition of basic language skills to function in everyday life (Cummins, 1979), and that in many instances ELLs who have spent extended periods of time in American classrooms continue to experience difficulty in performing well on standardized test measures (Kindler, 2002; Mahon, 2006). While reading achievement can be improved through the explicit teaching of metacognitive and cognitive strategies, teachers must understand that the L2 students' needs vary depending on their proficiency level in the target language. Additionally, adolescent students' already developed L1 literacy skills can act as a source of assistance in comprehension, but some students may first need to become aware of the benefits of transfer of skills.

APENDIX A:
IRB LETTER

University of Central Florida Institutional Review Board
Office of Research & Commercialization
12201 Research Parkway, Suite 501
Orlando, Florida 32826-3246
Telephone: 407-823-2901, 407-882-2012 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

Notice of Expedited Initial Review and Approval

From :   **UCF Institutional Review Board**
         FWA00000351, Exp. 10/8/11, IRB00001138

To   :   **Carine Strebel Halpern**

Date :   **May 12, 2009**

IRB Number: SBE-09-06227

Study Title: **An Investigation of the relationship between metacognitive awareness of comprehension strategies and standardized reading achievement test scores in English language learners**

Dear Researcher:

Your research protocol noted above was approved by **expedited** review by the UCF IRB Vice-chair on 5/12/2009. **The expiration date is 5/11/2010.** Your study was determined to be minimal risk for human subjects and expeditable per federal regulations, 45 CFR 46.110. The categories for which this study qualifies as expeditable research are as follows:

6. Collection of data from voice, video, digital, or image recordings made for research purposes.

7. Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

The IRB has approved a **consent procedure which requires participants to sign consent forms**. Use of the approved, stamped consent document(s) is required. Only approved investigators (or other approved key study personnel) may solicit consent for research participation. Subjects or their representatives must receive a copy of the consent form(s).

All data, which may include signed consent form documents, must be retained in a locked file cabinet for a minimum of three years (six if HIPAA applies) past the completion of this research. Any links to the identification of participants should be maintained on a password-protected computer if electronic information is used. Additional requirements may be imposed by your funding agency, your department, or other entities. Access to data is limited to authorized individuals listed as key study personnel.

To continue this research beyond the expiration date, a Continuing Review Form must be submitted 2 – 4 weeks prior to the expiration date. Advise the IRB if you receive a subpoena for the release of this information, or if a breach of confidentiality occurs. Also report any unanticipated problems or serious adverse events (within 5 working days). Do not make changes to the protocol methodology or consent form before obtaining IRB approval. Changes can be submitted for IRB review using the Addendum/Modification Request Form. An Addendum/Modification Request Form **cannot** be used to extend the approval period of a study. All forms may be completed and submitted online at http://iris.research.ucf.edu .

Failure to provide a continuing review report could lead to study suspension, a loss of funding and/or publication possibilities, or reporting of noncompliance to sponsors or funding agencies. The IRB maintains the authority under 45 CFR 46.110(e) to observe or have a third party observe the consent process and the research.

On behalf of Tracy Dietz, Ph.D., UCF IRB Chair, this letter is signed by:

Signature applied by Joanne Muratori on 05/12/2009 09:32:22 AM EDT

IRB Coordinator

APPENDIX B:
SURVEY OF READING STRATEGIES

Survey of Reading Strategies (SORS) for Standardized Testing

The purpose of this survey is to collect information about the various strategies you use when you **take the FCAT Reading.** 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.

- -

El propósito de esta encuesta es recolectar información sobre las diferentes estrategias que usted usa cuando **toma el examen de** **FCAT Reading** (**FCAT de leer**). *Cada enunciado va seguido de cinco números, 1, 2, 3, 4, y 5, y cada número significa lo siguiente:*

*'1' significa que '**Nunca o casi nunca** hago esto'.*
*'2' significa que 'Hago esto **sólo ocasionalmente'**.*
*'3' significa que '**Algunas veces** hago esto'. (Alrededor del **50%** de las veces.)*
*'4' significa que '**Usualmente** hago esto'.*
*'5' significa que '**Siempre o casi siempre** hago esto'.*

Después de leer cada enunciado, **encierra en un círculo el número** *(1, 2, 3, 4, ó 5) que corresponde a su caso**.** Nota que no hay* **respuestas correctas o incorrectas** *a ninguna de los puntos de esta encuesta.*

Demographic Information -- *Información Demográfica*

Name *Nombre y apellido*	_____
Student Number *Número de Estudiante*	_____
Gender *Sexo*	_____
What is your native or first language, English or Spanish? *¿Cuál es tu primer lenguaje, inglés o español?*	_____
How long have you lived in the United States? *¿Por cuánto tiempo has vivido en los Estados Unidos?*	_____

Statement *Enunciado*	Never *Nunca*				Always *Siempre*
1. I know why I'm reading before I begin to read. *Entiendo por qué leo, antes de comenzar a leer.*	1	2	3	4	5
2. I write down ideas to help me understand what I read. *Tomo notas mientras leo para ayudarme a entender.*	1	2	3	4	5
3. I use what I already know to help me understand what I read. *Pienso en lo que ya sé para ayudarme a entender lo que leo.*	1	2	3	4	5
4. I look at what I'm going to read to see what it is about before reading it. *Le doy un vistazo general al texto para ver de lo que se trata antes de leerlo.*	1	2	3	4	5
5. I read aloud in my head to help me understand what I read. *Cuando el texto es difícil, leo en voz alta, pero silenciosamente a mí mismo, para ayudarme a entender.*	1	2	3	4	5
6. I think about what I read and decide if it agrees with my purpose for reading. *Pienso en lo que leo y decido si el contenido del texto se ajusta a mi propósito de lectura.*	1	2	3	4	5
7. I read slowly but carefully to be sure I understand what I'm reading. *Leo despacio y con cuidado para asegurarme de que entiendo lo que estoy leyendo.*	1	2	3	4	5
8. I look through the reading material to see how long it is and how it is organized. *Primero reviso el texto para notar características como longitud y organización.*	1	2	3	4	5
9. I try to concentrate on my reading when my mind wanders. *Trato de volver a encarrilarme cuando pierdo la concentración.*	1	2	3	4	5
10. I underline or circle information in the reading material to help me remember it. *Subrayo o marco información en el texto para que me ayude a recordarlo.*	1	2	3	4	5
11. I slow down when reading becomes hard and I speed up when it is easy. *Leo más despacio cuando se me hace difícil la lectura y leo más rápido cuando es fácil.*	1	2	3	4	5

Statement / *Enunciado*	Never *Nunca*				Always *Siempre*
12. If I find something in a book that I think is not important, then I do not read it. *Si encuentro algo en un libro que no me parece importante, no lo leo.*	1	2	3	4	5
13. I use materials such as dictionaries to help me understand what I read. *Utilizo materiales de referencia (p. ej., un diccionario) para ayudarme a entender.*	1	2	3	4	5
14. When reading becomes hard, I start reading more carefully. *Cuando el texto se me hace difícil, pongo más atención a lo que estoy leyendo.*	1	2	3	4	5
15. I use pictures in the book or story to help me understand what I read. *Utilizo fotos/dibujos en el libro o cuento para ayudarme a comprender lo que leo.*	1	2	3	4	5
16. I stop from time to time and think about what I'm reading. *Me detengo de vez en cuando y pienso en lo que estoy leyendo.*	1	2	3	4	5
17. I use picture and word clues to help me understand what I read. *Utilizo dibujos, fotos y palabras como claves para ayudarme a entender lo que leo.*	1	2	3	4	5
18. I say things in my own words to understand what I read. *Parafraseo (replanteo las ideas en mis propias palabras) para entender mejor lo que leo.*	1	2	3	4	5
19. I try to imagine or picture information to help me remember what I read. *Trato de imaginarme o visualizar información para ayudarme a recordar lo que leo.*	1	2	3	4	5
20. I use the way words look, like bold or italics, to help me find important information. *Uso figures tipográficas como negritas o itálicas para identificar información clave.*	1	2	3	4	5
21. I try to decide what's really important in the things I read. *Trato de decidir lo que es muy importante cuando leo.*	1	2	3	4	5

Statement *Enunciado*	Never *Nunca*			Always *Siempre*	
22. I go back and forth in the reading material to find how ideas go together. *Cuando leo, regreso a lo que he leído para encontrar cómo las ideas están relacionadas.*	1	2	3	4	5
23. I stop and think about what I have read if I find information that doesn't make sense. *Si me encuentro con información que no tiene sentido, me detengo a pensar en lo que ya he leído.*	1	2	3	4	5
24. I try to guess what the book or story is about before I read it. *Trato de adivinar de qué trata el libro o el cuento antes de leerlo.*	1	2	3	4	5
25. If I don't understand what I'm reading, I read it again. *Si no comprendo lo que estoy leyendo, lo leo otra vez.*	1	2	3	4	5
26. I ask myself questions I want to have answered in my reading. *Me hago preguntas que quiero el texto me conteste.*	1	2	3	4	5
27. When I'm done reading, I check to see if my guesses were right or wrong. *Reviso si mis suposiciones sobre el texto son correctas o incorrectas.*	1	2	3	4	5
28. I try to guess the meaning of words or phrases I don't know. *Trato de adivinar el significado de palabras o frases desconocidas.*	1	2	3	4	5
29. I translate from English to Spanish. *Traduzco del inglés al español.*	1	2	3	4	5
30. I think about information in both English and another language. *Pienso en la información tanto en español como en inglés.*	1	2	3	4	5

APPENDIX C:
INTERVIEW PROTOCOL

Pre-Interview

The interview can be conducted at the back of the room while other students are engaged in a reading or writing activity. Notations of the student's responses can be made in an anecdotal record or through audio taping. Some circumlocution may be necessary for students at low proficiency levels.

After thanking the student for coming to talk to the researcher and asking for assent, s/he should be shown a practice FCAT text with comprehension questions and should be reminded that the purpose of the interview is to find out what s/he thinks or does when taking FCAT Reading.

INTERVIEW QUESTIONS

- How do you feel when you take FCAT Reading?
  - Why do you think you feel this way?

- When you open up the FCAT Reading test booklet, what do you do first? What do you do next?

- When you are reading the passage and come to something you don't know, what do you do? Do you ever do anything else?

- What do you think makes the FCAT Reading difficult for you? What do you do that helps with this difficulty?
  - If no answer, start to list some strategies: Think about what you know about the passage; translate portions; guess meaning of words; look for easier areas, etc.

- Do you think that one of your friends in this class is a good reader and does well on the FCAT Reading? Who is a good reader that you know?

- Why do you think she/he does well on the FCAT Reading?

- Do you think that she/he sometimes comes to passages she/he doesn't understand while taking the FCAT?
  - If Yes: When she/he does come to something she/he doesn't understand, what do you think she/he does about it?
  - If No: Suppose he/she does come to something he/she doesn't understand. Pretend: What do you think she/he does about it?

- Do you remember any of the passages you read when you took the FCAT in March?
  - If Yes: What was the passage about? What makes you remember it?
  - If NO: Why do you think you don't remember any of them?

Post-Interview

Thank you very much for speaking with me. I appreciate your time and your answers to my questions.

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