Cultural-Historical Activity Perspectives on the Effects of Participation in Teacher-Mediated, Computer-Mediated Reading Instruction

Rita Maria Menendez
University of Miami, menendezrita@gmail.com

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CULTURAL-HISTORICAL ACTIVITY PERSPECTIVES ON THE EFFECTS OF PARTICIPATION IN TEACHER-MEDIATED, COMPUTER-MEDIATED READING INSTRUCTION

By

Rita M. Menéndez

A DISSERTATION

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CULTURAL-HISTORICAL ACTIVITY PERSPECTIVES ON THE EFFECTS OF PARTICIPATION IN TEACHER-MEDIATED, COMPUTER-MEDIATED READING INSTRUCTION

Rita M. Menéndez

Approved:

William E. Blanton, Ed.D.
Professor of Teaching and Learning

Terri A. Scandura, Ph.D.
Dean of the Graduate School

Arlene Clachar, Ph.D.
Associate Professor of Teaching and Learning

Eugene F. Provenzo, Ph.D.
Professor of Teaching and Learning

Craig Enders, Ph.D.
Associate Professor of Psychology
Arizona State University
The purpose of this study was to determine the effects of participation in Read 180, a teacher-mediated, computer-mediated reading instruction program, on the reading proficiency of 4th and 5th grade English Language Learners. The students who participated in the Read 180 program scored below the 25th percentile on the Florida Comprehensive Assessment Test (FCAT). Cultural-historical activity theory guided the research. Research questions for the study were answered with quantitative and qualitative methods. The questions asked were:

1. What are the effects of participation in Read 180, a teacher-mediated computer-mediated-integrated learning system that provides reading instruction, on the growth in reading proficiency of a group of participating English Language Learners?

2. What are the effects of participation in Read 180, a teacher-mediated computer-mediated integrated learning system that provides reading instruction, on the reading achievement of a group of participating English Language Learners when compared with the reading achievement of a group of English Language Learners with similar characteristics receiving reading instruction supported by a reading basal program?
3. How does the mediated structure of Read 180, a teacher-mediated, computer-mediated integrated learning activity system that provides reading instruction and surrounding activity systems interact to affect learning?

Data analysis revealed that the fourth and fifth grade experimental group significantly improved their proficiency on the Scholastic Reading Inventory. Analysis of pre- and post-test scores obtained with the Florida Comprehensive Assessment (FCAT) of fourth and fifth grade experimental and control groups were not statistically significant. Qualitative findings indicated that the organization of classroom instruction had a significant impact on the quality of instruction. A discussion of the findings presents several implications and recommendations for future research on teacher-mediated, computer-mediated reading instruction.
DEDICATION

This work is dedicated first to God, in thanks for my gifts and talent and to those who loved and supported me throughout the process, including all those angels of heaven who are no longer with us.

What lies behind us and what lies before us are tiny matters compared to what lies within us.

Ralph Waldo Emerson
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CHAPTER I

Introduction

English Language Learners (ELLs) experience academic challenges in school as they simultaneously learn to read and learn a new language. When academic language is learned at the same time as acquiring proficient reading ability, a lag in academic achievement tends to occur (Jenkin, Prior, Rinaldo, Wainwright-Sharp, & Bialystok, 1993). Consequently, ELLs often have lower reading proficiency levels than language-majority students (Planty, et al., 2008). The goal of this study was to determine the effects of Read 180 instruction, an Integrated Learning System (ILS), on the reading achievement of a group of ELL struggling readers, examine the effects of the mediated structure of Read 180, and to determine the interactive effects of activity systems surrounding Read 180.

The chapter begins with a statement of the problem, followed by an overview of academic achievement and reading instruction for ELLs. A brief introduction of computerized reading instruction, along with a specific focus on READ 180 is discussed. The research questions are presented and the chapter concludes with the theoretical orientation for the study.

Statement of the Problem

The problem on which this study focused was the effect Read 180, a teacher-mediated, computer-mediated reading instruction program, had on the reading achievement of its participants, ELLs who were struggling to make adequate academic progress in reading achievement. A great number of ELLs have failed to graduate from high school nationwide, each year for the past 35 years (U.S. Department of Education,
National Center for Education Statistics, 2007). Most ELLs enter high school with a history of poor academic achievement. The NAEP report of fourth grade level reading achievement indicates that there is a gap of about 26 scale score points between the nation’s language-majority students and its ELLs (Lee, Grigg, & Donahue, 2008). Since the first NAEP assessment in 1992, the ELL reading achievement gap has decreased by only 1 point. Approximately 36% of ELLs fail to complete high school, as opposed to 5% of language-majority students nationwide (Planty et al., 2009), pointing to a national high school drop-out epidemic for ELLs that continues to grow each year.

In summary, ELLs continue to lag behind their language-majority peers in terms of academic achievement, while they are acquiring the new language. This lag tends to increase in the middle school and high school years (Alvermann, 2002). The special needs that ELLs seem to have while acquiring English, combined with their attempts to keep pace with subject matter; often results in a failure to reach their potential level of academic achievement. The persistent lower reading achievement of ELLs provides strong evidence that the instruction provided in classrooms across the country may not be the kind of instruction ELLs need in order to acquire the reading skills necessary to become proficient readers and successful students.

In response to the reading achievement problem of ELLs, the federal government created school reform that has pressured many school systems to use instructional alternatives, such as computerized reading instruction, to meet the needs of struggling readers. The No Child Left Behind Act (NCLB) was a comprehensive piece of legislation created to help minority and disadvantaged children reach projected levels of achievement across critical curriculum areas, such as reading. This legislative act
included parameters for accountability linked to school-wide achievement on standardized state tests for the first time in U.S. history, by connecting academic achievement with Title III funding (US Department of Education, 2001).

Many schools faced with the task of providing reading instruction to ELLs have integrated computer technologies into regular classroom instruction and pull-out instruction (U.S. Department of Education, 2007). However, computerized reading instruction has often over-promised and under-delivered results (Dynarski, et al., 2007). Computerized reading instruction is often based on research findings obtained with average readers and usually includes decontextualized reading tasks and repetitive drill and skill learning that may not improve reading proficiency (Goodman, 1967; Pea, 1985; Whitehurst & Lonigan, 1998). Effective reading instruction is the best means to assisting ELLs as they simultaneously learn a new language and become proficient readers in that language. Empirical evidence on the effects of computer reading intervention mediated on the reading achievement of ELLs is yet to be determined (Dynarski, et al, 2007).

Reading Instruction for English Language Learners

To better understand the evidence base, the federal government convened the National Literacy Panel (NLP) to synthesize the research on second-language literacy learning (August & Shanahan, 2006). The report concluded that: (a) there are very few studies of explicit instruction on phonemic awareness, phonics, vocabulary, text comprehension, and fluency, (b) high-quality studies of literacy instruction are limited, (c) effect sizes of interventions that incorporate all the reading components are moderate, (d) effect sizes for the ELLs are lower and more variable than those for native-English-speaking students, and (e) common instructional strategies may need to be adjusted for
ELLs (Shanahan & Beck, 2006). The NLP report underscores the lack of high-quality research that can guide educators in deciding what type of reading instruction best fits an ELL.

Three important meta-analyses of the literature have influenced ELL reading instruction and provide insight to the particular needs of ELLs. In the first, Bernhardt (2000) documented nine categories that dominated second-language reading studies: word recognition; background knowledge factors; text structure analyses; oral-aural factors; syntactic features; cross-lingual processing strategies; metacognitive strategies; testing; and instruction. Bernhardt (1991, 2000, 2005) argues that the reading processes of ELLs are unique and can be represented on a continuum that integrates both language acquisition and reading processes and thus require special instruction. In the second, Fitzgerald (1995) reviewed the research base and proposes that ELLs can be taught to read in much the same way as language-majority students, if there is a focus on the components that are essential to proficient reading: (a) accomplished reading, (b) background knowledge, and (c) vocabulary. In the third view, Slavin and Cheung (2005) synthesized research on the language used to provide reading instruction for ELLs. They concluded that whether a special approach was used, as proposed by Bernhardt, which includes the student’s native language, or typical reading instruction proposed by Fitzgerald, that the quality of the instruction was the most important factor to consider when instructing ELLs. Other researchers add that quality reading instruction for ELLs should include: a) sufficient time should be allocated for reading instruction, b) adequate amount of time spent reading using appropriate text and teaching reading strategies c) talking about the meaning of a text, d) engaging in extensive reading tasks, e)
previewing, f) choral reading,  g) shared reading,  h) paired reading, i) books with tapes,
j) using multicultural literature,  k) language experience approach, l) interactive writing,
and m) testing for reading comprehension (Bernhardt, 2000; Dennis, Lefsky, &
Allington, 2009; Drucker, 2003; Fitzgerald, 1995).

The results of the NLP meta-analysis of research (August & Shanahan, 2006)
noted that the existing research on second-language literacy learning was limited.
Reading studies have traditionally not focused on the special literacy needs of ELLs, and
many questions remain unexplored regarding best practices with this growing segment of
the school-age population (Bernhardt, 2000). The lack of precision in providing reading
instruction for ELLs has motivated educational agencies to turn to computer technologies
as a solution to the long-standing reading instruction problem presented by ELLs.

**Computer Technology and Reading Instruction**

Given the wide use of computerized reading instruction and the lack of conclusive
evidence on its effectiveness, a nationwide study on the major programs used in schools
was funded by the Department of Education (Dynarski, et al., 2007). The study took
place over a period of one year, focused on 15 of the most widely used programs, and
used random assignment, including 132 schools and 439 teachers. Results indicated that:
a) test scores were not significantly higher in classrooms using selected software, and b)
treatment effects were correlated with classroom and school characteristics. This study
used a reading test scores as the unit of analysis. Making it impossible to gain an
understanding of the effects of how instruction was organized and how elements outside
classrooms influenced outcomes. A qualitative component is needed in order to
understand the effects obtained when teacher-mediated, computer-mediated reading instruction is employed.

*Emergence of Integrated Learning Systems (ILS).* An ILS is designed to deliver individualized instruction in areas such as reading through a network of computers. ILSs are perceived as solutions to problems such as differences in reading levels between language-minority and language-majority students (Cuban, Kirkpatrick, & Peck, 2001; Thomas & Collier, 2001). ILSs mirror the components of reading stressed by the NLP and include the types of instruction researchers propose for ELLs.

*READ 180.* Licensed by Scholastic, Inc., Read 180 is an Integrated Learning System (ILS) developed for language-minority students. READ 180, a computer-mediated and teacher-mediated ILS developed by Scholastic Publishing Company with the goal of improving the reading performance of students who read below grade level, is currently used in over 5,000 elementary, middle, and high schools throughout the United States, (Scholastic, 2005). The READ 180 program was designed to provide comprehensive reading instruction to struggling readers in grades four through 12 and provides students with instruction in phonemic awareness, phonics, reading fluency, vocabulary, spelling, writing, and comprehension, based on the assessed needs of each student. READ 180 develops students’ reading skills through four instructional practices: instructional reading (with software), modeled or independent reading (with audio-books and paperbacks), and teacher-directed whole-class and small-group instruction.

The research on READ 180 has yielded mixed results thus far. Some studies have been conducted with middle school students that describe READ 180 as an effective treatment (Caggiano, 2007; Nave, 2007; Wood, 2007). Program evaluation findings are mixed and
included low to medium high effect sizes. (White, Haslam, & Hewes, 2006; Haslam, White, & Klinge, 2006). The results of Campbell’s (2006) research on READ 180 suggests that Read 180 does not improve the moderate and lower performing readers’ reading achievement when compared to a control group.

In summary, READ 180 is used in thousands of classrooms across the nation to improve the reading achievement of language-majority students and ELLs. The program has a number of characteristics that influence educators to select it as an intervention for struggling readers. The focus of learning activity is on the components of reading outlined by researchers as most important for proficient reading. Periodic reading assessments based on the computerized reading instruction may provide timely information to educators to address a student’s weakness in core reading systems. However, the program lacks strong evidence of effectiveness. Mixed results have been obtained with localized program evaluation studies and a large-scale nationwide study leaves room for questions regarding its application to reading instruction for ELLs.

Purpose

The purpose of this study was to determine the effects of participation in READ 180 reading instruction on students’ acquisition of reading ability. The research questions addressed in this study were:

1. What are the effects of participation in Read 180, a teacher-mediated, computer-mediated integrated learning system that provides reading instruction, on the growth in reading proficiency of a group of participating English Language Learners?

2. What are the effects of participation in Read 180, a teacher-mediated, computer-mediated integrated learning system that provides reading instruction, on the reading achievement
of a group of participating English Language Learners when compared with the reading achievement of a group of English Language Learners with similar characteristics who receive reading instruction supported by a reading basal program?

3. How does the mediated structure of Read 180, a teacher-mediated, computer-mediated integrated learning system that provides reading instruction, and surrounding activity systems interact to affect learning?

The research design used to answer the research questions was a mixed method experimental model. A quasi-experimental approach utilizing a matched-peer control group was used to address the first and second questions. This approach required a model of reading that accounted for the reading performance of individual students. The qualitative nature of the third research question called for a theoretical framework that could account for the what, where, when and how of the activities taking place during READ 180 that affected instruction. The results from the quantitative analysis of pre and post-test scores that indicate reading achievement levels need to be coordinated with the qualitative analysis of data that depicts the way reading instruction was organized and affected by the READ 180 program.

Theoretical Orientation

To answer the research questions posed in this study two units of analysis were used. The first unit of analysis was measures of reading achievement of individual participants. The second unit was the mediated system constituting Read 180 and the activity systems surrounding Read 180. Therefore, the study required a theoretical orientation that could explain the reading outcomes of individuals, the teacher-mediated, computer-mediated notion of the Read 180 activity system in which the individuals
participated, and the effects of surrounding activity systems on Read 180 instruction. Cultural-historical activity theory (CHAT) founded by Vygotsky (1962, 1978) and his collaborators, Leontiev (1978, 1981) and Luria (1966, 1979, 1982) was used as a theoretical approach. A developmental model of reading (Blanton et al, 2009) based on CHAT was used to guide the research. Engestrom’s CHAT model of activity systems was used to develop representations of the Read 180 learning system and neighboring systems to explain how the mediating structures of the Read 180 system and the interactions with other activity systems affected outcomes.
CHAPTER II

Review of the Literature

This chapter provides a review of the related literature on models of the reading process, the components of proficient reading and reading instruction for ELLs, followed by a presentation of how educational technology is generally used to improve the reading achievement of English language learners (ELLs). Next, the literature on how Integrated Learning Systems (ILSs) have been used to instruct students in a range of subjects will be reviewed. Then, the findings of research on the effects of participation in READ 180™, an ILS, on reading achievement will be discussed. Finally, cultural-historical activity, the theoretical orientation guiding the project, is presented, along with a developmental model of proficient reading and a complementary model of collective activity to guide the analysis of classroom reading instruction.

High school dropout rates for Hispanic students are more than three times the rate of their non-Hispanic student counterparts (U.S. Department of Education, 2008). Schools have turned to alternate forms of instruction to assist struggling students to succeed academically. For example, the National Education Technology Trends Study (NETTS) reveals that the availability and supply of technology as an instructional tool continues to increase in classrooms (U.S. Department of Education, 2007.) Improving reading and math achievement is the intended outcome of most computer programs used. However, consistently positive effects on reading achievement have yet to be obtained with computer technology (Keengwe, Onchwari, & Wachira, 2008; Kulik, 2003; Slavin, et al., 2008).
The Components of Reading

Reading proficiency is considered to be an interactive process involving both text and reader. The National Reading Panel’s (2000) report outlined the following areas as major components of the reading process: phonemic awareness, phonics, fluency, vocabulary, and text comprehension. Phonemic awareness represents the perception of sound structures as they relate to speech (Snow, Burns, & Griffin, 1998). The recent 2nd edition publication of the International Reading Association’s Learning About Print in Preschool (Strickland & Schickedanz, 2009) defines this skill as the ability to segment and manipulate sounds of oral language. Research indicates that a child’s mastery of the sounds of oral language is a significant predictor of future success in learning to read (Adams, 1994).

According to the NRP, phonics refers to instructional practices that emphasize how spellings are related to speech sounds in systematic ways. The term phonological decoding, or decoding, refers to the aspect of the reading process that involves deriving a pronunciation for a printed sequence of letters based on knowledge of spelling-sound correspondences (National Institute of Child health and Human Development, 2000).

Fluency is the ability to read text quickly, accurately and with proper expression (National Institute of Child Health and Human Development, 2000). Fluency is not a dichotomous skill, but rather a developmental one that evolves over time and with appropriate scaffoled instruction and repeated independent practice (Samuels & Farstrup, 2006). This part of reading is vital to developing the advanced skills necessary in order to comprehend and synthesize information found in texts. Parallel to the acquisition of fluency is the area of vocabulary acquisition, which is vital to reading proficiency.
Lexical knowledge is another essential component of the reading process. A student’s vocabulary level is highly correlated with reading proficiency (Beck, Perfetti, & McKeown, 1982; McKeown, Beck, Omanson, & Perfetti, 1983; Mezynski, 1983; Wixson, 1986). For example, Stahl and Fairbanks’ (1986) meta-analysis on vocabulary effects on comprehension concluded that the best instructional techniques were mixes of definitional and contextual programs; the keyword method produced some significant gains in recall, and repeated exposures to words were also found to be effective in supporting vocabulary development and, thus comprehension. Children on average are exposed to about seven new words each day during schooling. Exposure to vocabulary does not necessarily mean that the child will be able to understand or acquire a word’s meaning enough to use it on a daily basis. Acquisition of sufficient lexical knowledge depends on variables such as context of interaction with others about word meaning and use in everyday social activity (Snow et al., 1998).

A major part of reading comprehension is the ability to recognize the central idea referred to by sentences, paragraphs, and longer texts. Text comprehension is defined as the ability to extract meaning from words that are read. Comprehension-monitoring strategies can assist a student while reading to ensure accurate interpretations of the text. In the event that a student is unaware of certain vocabulary words, they can use comprehension-monitoring strategies such as context clues, making inferences, and stating the main idea (Bereiter & Bird, 1984; Block, 1992; Duffy & Roehler, 1989; Durkin, 1979; Pressley, 1998; Scardamalia, & Bereiter, 1985). While the literature generally agrees upon these five components reading instruction, there still remains some debate on which reading model best represent the process of reading.
**Reading Models**

There are several longstanding models of the reading process, including top-down models, bottom-up models, interactive models that combine top-down and bottom-up paradigms, stage models, and developmental models. Each has shown merit and has contributed to developing expanded definitions of the reading process as they pertain to ELLs.

*Bottom-up and Top-Down Models.* Bottom-up processing models focus on text-based components, such as letter identification, sight word identification, and decoding. Bottom-up models center on explicit skill instruction, such as letter naming, spelling patterns, and a phonics approach based on decoding parts of a word to comprehend words, phrases, sentences, paragraphs, and longer texts. These components are usually emphasized heavily in the reading curriculum. Examples of bottom-up processing theories are Gough’s Information Processing Model (Gough, 1984), and LaBerge and Samuels’s Automatic Information Processing Model (Samuels & Kamil, 1984).

In contrast, top-down processing models center on reading for meaning, using prior knowledge and context to decode and construct word meaning, and schema building to create a pertinent context for acquiring the components of reading and comprehension. Top-down models support the use of strategies that access the reader’s general knowledge of a subject, focusing on a reader’s word recognition through content-embedded vocabulary and predictions based on pictures and title pages. Emphasis is placed on comprehending what is read and reading with a functional purpose. A more inclusionary approach to the students’ motivation, enthusiasm, and interest is taken when creating reading lessons using this type of reading model. Furthermore, a variety of
literature is used, as opposed to just a reading basal. A commonly accepted example of a top-down processing model is Goodman’s Psycholinguistic Model (Harris & Sipay, 1990). When considering these types of reading models for use during instruction with ELLs demarcation of the two models should be emphasized. ELLs may lack the necessary background knowledge and vocabulary to successfully engage in both types reading models simultaneously.

Interactive Models. The ability to read may come after the successful incorporation of various cognitive systems during formal reading instruction that involves interaction in complex reading tasks (Scarborough, 2001). Interactive models incorporate the constant interactions between text-based and reader-based components of reading. Interactive models, such as Rumelhart’s Interactive Model (Ruddell, Ruddell, & Singer, 1994) and Stanovich’s Interactive-Compensatory Model (Stanovich, 1980) are more easily aligned with classroom instruction. Interactive models enable the reader to accomplish bottom-up and top-down tasks during reading. Strategic reading is a merging of language comprehension (top-down skills such as context clues and schema activation) and word recognition (bottom-up skills such as phonemic awareness, decoding, and sight words). As language comprehension and word recognition develop, they are intertwined into skill sets that can be more efficiently accessed by the reader as instruction progresses. Recognition skills in the areas of language and word identification become automatic and strategic.

Stage Models. Gray’s model (1937) was one of the earliest to view the process of learning to read as a progression through stages. These stages include 1) reading readiness, 2) initial guidance in learning to read, 3) rapid progress in fundamental reading
attitudes and habits, 4) the extension of experience and the increase in reading efficiency, and 5) the refinement of reading attitudes, habits, and tastes (Gray, 1937). According to Gray, early reading instruction culminates with stage three, rapid progress in fundamental reading attitudes, in the second or third grade. At the end of this period, the student should be able to engage independently in reading on a regular basis.

Reading assignments that are given in stage four, the extension of experience and the increase in reading efficiency, should be understood with ease and the students’ silent reading proficiency should be greater than their oral reading proficiency. The student should also display greater skill in using context clues together with visual and phonic clues in attacking unknown words, as well as reading for varied purposes (Gray, 1937). Gray’s interpretation of the reading process includes accuracy in recognizing words, associating specific meanings to these words to form a chain of ideas, and finally reflecting on these ideas critically in order to solve problems or apply them to appropriate situations. The reader should coordinate these processes proficiently in order to achieve the intended purpose of reading a text.

Similar to Gray’s model, Chall (1983) developed her model of reading by adding two more stages. Chall’s Stages of Reading (1983) presents six separate stages that a reader moves through, from birth to the college years, as they acquire reading skills. Readers in the “pre-reading stage,” from birth to age 5, have an unsystematic understanding of the print they encounter. In the “initial reading stage,” ages 6-7, readers have learned letters and can correctly associate them with parts of spoken words. In the “automaticity stage,” ages 7-8, readers can consolidate what they learned in the previous stage and read easy books on familiar topics. In the “reading for learning stage,” ages 9-
13, students bring prior knowledge to their reading and reorganize their knowledge based on acquired new material. In the “multiple viewpoints stage,” ages 14-18, readers engage in learned comprehension strategies to critically analyze text and understand the content of the text from multiple viewpoints. In the “construction and reconstruction stage,” ages 18 and up, readers construct meaning from the text based on both analysis and synthesis. A reader must move deliberately through Chall’s stages by accomplishing the specific reading tasks associated with that stage.

**Developmental Model.** The foundation of a developmental model is the intercoordination of mental systems with a number of “core reading systems” – phonemic awareness, word identification, vocabulary, comprehension, and mental systems to accomplish increasingly complex tasks. The development of proficient reading ability is explained as the hierarchical reorganization of core reading and mental systems and their intercoordination as the outcome of accomplishing increasingly complex reading tasks. As can be seen in Figure 1, Blanton, Pilonieta, and Wood’s model (2007) relies on a set of developing coordinated reading and mental systems that develop as increasingly complex tasks are performed. In contrast to Chall’s Stages of Reading (1983), which argues that reading development occurs in stages as the reader acquires skills, Blanton et al.’s model maintains that proficient reading is the outcome of the accomplishment of increasing complex reading tasks that hierarchically reorganize reading and mental systems. Proficient reading is acquired through participation in instruction that organizes a series of seamless Zones of Proximal Development (ZPD) (Vygotsky, 1978). A ZPD is social space between a learner’s actual developmental level as determined by independent problem solving and the level of potential development as determined
through problem solving under adult guidance, or in collaboration with more capable peers.

The major difference between Blanton et al.’s model and those that precede it is that this model explains the organization, transformation, and inter-coordination of mental and core reading systems and how the process of the learning and development of reading are affected by the mediated structure of reading lessons. The organization of instruction arranges for the acquisition of reading. During instruction, students internalize the social interactions which mediate reading lessons. The language necessary for thinking about and talking about reading is acquired in much the same way as the process of internalizing the social interactions described by Vygotsky’s (1934; 1962) theory. In other words, the manner in which a student speaks and thinks is a direct reflection of thought processes that were mediated by the social interactions she participated within first externally during the reading lessons, then internally in her mind.

The ability to read is a complex combination of demonstrated skills applied to a reading task. Engaging in social interactions within teacher- and student-directed activity is a way to demonstrate a complex reading outcome. Development of reading ability may be further complicated when second-language acquisition is in progress.

Reading Processes and ELLs. Complex use of varying mental systems when learning to read can be further complicated when a student is also learning a second language. Skilled readers who are native speakers of English are capable of reading with understanding in part because the component processes – letter recognition, word recognition, access to word meaning, syntactic parsing of the sentence – are fast and efficient (e.g., Adams, 1990; Stanovich, 1980). Those who have poor skills in word
recognition can improve their comprehension by employing strategies such as reading the whole text for gist; self-monitoring for understanding; and using cues from titles, pictures, headings, and the like (August & Hakuta, 1998).

Research findings indicate that reading processes in a second language probably are not significantly different from those in a first language (Alderson, 1984; Fitzgerald, 1995). While literacy processes in first and second languages tend to be similar, two areas of potential differences should be noted. One is that initial reading and writing in English may be slower and more arduous for ELLs because of lack of fluency with English. To the extent that a reader is limited in English language proficiency, the ability to make sense of and comprehend a text written in English is likewise hindered. The other factor is that second-language learners may have limited background knowledge for specific content and vocabulary meaning in English (Carrell & Eisterhold, 1988).

Bernhardt (1991) and others contend that ELLs have special reading needs. Bernhardt’s view of second language reading (Bernhardt, 1991, 2005; Durgunoglu & Verhoeven, 1998) explains second-language reading as a continuum of processes that are interchangeable. According to Bernhardt, there are five components of reading: word recognition, phono-graphemic features, syntax, background knowledge, and perception. The first three components are language-driven aspects while the last two components are knowledge driven.

Bernhardt (1991) developed a compensatory model of second language reading, which argues that the level of mastery of native language literacy has great impact on learning to read in a second language. Her model proposes that compensating knowledge sources for unknown sources are not necessarily equal in nature of origin. This is
especially true when using cognates to comprehend reading text as the reader may encounter true or false cognates that can either help or hinder reading comprehension. Additionally, possessing knowledge of orthographic patterns can help with the world recognition process without any real knowledge of the language being learned. Furthermore, she proposes that the second language reading process is actually a switching of gears in cognition processes.

Bernhardt’s model is based on four assumptions. First, this model assumes that the ability to process text develops over time and learning is non-linear. Second, errors in comprehension reveal progress in the development of reading, which is often parallel to oral language development. Next, the model assumes shared meaning among second-language text processing, learners, and languages. Last, whether one is a native English speaker or an ELL, the reading process always involves some type of error production (Bernhardt, 1991).

Fitzgerald (1995) takes the position that pre-existing theories and views of reading processes of ELLs might simply need to be revisited and elaborated upon to address a subset of factors particular to ELLs. For example, ELL reading research has indicated that this subgroup struggles with vocabulary and background knowledge more so than their native English-speaking peers. However, for Fitzgerald, the reading process, while potentially more challenging for ELLs due to lack of English fluency, is comparable to that of native English speakers. Fitzgerald (1995) noted both differences and similarities in the reading processes of ELLs, as compared to those of English speakers. Differences included meta-cognitive strategies used by the ELLs, such as searching for cognates, using context clues, and the amount of use and the length of time
it took ELLs to complete certain reading comprehension tasks. Yet similarities existed, including using similar meta-cognition strategies to those of native English readers, such as monitoring reading comprehension while reading and identifying antecedents. Her review suggested that when working with ELLs, new or unfamiliar vocabulary should be introduced explicitly prior to reading a new text or passage. Findings regarding background knowledge suggested that when developing lessons for ELLs, close attention should be given to the development of mental models and schema. These findings are key concepts to use when developing instruction for ELLs in the areas of comprehension and vocabulary acquisition, as opposed to lessons that may be used with native language readers, who may have extensive vocabulary, schema, or mental models already in place.

Slavin and Cheung (2005) conducted an extensive review of the literature on effective reading programs for ELLs and other language-minority students. They conclude that regardless of the language of instruction, language of the learner, or reading instruction program, the most important part of the process originates in the quality of instruction provided. Quality of instruction was defined as “the product of many factors, including the quality of teachers, class size, and other resources” (Slavin & Cheung, p. 242). They also concluded that for the early elementary grades the evidence supports “structured, phonetic programs emphasizing language development, in both native-language and English instruction” (p.261). The treatment effects of the studies that were of upper elementary grade students “generally supported programs that make extensive use of cooperative learning, vocabulary instruction, and literature” (p. 262).

Overall, the research available indicates that effective reading instruction for ELLs seems to be parallel to effective reading instruction for language-majority students,
but with extensive emphasis on instruction in new vocabulary, attention to time spent on-task during reading activities and development of English oral language. Bernhardt’s theory, (1991, 2005), together with Fitzgerald’s (1995), and Slavin and Cheung’s (2005) findings, emphasizes the need for specialized, quality, and distinctly explicit instruction for ELLs. Many questions remain unexamined regarding best practices with this growing segment of the school-age population since most reading studies have not focused on the special literacy needs of ELLs (Bernhardt, 2000).

The Application of Computer Technology to Reading Instruction

From the earliest to the most recent meta-analyses of research on computer-mediated instruction, the effects obtained have been significant (e.g., Fletcher-Finn & Gravatt, 1995; Kulik, 1994; Kulik & Kulik, 1991; Murphy et al., 2002; Niemiec & Walberg, 1992; Ouyang, 1993; Ryan, 1991; Soe, Koki, & Chang, 2000; Uribe, Klein, & Sullivan, 2003; Wenglinsky, 2005). For example, effect sizes reveal that the use of multimedia, electronic dictionaries, and electronic glossaries appears to have a significant effect on ELLs’ vocabulary acquisition performance on measures of comprehension (Chun & Plass; 1996; Knight; 1994; Leffa; 1992; Plass, Chun, Mayer, & Leutner, 1998). Although the use of computer technology as an effective tool to improve learning gains has been studied in a large number of schools and diverse settings, there’s a great deal of debate about the when, how, and for what students should receive computerized reading instruction.

The NRP report obtained only 21 studies from the research literature on computerized reading instruction that met the inclusionary criteria of scientific research for analysis. These studies covered such a wide spectrum of computer reading instruction
that a meta-analysis was not possible (National Institute of Child Health and Human Development, 2000); however, all studies in the analysis reported positive results. Most promising was the use of computerized speech, as well as using technology to support vocabulary instruction, word recognition, and broadly defined reading comprehension. Only two studies looked at instructional delivery. The NRP reported it was “extremely difficult to make specific instructional conclusions based on the small sample of experimental research available” (National Institute of Child Health and Human Development, 2000, p. 6-2). Even though the number of studies in the NRP analysis is low, they are in agreement with the conclusions of Kamil and Intrator (1997), Kamil and Lane (1998), and Kamil, Intrator, and Kim (2000) that there has been a dearth of research on problems in technology and literacy. The NRP urged more investigations of instructional applications of computers in reading to address a variety of unanswered questions.

Blok, Oostdam, Otter, & Overmaat (2002) performed a meta-analysis of research on computer use in reading instruction between 1980 and 2000. Their findings, like the NRP report, concluded that computer use in reading instruction generally tended to have positive effects on student achievement outcomes. Slavin, Cheung, Groff, & Lake’s (2007) synthesis of effective reading programs for middle and high school students included 33 studies that met the inclusion criteria of using randomized or matched control groups, study duration of at least 12 weeks, and valid achievement measures independent of the reading program. Of these 33 studies, almost half involved computer instruction and included low to moderate effect sizes. Within this subgroup of 17 studies, only three were conducted using ELLs, and two of these studies reported small effect sizes.
In summary, the past few decades has seen a steady increase in the use of computers and new technologies as a tool for reading instruction (Cuban, 1993, 1998; Cuban & Kirkpatrick, 1998; Dynarski, et al., 2007; Kulik, 2003; Labbo, Reinking, & McKenna, 1998; Miller, DeJean, & Miller, 2000). A slow slide away from merely using the computer to teach isolated skills has led to a more student-centered approach to computer use in the classroom. While this type of instruction is a relevant topic to many educators and policymakers, there are still many questions about what type of computer instruction works, for what learners, how, and when, and under what circumstances. While researchers have generally found that computer instruction does produce overall positive effects, the need to conduct longitudinal research is strongly underlined. According to the available evidence, there is a narrow band of information on one type of computer-mediated instruction, Integrated Learning Systems (ILSs), and how they are used with ELLs.

**Emergence of Integrated Learning Systems.** In the past decade, the development and use of ILSs in the classroom have increased (Murphy et al., 2000). The most widely used description of an ILS is:

… a means of delivering individualized instruction in various curriculum areas through a network of computers. Individual microcomputers are connected to a central microcomputer (also called a file server), controlled by a teacher or computer lab manager. In an ILS the system software plays an integral role in managing student’s progress through skill level. The software typically tests students before they begin the software lessons to provide initial placement at the correct skill level. The ILS then delivers lessons to the students, assesses their performance, and adjusts their levels
accordingly. ILSs can provide a number of reports, including profiles of skills covered by a class and progress for individual students, which teachers can use to help them make decisions about student placement (Educational Systems Integrators/Integrated Learning System Project: Titan Schools 1993-94. OER Report, 1994, p. 1)

Becker (1992) conducted an extensive review of the literature on ILSs and found that, in general, individualized instruction is provided to students with an ILS. However, teachers often found it difficult to modify their own instruction due to classroom management issues. An ILS is more effective if the teacher knows how to use its resources appropriately and knows how to balance individual instruction within whole-group instruction. Becker also found that effective use of an ILS is linked to the social organization of the classroom setting. Including teacher-led activities along with computer-based activities is essential. His review also pointed out that students on extreme ends of the achievement spectrum benefited the most from ILS instruction.

Limitations of ILSs include beliefs that computers are not as effective as a live teacher and that students find the skill acquisition activities of an ILS repetitive and non-interesting (White, 1992). Moreover, ILSs may not teach higher-order thinking skills or problem-solving skills (Rogers & Newton, 2001). Those who argue in favor of ILSs contend that this type of instructional program provides systematic exposure to curriculum that is paced to individual needs. Errors in skills acquisition are used to develop future instruction and track progress. Additionally, student progress is accurately recorded and stored for teacher assessment and evaluation (Underwood & Brown, 1997).

A small number of studies have been conducted on ILSs, such as SUCCESSMAKER and Accelerated Reader (AR), with mostly middle school-age participants. The first of
these studies (Underwood, Dowling, Fogelman, & Lawson, 1996) was a summative evaluation of SUCCESSMAKER over a period of six months. The research sample was composed of nine schools located in Great Britain. Four of the schools in the study were elementary schools and five were secondary schools. Five of the schools allowed the evaluators to use control groups. Sample size was reduced when attempts were made to match students to form comparison groups. Gains in reading achievement were not significant.

Another study conducted by Powell, Aeby, and Carpenter-Aeby (2003) obtained different results when SUCCESSMAKER was used with teacher support. Their sample was comprised of 215 students who were in the eighth, ninth, and tenth grades. These students were divided into a control group and an experimental group. The experimental group received a teacher-facilitated program with the SUCCESSMAKER computer-based instruction while the control group received the SUCCESSMAKER computer-based instruction only. Findings indicated that academic gains were made by the experimental group, suggesting the importance of a coordinated teacher and computer system in which both mediate instruction.

A study conducted by Estep, McInerney, Vockell, and Kosmoski (1999-2000) examined whether students who used an ILS made significant gains in academic achievement as compared to students in similarly matched schools. This study employed an interrupted time series design and used repeated test scores beginning with third graders over a period of eight years to determine if significant gains were made by either group of students. Data analyses were accomplished with a univariate analysis of variance, a multivariate analysis of variance, and t-tests. The results indicated that there
was not a significant difference in the pattern of gain between the test scores of the ILS-user schools and paired non-user schools.

Patterson, Henry, Oquin, Ceprano, & Blue’s (2003) studied the use of the Waterford Early Reading Program to determine its effect on reading achievement. The treatment group was composed of eight classrooms using the Waterford treatment and the control group was comprised of eight classrooms that did not use the treatment. A multivariate analysis was used to determine factors other than the Waterford program that might have affected the literacy learning. The findings indicated that it was not the Waterford program, which made the difference in students’ literacy learning, but rather the teacher and classroom environment.

Kulik’s (2003) synthesis of research on evaluation of ILSs, including Josten’s Learning Corporation, SUCCESSMAKER, Waterford, and Wasatch, revealed effect sizes ranging from .00 to .44. The studies included in his report had to be actual implementations where students received credit upon completion of instruction, measurement outcomes had to be quantitative in nature and the same for both the experimental and control group, and both groups of subjects had to match closely on pretest measures. The two ILS studies included within this review with significant effect sizes in reading were obtained with the Josten Learning system.

Most of the studies that have been conducted with ILSs have focused on middle school students who are struggling readers. The research has demonstrated that when used to treatment fidelity ILSs may be effective. However, researchers caution that the negative side of an ILS may include isolation, monotony within instruction, and the inability to engage the student in high order thinking activities.
READ 180 is currently being used in classrooms across the nation despite mixed evidence of its effectiveness. Read 180 is an instructional system that uses a teacher and a computer to mediate reading instruction. The program is divided into the following components: 1) Whole group instruction, 2) three rotations of twenty minutes each that include small group instruction with the teacher, computerized instruction, and silent/independent reading, 3) whole group instruction takes place at the end of the reading block as well.

**READ 180 Treatment Effects.** A large validation study of READ 180 (Interactive, 2002) was conducted with school districts across the nation to determine its effects on middle school participants’ reading achievement outcomes. Seven school districts participated: Atlanta, Boston, Columbus, Dallas, Houston, Miami, and San Francisco. The researchers used a randomized control group, pretest-posttest design. The treatment group consisted of 1,182 students and the control group was composed of 888 students. Researchers found significant differences favoring the READ 180 group. However, from the original sample only 387 students from the treatment group and 323 students from the non-treatment group took the SAT-9 to determine achievement outcomes. Other study participants were given different measures of reading achievement, thus increasing threats to internal validity of these findings.

Another impact study was conducted by Scholastic Inc., the vendor of READ 180, in the Los Angeles Unified School District (Scholastic Inc., 2004). A pool of 1,073 middle school students was divided into a treatment and non-treatment group and matched on variables, such as language proficiency, gender, ethnicity, and SAT-9 scores. The results from this study were reported in Normal Curve Equivalents (NCE).
READ 180 group demonstrated gains of 2 NCEs in reading and language arts, while the control group dropped 7 NCEs in reading and 3 NCEs in language arts. Teacher and classroom variables were not accounted for in this evaluation study.

White, Haslam, and Hewes (2006) prepared an independent vendor-supported report on READ 180 focusing on a group of 9th and 10th students in Phoenix, Arizona. This report revealed medium to medium-high treatment effects (.28 and .41) with ELLs. Haslam, White, & Klinge (2006) completed another vendor-supported report with low-performing sixth, seventh, and eighth-grade students in the Austin, Texas, school district finding a small effect size (.18). Similarly, Mims, Lowther, Strahl, and Nunnery (2006) found small treatment effects (.12) in a vendor-supported report of a group of mostly African-American sixth, seventh, eighth, and ninth graders using the READ 180 program.

Papalewis (2004) obtained large treatment effects (.68) in a study that was conducted in Los Angeles with a group of retained eighth-grade ELLs. A control group was selected from the same school district based on several variables and were matched on pre-test scores. This study failed to indicate how many days the control group attended school during the year, which may confound the results since typically the READ 180 students attended the program 80% of the school year.

A number of dissertations have explored the effects of participation in READ 180 on the reading achievement of middle school students. In Campbell’s (2006) study, the READ 180 program worked best with a higher achieving group, while the moderate to low performing students did not make significant gains on the Gates-MacGinitie Reading
Test. The control group, which participated in an alternative intensive reading instruction program, made equal gains in their reading achievement.

Nave (2007) obtained some positive results on the measurement outcome used in the study. The READ 180 students scored on average 2 points higher on the Tennessee Comprehensive Assessment Program (TCAP). However, it should be noted that in Nave’s study there were twice as many students in the READ 180 group than in the control group.

Wood (2007) followed 192 sixth, seventh and eighth-grade students in READ 180 over a period of three years in a non-equivalent control group study. In the first year of implementation there were no significant differences between the control group and the READ 180 group as measured by a number of reading tests (STAR reading test, Degrees of Reading Power, Scholastic Reading Inventory, and the Virginia Standards of Learning Assessment). During the second and third year of implementation, those students involved in the classrooms that demonstrated moderate fidelity to the implementation of the program showed significant gains in their reading achievement.

In summary, Scholastic Inc. has contracted vendor-supported evaluations for the READ 180 program since the early 2000’s. These evaluations have been primarily conducted with middle school students. The studies had research design flaws, such as no control group, changes in design as the research progressed, and large differences in numbers of students taking the pre-test measure. Program evaluators (White, Haslam, & Hewes, 2006) conducted two evaluations of the READ 180 program and found medium to medium-high effect sizes with one group of middle school students in Arizona and found small effect sizes with another group of middle school students in Texas (Haslam,
White & Klinge, 2006). Papalewis (2004) reported large treatment effects (.68) with her group of eighth-grade students in Los Angeles. Her study did not include a description of the control group’s reading instruction or how many days they actually attended school during the treatment year. Several dissertations focusing on middle school students participating in the READ 180 program were completed during the last two years and obtained mixed results. Campbell (2006) found similar treatment effects for the group enrolled in the alternative reading treatment. Nave (2007) found that the experimental group made significant gains, although there was a mismatch between the two groups. Finally, Woods’ (2007) three-year study found that after the second year, the READ 180 group made significant gains in their reading achievement.

Overall, the limitations of studies of READ 180 include threats to both internal and external validity, including poor research design, replication issues, and limited generalizability to other types of student populations due to a lack of contextual factors of the studies. Some doctoral investigations reported varying treatment effects for studies completed with middle school students. These studies generally excluded qualitative data that might yield an understanding about how this particular ILS can be implemented to achieve student success. Many of the studies were limited to students engaged in independent activity. There are currently no studies that account for how ILS instruction is organized. The next section will provide information on the theoretical framework that informs the current study.
Cultural-Historical Activity Theory

Cultural-historical activity theory emerged from the work of three Russian psychologists, Lev Vygotsky, Alexander Luria, Aleksei Leontiev, and their students (Cole, 1996; Reiber 1997; Reiber and Carton, 1987; Reiber and Wollack, 1987; Vygotsky 1962, 1978). The theoretical core on which CHAT stands is that human development is a product of the interactive effects of biology, environment, and participation in cultural activity. Newborns arrive in an environment with their biological inheritance and a set of elementary mental functions, such as attention, perception, and simple memory. Adults arrange the environment and populate it with material, ideal, and social resources to mediate their access to the cultural legacy of past generations. Participation in cultural activities mediates the transformation of elementary mental functions into higher mental functions. For example, participation in educational activity mediates the acquisition of language, thinking processes, categories of thinking, word meanings, systems of general and domain knowledge, and literacies (Cole, 2008; Cole, Gay, Glick, & Sharp, 1971; Rogoff, 2003; Scribner & Cole, 1981). Five key tenets outline the theoretical system of CHAT.

Tenet One: General Law of Social Development

The first tenet is the, “general law of social development. According to Vygotsky (1978): Every function in the child's cultural development appears twice: first, on the social level, and later, on the individual level: first, between people (interpsychological), and then inside the child (intrapsychological) (p.57).
Thus the thinking processes of humans reside first, *outside* the individual, *in*
social interactions. Through participation in social activity and the *process of*
*internalization*, they come to reside *inside* on the psychological plane. The outcome of
the process of internalization is not a copy of the outside world; it is a qualitative and
hierarchical reorganization of elementary mental functions and substantive contents of
memory into a set of higher-order mental functions (Wertsch, 1991, 1995). In short,
cultural forms of behavior, such as literacy, are the products of participation in cultural
activity and the process of internalization.

*Tenet Two: Cultural Mediation*

The Second tenet roots human development in culture (Cole, 1996; Leontiev,
Humans use tools to mediate their activity. Tools are cultural artifacts left by past
generations that are available to future generations. The use of tools puts the user in
contact with past generations and the makers of the tools (Cole, 1996). New users may
take up these tools and use them for same purpose intended by the original tool maker,
use them for different purposes, or modify them.

Tool-mediated activity has significant effects on the physical and psychological
development of humans. In the CHAT scheme there are two kinds of tools. Instrumental
tools, such as books, pencils, rulers, computers, cell phones, lawn mowers, and rakes are
directed outward to transform material objects into outcomes. For example, using weight
machines in a health club changes the muscle mass and tone of a person. Psychological
tools, such as discourses, math systems, music scores, concepts, and plans, are directed
inward for self-regulation and outward to mediate social interactions and to regulate
others. The effects of using psychological tools are transformations of thinking processes and changes in the organization of activity (Vygotsky, 1981). As an illustration, participating in texting mediated with a handheld cell phone while driving changes the activity of driving, particularly executive processes regulating attention and decision-making. Overtime, the language mediating texting and patterns of thinking are externalized and observable in written communication.

Language (discourse) is the most significant psychological tool (Cole, Levitin, & Luria, 2005). The first function of language is to mediate social communication. Language mediating social activity is internalized as an “inner language” to listen to oneself and to formulate and externalize thought. This inner language increasingly assumes the function of directing internal and external attention, inhibiting impulsive behavior (Luria, 1973), mediating thought with “pure meanings” (Vygotsky, 1986) symbolically codifying and organizing representations of experience (Vygotsky, 1978, 1986), and coordinating functional systems, such as thinking, reading, writing, and calculating (Kozulin, 1986; Radzikhovskii, 1991).

Tenet Three: Zone of Proximal Development

The third tenet is that learning and development progress through a zone of proximal development (ZPD). According to Vygotsky, the ZPD is:

. . . . the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers. (Vygotsky, 1978, p. 86)
The ZPD provides the material, ideal, and social resources that mediate the accomplishment of tasks and the hierarchical and qualitative restructuring of the contents of memory, such as information about reading, and thinking systems (Cole & Hatano, in press, Luria, 1973). The ZPD is not a property of learners. It is a social construction that mediates participation in learning activity. Other outcomes of participation in the ZPD include the internalization of meta-language to mediate executive thinking process, noticing and directing attention to and indexing meaning-making resources in the environment, and skill in coordinating information and tools to enact the performance of increasingly more complex tasks.

Tenet Four: Functional Systems

The fourth tenet of CHAT is that activities such as thinking and literacy are functional systems (Luria, 1973). The organization of activity and the tasks it presents affect functional mental systems. Functional mental systems are not neatly boxed and segregated as stand-alone functions (Griffin & Cole, 1984; Luria, 1932). Through the attainment of increasingly complex tasks constituting activity, such as learning to read and reading to learn, functional mental systems are qualitatively and hierarchically reorganized (Luria, 1987; Vygotsky, 1987).

Tenet Five: Human Activity Is Collective

The fifth tenet is that human activity is collective (Cole & Engestrom, 1993). In this sense, the human mind is co-constructed by and distributed among the objects, outcomes, tools, rules and procedures, and divisions of labor mediating collective activity. Cole and Engestrom outline collective activity as:
... the relations between subject and community are mediated, on the one hand, by a full collection of "mediating artifacts" and, on the other hand by "rules" (the norms and sanctions that specify and regulate the expected correct procedures and acceptable interactions among the participants). Communities, in turn, imply a "division of labor,” the continuously negotiated distribution of tasks, powers, and responsibilities among the participants of the activity system. (Cole & Engestrom, 1993, p. 7)

The emerging literature gives credence to the tenets on which CHAT is anchored. Researchers (Bransford, Brown, & Cocking, 2004; Fuster, 1997; Quartz, 1999) have obtained firm evidence that the human brain and its functional systems are initially an undifferentiated structure that is transformed to a qualitatively and hierarchical organized structure and stresses the importance of the surrounding environment and its organization on learning. Recent findings of research on human learning and development, led by a distinguished team of researchers (Meltzoff et al., 2007) concluded that the organization of activity, social interactions constituting the activity, and tools used, including new technologies, to mediate learning activity are more important than was previously thought. Put in different words, what is inside the human head, and the design of the environment the head is inside of, including the social interactions and tools to mediate activity, are all of equal importance.
Developmental Model of Proficient Reading

Blanton and colleagues’ (2007) model of reading is grounded in the tenets of CHAT to explain the learning and development of proficient reading ability. As presented in Figure 1, proficient reading is the outcome of the accomplishment of increasingly complex reading tasks and the hierarchical and qualitatively reorganization of functional systems, such as thinking, attention, perception, language, and memory, and core reading systems, such as phonemic awareness, decoding, word meaning, comprehension, and fluency. These systems are reorganized as students participate in reading instruction.

The model differs from other models in number of ways. First, the model does not take a traditional view of reading skills as they are organized and conceived in taxonomies of reading and reading instruction manuals as simply performances that can be handed over to students through practice. For example, reading for the main idea is a reading task; not a skill. Rather the task is enacted as a student translates and organizes information about reading and how it works into categories of declarative, procedural, and conditional knowledge. Reading skill is constituted of the ability to coordinate that knowledge to accomplish a reading task, such as reading for the main idea.

Second, the model focuses on how the elements constituting proficient reading arrive inside the heads of students. During reading instruction, students internalize the information about reading and the language mediating instruction. This internalized language is a meta-language for reading and thought that is consciously accessible to a reader for coordinating thinking and core reading systems. It is responsible for directing attention, formulating purposes and reading plans, monitoring and repairing breakdowns
during reading and communicating reading-related thought to oneself and others. The second meta-language, a language of reading, is constituted of a further editing internalized language into a more abbreviated inner language to coordinate mental systems and reading systems. It is responsible for symbolically coding, sampling, and coordinating word meanings to produce comprehension, interpretation, and understanding.

Third, experience is important. Word meanings mediate the potential interpretation and understanding of text. Word meaning is the abstract element that a reader generates to mediate an understanding of words, phrases, sentences, and longer texts. Word meanings also point to other meanings indexed to words, sentences, phrases, and arguments and create networks of relationships that enable reference to other meanings. Word meanings are updated through experience and reading activity.

At the neurological level, core reading systems, such as decoding, word meaning, comprehension, and fluency, are represented by distinct functions of distributed and coordinated networks of information. Word meanings are represented by an infinitely distributed network of relations among indexing experience that are accessed and coordinated by the reader to generate an interpretation and understanding of text.

Fourth, the model advocates a ZPD as the ideal arrangement for classroom reading instruction. According to Vygotsky: The social environment is the true lever of the educational process, and the teacher's overall role reduces to adjusting this lever. [...] Thus, it is that the teacher educates the student by varying the environment (Vygotsky, 1999, p. 49).
Figure 1
Acquisition of Proficient Reading, Thinking, and Subject Matter Systems

Core Reading Systems
- Phonemic Awareness
- How Reading Works
- Word Identification
  - Sight Words
  - Phonics
  - Context
- Vocabulary
- Comprehension
  - Recall of Facts
  - Interpretation
  - Critical Analysis
  - Understanding

Mental Systems
- Attention
- Perception
- Memory
  - Word Meaning
  - General Knowledge
  - Domain Knowledge
- Language
  - Syntax
  - Semantics
- Thinking
  - Recall
  - Coordinating Meaning
  - Inferencing

Increasingly More Complex Reading Tasks

Proficient Reading and Fluency: Skill in coordinating core reading, mental and subject matter systems to accomplish reading tasks.
Proficient reading is the outcome of the reorganization and coordination of thinking and reading systems that are located, first, in the social interactions constituting reading instruction that are internalized by students. The organization of reading instruction is parallel to the information and thinking processes coordinated by proficient readers. The thinking processes and information constituting core reading systems are distributed among the teacher, students, and tools that are used to mediate learning activity. The lesson makes the future performance of proficient reading available to students before they can perform it independently. The discourse mediating lessons is internalized as a meta-language to coordinate mental and core systems and to mediate participation in future reading instruction.

Last, the model conceives classroom instruction as collective activity. Cole and Engeström (1993) provide a conceptual schema that can account for the mediated structure of classroom reading instruction. Collective activity is constituted of a set six mediating elements. As can be seen in Figure 2, an object refers to the conceptual material, problem, or plan to which the activity of the lesson is directed and transformed into an outcome with the application of instrumental and psychological tools. The social community is comprised of the teacher, students, and other adults who share the object of activity. Explicit and implicit rules and procedures represent norms and conventions that regulate participation. A division of labor distributes the responsibilities, power, status, and tasks to be performed by students to transform the object into the expected outcome. If one were to observe collective activity such as classroom reading instruction over a period of time, one would quickly realize that both the learning and development
Figure 2. Basic activity system

All the tools used in the activity, beginning with spoken and written discourse and the particular genres of communication, and including instrumental and conceptual tools.

Everyone involved in transforming the object into an outcome:

- **Subject(s)**
- **Object(s)**
- **Outcome(s)**

**Tool**

- **Rules and Procedures**
  - Norms and rules governing the relations among participants

- **Community**
  - The group(s) responsible for transforming the object

- **Division of Labor**
  - Organization of who does what, when, where, how, with what, with whom

Transformation

Thing to activity is aimed toward

Conceptual

Material

Social

(Cole & Engestrom, 1993)
of participants and the activity system are constantly changing. Engestrom (1993) proposes that problems created disturbances, tensions, dis coordinations, ruptures, breakdowns, and clashes in the flow of normal collective activity.

Primary and secondary problems are created by misfits between and within the activity system components (Engestrom, 2001). Interactions with other activity systems create tertiary problems, disrupting the flow of normal classroom activity. To solve the problems disrupting collective activity, innovations must be created or imported into activity systems to solve problems and to make modifications that sustain the system (Engestrom, 1993).

Engestrom proposes that three innovations are used to repair ruptures, conflicts, and crises. A solution innovation is created to “fix” problems related to the individual components mediating the activity system. As an example, problems may appear when an inappropriate tool is used, rules and procedures fail to coordinate activity, or the division of labor needs to be coordinated. The selection or creation of a more appropriate tool, rule, or division of labor is needed. A trajectory solution changes the path of the activity system. When the transformation of a particular object does not yield a desired outcome, a new object, such as the understanding of why and how plans are used to achieve goals is required. Last, a system innovation, involves the creation of an entirely new activity system after an evaluation determines that there are so many breakdown and disruptions in the activity system that it is dysfunctional.

Figure 3 presents an example of an activity system of classroom reading instruction from the perspective of the researcher. The outcomes of participation in classroom reading instruction are improved reading proficiency. The objects to be
transformed into outcomes are core reading system components. Tools used to mediate activity aimed at transforming the objects into the outcome include school curriculum, textbooks and trade books, instructional strategies, discourse, journals, and lesson plans. Sets of rules and procedures regulate activity. The community is comprised of the teacher and students. The division of labor consists of whole group reading instruction, differentiated reading instruction, independent/silent reading, literacy circles, and individual skill instruction. Reading instruction is embedded within and across the social practices of the activity system.

Reading studies have traditionally not focused on the special needs of ELLs, and many questions remain unexplored regarding best practices with this growing segment of the school-age population (Bernhardt, 2000). Further, while the research on computer-assisted instruction has addressed the needs of ELLs, the focus has been mostly on drill-and-practice applications, not other types of instructional technologies. The research consistently points toward the use of specific and explicit instruction for ELLs during reading instruction. Researchers such as Bernhardt and Fitzgerald have clearly demonstrated what ELLs need in order to succeed during reading instruction. Many school systems seek alternate forms of instruction, such as computer-assisted methodologies, to support struggling ELLs in their literacy development. The current study seeks to understand and explain the instructional activity that occurred with one group of ELLs who are struggling readers who participated in teacher-mediated, computer-mediated reading instruction. Improving the reading skills of lower-achieving students is the main goal of READ 180.
Figure 3. Reading Instruction

- **Tools**
  - Instrumental
    - Journals
    - Instructional Strategies
    - Trade Books
    - Textbooks
    - School Curriculum
  - Psychological
    - Prior Knowledge
    - Lesson Plans
    - Instructional Discourse

- **Subject(s)**

- **Rules and Procedures**
  - Academic Rules
  - Classroom Rules

- **Community of Learners**
  - Teacher
  - Students

- **Division of Labor**
  - Silent/Independent Reading
  - Differentiated Instruction
  - Individual Skill Instruction
  - Literacy Circles
  - Whole Group Instruction

- **Outcome(s)**
  - Proficient Reading
The Read 180 program curriculum provides instruction on core reading system components proposed by NRP and reading researchers. The software and management system diagnosis students and prescribes specific instruction indexed to their needs. The program’s main purposes is to diagnosis, and identify reading deficits, parallel to this purpose, the CHAT reading model will theoretically clarify the reading instruction that took place in the Read 180 classroom. The model focuses on understanding how reading instruction is arranged, how the tools used during reading instruction mediate learning, and how the student processes, transforms, and coordinates the various reading and functional systems to enact reading.

A CHAT developmental model of reading explains proficient reading as a coordination of core reading systems and mental systems to enact reading tasks. The model links organization of reading instruction with learning and developing proficient reading ability. Dysfunctional reading results when threads of the system are broken or frayed. A CHAT reading model invites the use of mixed methods research by explaining the effects of learning activity.

This study sought to determine whether a program like READ 180 could improve the reading achievement of fourth- and fifth-grade ELLs. This study examined the reading effects of participating in an ILS, and contributes to the literature on the effects of computer-mediated and teacher-mediated instruction on ELLs. READ 180’s implementation at a large Southeastern urban elementary public school and the effects on the reading achievement of the students participating in the program were studied. The research questions addressed in this study are:
1. What are the effects of participation in Read 180, a teacher-mediated, computer-mediated integrated learning system that provides reading instruction, on the growth in reading proficiency of a group of participating English Language Learners?

2. What are the effects of participation in Read 180, a teacher-mediated, computer-mediated integrated learning system that provides reading instruction, on the reading achievement of a group of participating ELLs when compared with the reading achievement of a group of English Language Learners with similar characteristics who receive reading instruction supported by a reading basal program?

3. How does the mediated structure of Read 180, a teacher-mediated, computer-mediated integrated learning activity system that provides reading instruction, and surrounding activity systems interact to affect learning?

   In the next chapter, the methodological design of this study will be discussed. The processes used in data collection and analysis will also be outlined based upon a CHAT reading framework model.
CHAPTER III

Method

This investigation used a mixed method approach to answer the research questions. A quasi-experimental design using a matched experimental and control group was used to address the quantitative questions. Engeström’s model (2001) of an activity system was used to account for the mediating structures of READ 180 and the effects of surrounding activity systems on student participation. The following research questions were addressed:

1. What are the effects of participation in Read 180, a teacher-mediated, computer-mediated integrated learning system that provides reading instruction, on the growth in reading proficiency of a group of participating English Language Learners?

2. What are the effects of participation in Read 180, a teacher-mediated, computer-mediated integrated learning system that provides reading instruction, on the reading achievement of a group of participating English Language Learners when compared with the reading achievement of a control group of English Language Learners with similar characteristics who receive reading instruction supported by a basal reading program?

3. How does the mediated structure of Read 180, a teacher-mediated, computer-mediated integrated learning system that provides reading instruction, and surrounding activity systems interact and affect learning?

In the sections below, the study’s setting is described, along with the sample of participants. Next, a description of the Read 180 instruction is presented and the instruction the control group received. Then a description of the research design using mixed-methods is outlined, followed by the data sources and measures used for each
question. Next, the procedures used for data analysis are given for each question. Finally, a discussion of Blanton’s et al. reading process model (2007), and Engestrom’s model of an activity system (2001) and how they were both used to account for the mediated structure of Read 180 and the influence of surrounding activity systems is discussed.

Setting

The site for the study was an urban elementary school located in southeastern Florida. During the 2004-2005 school year, King’s Highway Elementary (KHE) School served approximately 1,340 students from a low-socioeconomic area and a multi-ethnic population. The student population at KHE school for 2004-2005 was 95% Hispanic, 3% White Non-Hispanic and 2% Black Non-Hispanic. In addition, the school had an 83.8% reduced lunch rate, a 16.9% special education population and an attendance rate of 95.60% that school year.

The class selected for this study was a self-contained resource classroom for struggling readers located within the KHE School. The backbone of curriculum and instruction in this classroom was based on Read 180, a computer-mediated teacher-mediated ILS that was supplemented with 4th and 5th grade-level basal reading instruction used by the school system.

Participants

The experimental subjects selected for this study were twenty-three 4th and 5th graders who fell below the 25th percentile level in reading as measured by the Florida Comprehensive Assessment Test (FCAT) and were recommended by their homeroom teachers for participation in READ 180. The characteristics of the students in the Read 180 program are presented in Table 1. A matched-peer control group consisted of 23
students paired with the experimental group using five variables: a) homeroom teacher, b) ESOL level, c) FCAT level, d) free or reduced lunch status and e) gender.

Students typically exited from the Read 180 instruction when they reached grade level reading ability, as determined by their Lexile score, which is obtained with the Scholastic Reading Inventory (SRI). The ranges of Lexile scores and the corresponding grade levels are presented in Table 2. The teacher’s evaluation of the students’ class work, combined with their reading achievement, was also factored into any exit decision.

Treatment

READ 180 is a teacher-mediated computer mediated ILS for providing reading instruction developed by Scholastic Publishing Company to help underachieving readers in Grade 4 and above (Scholastic, 1999). The Cognition and Technology Group at Vanderbilt University developed the software component of the program. First known as the Peabody Literacy Lab, the READ 180 system was researched for several years in both classroom and clinical settings. The classroom implementation structure is a literacy-workshop model developed at the University of Central Florida (Witowski, 2004).

The Read 180 program recommends that the following components be included during each of its rotations. It is suggested that the teacher conduct the whole group instructional session by providing systematic instruction in reading, writing, and vocabulary to the whole class. Small group instruction should be used to provide differentiated instruction and the teacher should work closely with students so that
Table 1.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Grade 5 (N=28)</th>
<th>Grade 4 (N=18)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Experimental (n=14)</td>
<td>Control (n=14)</td>
</tr>
<tr>
<td>Female</td>
<td>36%</td>
<td>43%</td>
</tr>
<tr>
<td>Male</td>
<td>64%</td>
<td>57%</td>
</tr>
</tbody>
</table>

100% of the total sample were English Language Learners and received free or reduced lunch.

<table>
<thead>
<tr>
<th>FCAT Achievement Levels</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>29%</td>
<td>29%</td>
<td>22%</td>
<td>22%</td>
</tr>
<tr>
<td>2</td>
<td>36%</td>
<td>36%</td>
<td>56%</td>
<td>56%</td>
</tr>
<tr>
<td>3</td>
<td>29%</td>
<td>29%</td>
<td>22%</td>
<td>22%</td>
</tr>
<tr>
<td>4</td>
<td>6%</td>
<td>6%</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
individual reading comprehension deficits can be addressed. Students use the computer program independently to complete individualized skills practice that focus on phonemic awareness, phonics, and spelling tasks. Students should enact reading comprehension skills through modeled and independent reading of the READ 180 paperbacks and audio books. The instructional reading language arts block ends with 10 more minutes of whole group instruction to bring the instructional session to an end.

The National Reading Panel’s (2000) report outlined the following areas as major components of the reading process: phonemic awareness, phonics, fluency, vocabulary, and text comprehension. When examining the components of the Read 180 program they align with what the NRP and reading researchers identify as essential during reading instruction. Given this seemingly ideal program structure that Read 180 represents, examining the type of instruction that took place within the current study’s classroom was reasonable. Probable cause warrants a closer look as to what type of instructional activity was taking place during implementation.

**Experimental Group Reading Instruction.** Students took the SRI before beginning the program, and these scores were matched to the leveled texts of the program by the READ 180 computer data management software. A Lexile Reading framework coordinated and matched the level of reading difficulty of texts with students’ levels of reading ability (Denman, 2004). The student or teacher chose books to read from this list of leveled books. Texts that contained content geared toward the students’ developmental reading level were available for students to read during the independent/modeled reading period. Small group instruction as recommended by the program manual can be used to
Table 2.

_Blexile Framework for reading scale and corresponding grade levels_

<table>
<thead>
<tr>
<th>Lexile Scale Range</th>
<th>Grade Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>100-400</td>
<td>1</td>
</tr>
<tr>
<td>300-600</td>
<td>2</td>
</tr>
<tr>
<td>500-800</td>
<td>3</td>
</tr>
<tr>
<td>600-900</td>
<td>4</td>
</tr>
<tr>
<td>700-1000</td>
<td>5</td>
</tr>
<tr>
<td>800-1050</td>
<td>6</td>
</tr>
<tr>
<td>850-1100</td>
<td>7</td>
</tr>
<tr>
<td>900-1150</td>
<td>8</td>
</tr>
<tr>
<td>1000-1200</td>
<td>9</td>
</tr>
<tr>
<td>1025-1250</td>
<td>10</td>
</tr>
<tr>
<td>1050-1300</td>
<td>11</td>
</tr>
<tr>
<td>1240-1500</td>
<td>12 and College</td>
</tr>
<tr>
<td>1500-1700</td>
<td>Graduate School</td>
</tr>
</tbody>
</table>
provide differentiated instruction so that the teacher works closely with students to address individual reading component deficits. The participation structure of the READ 180 system allowed for two whole group instruction sessions at the beginning and end of each instructional period. Students participated in three small-group rotations, following the initial whole group instruction. These groups rotated among three 20-minute stations that included independent/modeled reading, small group teacher instruction, and individualized computer instruction. Figure 0 represents the recommended setup of the Read 180 classroom.

A set of topical Compact Discs (CDs) that students used during computer instruction time was also provided. The topical CDs are full motion videos that provide students with background knowledge and mental models before reading an expository passage. After viewing the video, students read a passage appropriate for their reading ability that was based on the previously viewed video.

After viewing the video and reading the passage, students interacted with three sections of the CD: a) Word Zone, b) Spelling Zone, and c) Success Zone. These three components provide basic reading tasks based on a previously read passage. Word Zone presented instruction for developing basic decoding skills and the ability to use structural analysis with vocabulary words from the CD reading passage. The Spelling Zone provided extensive individualized instruction on the acquisition and transfer of spelling patterns and sounds of the vocabulary words presented. In the Success Zone, students were assessed for comprehension, word recognition, and fluency skills based on the previously read passage.
Figure 4. Recommended Read 180 Classroom Setup

A comfortable reading area for Modeled and Independent Reading with the READ 180 Paperback and Audiobooks

Work tables or clusters of desks for teacher-directed Small-Group Instruction

A computer station for Instructional Reading with the READ 180 Software
READ 180 uses the SRI as a data management system to coordinate student data for pacing students through components of the program. Students took the SRI comprehension test before moving on to a new text. Quick-Writes, writing activities that generally entailed answering questions embedded in independent/modeled reading text, were completed while reading, and informal assessments included teacher made tests and homework assignments.

The experimental group also used the grade level basal reading program by Houghton Mifflin in addition to the reading material provided by the Read 180 program during whole group and small group instruction. A description of the basal reading program is detailed in the next section.

**Control Group Reading Instruction.** The basal reading program used to provide instruction to the control group was Houghton Mifflin Reading, as mandated by the school district. This basal reading program provided suggestions to the home room teacher as to how to arrange reading instruction using differentiated instruction and guided reading. Additionally, the lesson structure of the thematic units included and focused on the following reading strategies and skills in both 4th and 5th grade: a) phonics/decoding, b) predict/infer, c) monitor/clarify, d) question, e) summarize, and f) evaluate. Each reading passage selection included guided instruction and suggestions for the teacher to use when creating reading lesson plans in the areas of reading, word work, writing and language, and cross-curricular content areas. Additionally, the basal reading program teacher’s guide incorporated a spiral review method to allow for systematic review and practice of key skills. In this study observations were not conducted in the homeroom classrooms of the control group, therefore the specific instruction the control
group received may have been quite different from what the basal reading program recommended. This limitation to the study will be addressed in the final chapter.

Design

A quasi-experimental repeated measures design, including a non-randomized experimental group, was used to answer the quantitative research questions. For question 1, a Repeated Measures ANOVA was used to examine the mean growth in reading proficiency of the experimental group with data scores obtained with the Scholastic Reading Inventory administered once every nine-week grading period to every student. To answer research question 2, a t-test was used to examine the difference between the reading achievement scores of students who participated in the Read 180 program were compared with the scores of students of similar ability levels who served as a control group and did not participate in Read 180. To answer the final qualitative question, the effects of surrounding activity systems on the implementation of READ 180 instruction and student participation were examined with Engestrom’s model of an activity system. The data sources used included classroom observations, video-recording of small group instruction, classroom curriculum, and a teacher interview.

Independent Variable

The independent variable for this study was the reading intervention program READ 180, that was supplemented with basal reading instruction, which combines teacher-mediated and computer-mediated instruction. Participants in the experimental group received instruction each day for 120 minutes during their language arts period in a resource room the entire school year. A matched peer control group remained in the homeroom classroom and received 4th and 5th grade reading instruction for 120 minutes.
using only the Houghton Mifflin basal reading program and did not participate in the Read 180 program.

**Dependent Variables**

The dependent variables for the first research question (*What are the effects of participation in Read 180, a teacher-mediated, computer-mediated integrated learning system that provides reading instruction, on the growth in reading proficiency of a group of participating English Language Learners?*) were the measurement points obtained on the SRI each nine weeks by the Read 180 participants during the 2004-2005 school year. Both the control and experimental groups’ achievement scale scores from the 2004 and 2005 administration of the FCAT Reading exam served as the dependent variables for research question two (*Does participation in Read 180, a teacher-mediated, computer-mediated integrated learning system that provides reading instruction, have a significant effect on the reading achievement of a group of participating English Language Learners when compared with the reading achievement of a control group of English Language Learners with similar characteristics who receive reading instruction supported by a reading basal program?*). The third research question (*How does the mediated structure of Read 180, a teacher-mediated, computer-mediated integrated learning system, that provides reading instruction and surrounding activity systems interact to affect learning?*) was answered by using qualitative data sources that are outlined below.

**Instrumentation and Data Sources**

Table 3 summarizes the data sources and methods used to analyze the data collected for each research question. The data sources that were accessed in this study included the experimental group’s test scores obtained with the SRI at four different time
points and the participants’ FCAT reading scores from the 2003-2004 and 2004-2005 school year. Additional sources of data included classroom observations, videotaped small group instruction and a structured interview with the classroom teacher.

Scholastic Reading Inventory: The experimental group was assessed every nine weeks with the SRI for a total of 4 assessment points. The format of the SRI consisted of a series of multiple-choice tests that measure reading comprehension based on the Lexile Framework for reading. The alternate forms reliability coefficient for the Lexile Framework for reading is .93 (Scholastic Inc., 1999). The Lexile Framework has been linked with tests such as the Stanford Achievement Tests (9th and 10th Editions), Gates-MacGinitie Reading Test, Metropolitan Achievement Test, and The Iowa Tests (Stenner, Burdick, Sanford and Burdick, 2007).

The experimental participants in this study responded to an interactive computerized version of the SRI during their scheduled language arts/reading block. This version of the SRI is a computer-adaptive reading comprehension assessment, which consisted of responding to comprehension questions from a database of over 3,000 questions. The test items are based on nonfiction and fictional texts from children’s literature. This bank of questions is also drawn from periodicals, newspapers, magazines, and young adult and classic literature (Thomas, 2005). The final results of the assessment are reported in both norm-referenced and criterion-referenced terms, providing students’ reading comprehension levels as percentile ranks, grade equivalency scores, normal curve equivalent scores, and Lexile scores.

The Lexile Framework (LF) is used to match a student’s reading level with a text of appropriate difficulty. The LF measures the level of difficulty of the text using
Table 3.

Summary of Methods Used to Analyze Data Collected

<table>
<thead>
<tr>
<th>Research Question</th>
<th>Data Analysis</th>
<th>Instrumentation</th>
<th>Data Collection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question 1. What are the effects of participation in Read 180, a teacher-mediated,</td>
<td>Repeated Measures ANOVA</td>
<td>Scholastic Reading Inventory(SRI)</td>
<td>1 time each nine-week grading period (total of 4 measurement points)</td>
</tr>
<tr>
<td>computer-mediated integrated learning system that provides reading instruction, on the growth in reading proficiency of a group of participating English Language Learners?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Question 2. What are the effects of participation in Read 180, a teacher-mediated,</td>
<td>Paired t-test</td>
<td>Florida Comprehensive Assessment Test(FCAT)</td>
<td>Spring 2005</td>
</tr>
<tr>
<td>computer-mediated integrated learning system that provides reading instruction, on the reading achievement of a group of participating English Language Learners when compared with the reading achievement of a control group of English Language Learners with similar characteristics who receive reading instruction supported by a basal reading program?</td>
<td></td>
<td></td>
<td>Spring 2004</td>
</tr>
<tr>
<td>Question 3. How does the mediated structure of Read 180, a teacher-mediated,</td>
<td>Data Reduction</td>
<td>Classroom Observations</td>
<td>Fall 2004</td>
</tr>
<tr>
<td>computer-mediated integrated learning system that provided reading instruction, and surrounding activity systems interact and affect learning?</td>
<td>Data Display</td>
<td>Teacher Interview</td>
<td>Spring 2005</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Video Taped</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Small Group Instruction</td>
<td></td>
</tr>
</tbody>
</table>
transformations of sentence length and frequency of word usage (Scholastic, 2002). The
difference between a reader’s Lexile score and a text’s Lexile score is used to predict
how well the reader will comprehend the text.

*Florida Comprehensive Assessment Test (FCAT) Developmental Scale Score.* The
FCAT Developmental Scale Scores (DSS) of the students in the control and experimental
groups were used as a measure of reading achievement progress. The FCAT is a
criterion-referenced and norm-referenced achievement test that is administered every
spring to Florida public school students in Grades 3 through 10. One of the purposes of
the FCAT is to evaluate students’ achievement on the Sunshine State Standard
benchmarks. The norm-referenced test on reading comprehension compares Florida
students to students across the nation. Developmental-scale scores are designed to
measure academic proficiency on a single scale for students of any grade and in any year.
The question formats include multiple-choice and performance tasks responses.
Reliability of the reading section of the FCAT ranges from .86 to .91 and includes
internal consistency, test-retest reliability, inter-rater reliability, and reliability of
classifications (Florida Department of Education, 2002). The FCAT and SAT9 scores
have been previously correlated at .86 for third graders with the Stanford Achievement
Test-9 (Schatschneider, et al., 2004) and at .70 to .81 for grades 4, 5, 8, and 10 with the
SAT-9 as well (FDOE, 2001).

*Classroom Observations.* During classroom observations, the researcher acted as
observer-as-participant in the Read 180 program, providing added support and assistance
to the class as needed. Field notes recorded by an observer as participant are an effective
way to capture particular moments or activities that can describe interactions between
participants (Creswell, 1994). The role of the researcher is known when they act as observer-as- participant. An advantage to this role is that the researcher can record information as it occurs. An important limitation is that “private” information may occur that the researcher may not be able to report (Creswell, 1994). Observations were conducted over a six-month period to develop detailed descriptions of the instruction in the Read 180 classroom and the instruction provided by the Read 180 teacher.

*Teacher Interview.* A structured interview was conducted with the Read 180 teacher to determine the teacher’s perceptions and implementation strategy of the READ 180 program (See Appendix A for interview questions and probes.)

*Video Taping.* Video taping of small group instruction took place on three separate occasions during the six-month field observation period. The purpose of these videos was to capture teacher-student and student-student interactions that took place during small group instruction.

*Data Collection Procedures*

The data collection procedures included classroom observations, videotaping, teacher interview, school curriculum, and individual student test scores. A summary of the data collection procedures is presented below.

The classroom observations, test scores, videotaping and the interview provided a combined set of data sources that created a database that was used to explain the elements mediating Read 180 instruction and the interactions of other activity systems on outcomes.

*Classroom observations.* Observations of Read 180 instruction were made to develop detailed descriptions of the events that take place in the Read 180 classroom.
Two sets of classroom observations were conducted. The first observations were completed during the fall of 2004 over a 13-week period. The observer collected observation data 10 times during this period. The second set of observations, a total of five visits, and took place over a 30 day period in January and February of 2005. In all 30 hours of classroom observations were made.

*Teacher interview.* One in-depth interview was conducted with the teacher using the Read 180 program interview protocol (Appendix A). The interview was taped and transcribed (Appendix A). The duration of the interview was eighteen minutes and 27 seconds. This interview was conducted by the researcher with the Read 180 teacher in the classroom setting. The interview took place on a teacher planning day during the teacher’s lunch hour, as previously agreed upon by the teacher. The surrounding school environment was quiet and the teacher seemed to be relaxed. The teacher was always willing to help and offer any support necessary for the completion of the research project.

*Videotaping sessions.* During the month of March 2005, three classroom videos were captured with the experimental group participating in Read 180 instruction over three consecutive days. Students at work during small group instruction were video recorded. Small group instruction was comprised of the teacher and 5-6 students seated at a table located near the entry to the classroom. In general the students were relaxed and very familiar with the researcher. The students were made aware of the scheduled videotaping session before hand and seemed to be comfortable with the videotaping process.

*School curriculum.* The reading curriculum was also a supplementary source of data. The particular instructional curriculum was a basal reading program used by the
teacher to augment Read 180 instruction. The basal reading program was an instructional tool that served as a data source.

Data Analysis

To answer Research Question 1, the experimental group’s SRI reading scores were analyzed using a repeated measures analysis of variance to determine any changes in the reading proficiency within the experimental group. A paired t-test was performed on the reading scores of the experimental and control groups’ 2004 and 2005 FCAT reading scale scores to determine differences between the two groups to answer Research Question 2. An alpha level of .05 was used to determine statistical significance. The Statistical Program for the Social Sciences (SPSS) was used to analyze the quantitative data.

Qualitative Data Strengths. The process implemented for data analysis also involved constant data reduction by tracking the data as it was gathered. Aligning the data modeled with Engestrom’s model of an activity system allowed the researcher to account for instructional activity in the READ 180 classroom and the effects of surrounding activity systems.

The purpose of Engestrom’s model was to provide an understanding of the classroom system as a whole, and the elements mediating instruction (1987, 1999). According to Engestrom:

The subject is the individual or sub-group whose agency is chosen as the perspective in the analysis. The object is the ‘problem space’ or ‘raw material’ that the activity is directed and which is molded and transformed into outcomes with the help of physical and symbolic, external and internal mediating instruments. These instruments can include
both tools and signs, which is the third structure in the activity system. The next structure is the community and this is made up of individuals or sub-groups who share the same general object and who construct themselves as distinct from other communities. The division of labor refers to both the horizontal division of tasks between the members of the community and to the vertical division of power and status. The final structure refers to the explicit and implicit regulations, norms, and conventions that constrain actions and interactions within the activity system.

The following figure details Engestrom’s model of activity with only the basic elements present (Engestrom, 1987; 1999). Each juncture in Figure 2 depicts mediating points and structures (tools, rules, community, division of labor, object, and subject) that may affect the outcomes of learning.
Figure 2. Basic activity system

(Cole & Engestrom, 1993)
Chapter IV

Results and Discussion

This chapter reports the results and of the study and provides a discussion. Data were collected to answer three research questions which are repeated as headings. Data collected for the study included the FCAT scores from the 2004 and 2005 school year, Scholastic Reading Inventory (SRI) Lexile measurement points collected each nine-week period, classroom observations, digital video of small groups of students engaged in learning activity and an interview with the classroom teacher. The quantitative results and discussion of the data in this chapter are divided into two sections: 1) the answer to the first research question provides the results of the repeated measures analysis of the SRI scores and 2) the answer to the second research question provides results of paired t-tests analysis of the 2004 and 2005 FCAT Reading Developmental Scale Scores. The last two sections provide a qualitative account of the instructional activity that constituted READ 180 instruction.

Question One: What were the effects of participation in Read 180, a teacher-mediated, computer-mediated integrated learning system that provides reading instruction, on the growth in reading proficiency of a group of participating English Language Learners?

The Scholastic Reading Inventory (SRI) taken by the students each nine weeks provided a total of four measurement points on reading comprehension. The SRI is based on the Lexile Framework (LF). The Lexile Framework is a tool that matches a student’s reading level with a text of appropriate reading difficulty.
The LF measures the level of text difficulty by analyzing sentence length and frequency of word usage (Scholastic, 2002). The difference between a reader’s Lexile score and a text’s Lexile score is used to predict how well the reader will comprehend the text.

Repeated Measures Analysis of SRI Lexile Scores for 4th Grade Experimental Group. The lexile measures for the fourth grade group from the Read 180 program were analyzed with a analysis of variance with time of measurement (first lexile score vs. second lexile score, second lexile score vs. third lexile score, third lexile score vs. fourth lexile score) as a within-subjects factor. Mauchly’s Test of Sphericity is an assumption that relates to the equality of the variances of the differences between levels of the repeated measures factor. In order to avoid violating this assumption the p value for this test must be > .05. Mauchly’s Test of Sphericity indicated that the assumption was met (p < .084). The main effect of time of measurement was significant, F (3, 24) = 26.16, p < .000, \( \eta^2 = .77 \). Table 4 lists the mean Lexile Score measurement points, sample size, and standard deviation of the Lexile Scores for the 4th Grade Experimental Subjects.

The results of the pairwise comparisons are presented in Table 2. Paired comparisons were made by comparing the main effects with \( p \) set at .05. There was a significant difference between the first lexile score and the second lexile score (\( M = 359.33, SD = 114.45, p < .03 \)). There was also a significant difference between the first lexile score and the third (\( M = 383.33, SD = 83.97, p < .001 \)) score. Gains were made between the first lexile measure and the last measure (\( M = 458.33, SD = 84.32, p < .001 \)). There was no significant difference between the second and third lexile score or the third...
Table 4.

*Mean Lexile Scores, Sample Size, and Standard Deviation of the Lexile Scores for the Fourth Grade Experimental Subjects*

<table>
<thead>
<tr>
<th>Lexile Measurement Point</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td>228.33</td>
<td>65.05</td>
<td>9</td>
</tr>
<tr>
<td>Second</td>
<td>359.33</td>
<td>114.45</td>
<td>9</td>
</tr>
<tr>
<td>Third</td>
<td>383.33</td>
<td>83.97</td>
<td>9</td>
</tr>
<tr>
<td>Fourth</td>
<td>458.33</td>
<td>84.32</td>
<td>9</td>
</tr>
</tbody>
</table>
and fourth lexile score. Paired comparisons indicated a lack of significance between the second and fourth lexile measure. Overall the post hoc analyses indicated that the greatest gains were made during the initial assessment points and then the lexile scores stabilized as time progressed during the treatment period.

Repeated Measures Analysis on SRI Lexile Scores for 5th Grade Experimental Group. Table 6 lists the mean Lexile Score measurement points, sample size, and standard deviation of the Lexile Scores for the 5th Grade Experimental Subjects. Table 7 presents the means of measurement point with the standard deviations in the pairwise comparisons. The lexile measures for the fifth grade group from the Read 180 program were analyzed with an analysis of variance with time of measurement (first lexile score vs. second lexile score, second lexile score vs. third lexile score, third lexile score vs. fourth lexile score) as a within-subjects factor. Mauchly’s Test of Sphericity indicated that the assumption was not met (p < .042). Since the sample was small the Greenhouse-Geisser correction was applied (Norušis, 2005). The main effect of time of measurement was significant, F (1.81, 23.52) = 30.84, p < .001, η² = .70.

Paired comparisons were made by comparing the main effects with p set at .05. There was a significant difference between the first lexile score (M = 351.93, SD = 132.12) and the second lexile score (M = 523.50, SD = 155.41, p < .014). There was also a significant difference between the first lexile score and the third (M = 582.64, SD = 186.55, p < .003) score. Gains in Lexile scores were made between the first lexile measure and the last measure (M = 700.28, SD = 136.02, p < .001).
Table 5.

*Fourth Grade Experimental Group Pairwise Comparisons*

<table>
<thead>
<tr>
<th>Lexile Measurement Point</th>
<th>Lexile Comparison</th>
<th>Mean Difference</th>
<th>Standard Error</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>-131.00</td>
<td>33.12</td>
<td>0.025</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>-155.00</td>
<td>22.71</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>-230.00</td>
<td>18.35</td>
<td>0.000</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>-24.00</td>
<td>17.29</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>-99.00</td>
<td>34.14</td>
<td>0.119</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>-75.00</td>
<td>28.18</td>
<td>0.173</td>
</tr>
</tbody>
</table>
Table 6.

*Mean Lexile Scores, Sample Size, and Standard Deviation of the Lexile Scores for the Fifth Grade Experimental Subjects*

<table>
<thead>
<tr>
<th>Lexile Measurement Point</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td>351.93</td>
<td>132.12</td>
<td>14</td>
</tr>
<tr>
<td>Second</td>
<td>523.50</td>
<td>155.41</td>
<td>14</td>
</tr>
<tr>
<td>Third</td>
<td>582.64</td>
<td>186.55</td>
<td>14</td>
</tr>
<tr>
<td>Fourth</td>
<td>700.29</td>
<td>136.02</td>
<td>14</td>
</tr>
</tbody>
</table>
Table 7

_Fifth Grade Experimental Group Pairwise Comparisons_

<table>
<thead>
<tr>
<th>Lexile Measurement Point</th>
<th>Lexile Comparison</th>
<th>Mean Difference</th>
<th>Standard Error</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>-171.57</td>
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<td>0.014</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>-230.71</td>
<td>50.71</td>
<td>0.003</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>-348.36</td>
<td>39.17</td>
<td>0.000</td>
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<td>2</td>
<td>3</td>
<td>-59.14</td>
<td>22.51</td>
<td>0.125</td>
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<td></td>
<td>4</td>
<td>-176.79</td>
<td>25.31</td>
<td>0.000</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>-117.64</td>
<td>30.33</td>
<td>0.011</td>
</tr>
</tbody>
</table>
The paired comparisons indicated a lack of significance between the second and third lexile measure \( (p < .125) \). Significant gains were made between the third lexile and the fourth lexile \( (p < .011) \). Overall the post hoc analyses indicated that learning improved during the first two measurement points, leveled off between the second and third assessment, and then increased significantly again between the third and last measurement.

**Question 2:** Does participation in Read 180, a teacher-mediated, computer-mediated integrated learning system that provides reading instruction, have a significant effect on the reading achievement of a group of participating English Language Learners when compared with the reading achievement of a group of English Language Learners with similar characteristics who receive reading instruction supported by a basal reading program?

The means, sample, and standard deviations of the FCAT Developmental Scale Scores (DSS) from 2004 and 2005 are presented in Table 8. These scores were analyzed to determine if any improvement was made after participating in the Read 180 program. Gains in learning can be determined by comparing differences in the FCAT DSSs (Canto, 2006). A paired t-test analysis was performed on the FCAT-DSS of the control and treatment groups for both grade 4 and 5 to determine any statistically significant differences in reading achievement scores. This study’s small sample size warranted some adjustments to be made that addressed the issue of power. Power is the probability of making the correct decision regarding the null hypothesis. With larger sample sizes power is typically not an issue; however, when N<20 the chance of a Type 1 error increases dramatically. In order to improve power of the analysis, there are a number of
steps that can be taken, including using a more lenient alpha level, a one-tailed test, and matching the pairs on variables. The last adjustment was selected and the experimental and control group in the study were matched on their pre-treatment FCAT level, gender, homeroom teacher, and grade level.

The differences in pre-post test FCAT DSS scores for the 4th grade experimental and control group were not statistically significant ($M= 93.22, SD=446.51, p < .549$). The effect size is .22. Similarly, the differences in pre-post test scores for the 5th grade experimental and control group were not statistically significant ($M= 28.86, SD=274.28, p < .700$). The effect size is .11. These findings indicate that the effects of Read 180 instruction and traditional reading instruction were not significantly different.

Qualitative Results

This study also investigated classroom reading instruction which constituted of teacher-mediated and computer-mediated instruction provided with Read 180. Engestrom’s model of an activity system guided the analysis of the instructional activity system and surrounding activity systems.

Question 3: How did the mediated structure of Read 180, a teacher-mediated, computer-mediated integrated learning system that provides reading instruction and surrounding activity systems interact to affect learning?

Neighboring activity systems interacted with the READ 180 classroom and instruction. Figure 4 presents the Read 180 classroom activity system and the systems that surrounded it. These neighboring systems that affected classroom instruction engaged in different activity (e.g.: federal, state and local institutions).
Table 8.

Mean Reading Developmental Scale Score (DSS) of the 2005 FCAT, Sample Size, and Standard Deviation of the Reading Developmental Scale Score of the 2005 FCAT for the Treatment and Control Groups

<table>
<thead>
<tr>
<th>Grade</th>
<th>Group</th>
<th>Mean</th>
<th>Sample Size</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Treatment</td>
<td>1292.00</td>
<td>9</td>
<td>413.77</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>1385.22</td>
<td>9</td>
<td>359.80</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>1338.61</td>
<td>18</td>
<td>379.20</td>
</tr>
<tr>
<td>5</td>
<td>Treatment</td>
<td>1472.93</td>
<td>14</td>
<td>245.76</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>1501.79</td>
<td>14</td>
<td>290.74</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>1487.36</td>
<td>28</td>
<td>264.57</td>
</tr>
</tbody>
</table>
Figure 4 models Read 180, a teacher-mediated, computer-mediated reading instruction system from the perspective of the researcher. As can be seen, Read 180 was constituted of a local classroom activity system and neighboring activity systems. The outcomes of participation in Read 180 are improved reading proficiency and improved FCAT scores. The objects to be transformed into the outcomes are the components of a core reading system, reading weaknesses, response to leveled texts, and on student behavior. The tools used to mediate activity aimed at transforming the objects into the outcomes are school curriculum, grade level texts, leveled texts, instructional strategies, discourse, computers, software, journals, multimedia, lesson plans, prior knowledge and the Read 180 database management system. Rules and procedures that mediate the activity system include: complete a journal prompt the first fifteen minutes of class, read only the last word of each sentence when the teacher reads aloud, no talking while completing the group rotations, answer questions at the end of the leveled texts (quick writes), remain on task, work individually, use the grade level basal reading program, and complete instructional zones on the computer sequentially. Traditional classroom rules applied as well. The community is composed of the Read 180 teacher and students. The division of labor is distributed among whole group instruction, small group instruction, independent/silent reading, and individual skill instruction in the Read 180 program.
Figure 5. Read 180 Activity System
As noted in chapter 2, Engestrom (1993) proposes that emerging problems create disturbances, tensions, discoordinations, ruptures, breakdowns, and clashes in the flow of normal classroom activity. For example, a primary problem emerges when participants do not possess the skill necessary to participate in computer-mediated instruction. Secondary problems emerge when rules and procedures interfere with instruction. The focus of the main activity on transforming an object that is inappropriate for attaining the desired outcome creates another problem. Two different activities designed to produce the same outcomes may also create tertiary problems. To sustain the collective system members create or import innovations to solve problems and stabilize the system.

Solving problems with innovations. Innovations are created and imported into activity systems by designers to solve problems by making modifications and transformations in the system (Engestrom, 1993). Three innovations are used to repair ruptures, conflicts, and crises created. A solution innovation is created to “fix” primary problems related to single components of the activity system. The solution is the selection or creation of a more appropriate tool, rule, or division of labor. A trajectory solution is used to change the path of the activity system. When the transformation of a particular object does not yield a desired outcome, a new object for attaining the desired outcome is developed, such as changing the focus of the instruction, drill and practice to meaning making and understanding. Last, a system innovation, involves the creation of an entirely new activity system after an evaluation determines that the activity system is not functioning properly.
**Problems, disruptions, and breakdowns**

Two groups of observations were conducted during classroom instruction. The first observations were completed during the fall of 2004 over a 13-week period. Observation data was collected on 10 separate occasions during this time. The second group of observations, a total of five visits, took place over a 30 day period in January and February 2005, and resulted in approximately 30 hours of classroom observations and field notes. During March 2005 three classroom videos were captured in a one week period with the fourth grade Read 180 group over three consecutive days during small group instruction. Engestrom’s model of collective activity was used to account for instruction. Figure 5 presents examples of the type of problems that emerged. Numbers point to the mediating structures that were disrupted and created problems. Each problem is labeled to correspond with the numbers present in each problem’s heading text.

As can be seen, three types of problems emerged: (1) primary problems of the activity system, (2) secondary problems emerged between the components of the activity system, and (3) tertiary problems emerged between the Read 180 activity system and surrounding activity systems. Salient examples of each type of problem are presented next. An example of a solution, trajectory, or system innovation will be offered after each group of problems and is presented as one possible way the system’s problems could be repaired.

*Primary problem 1.1: Instructional tool abuse.* The daily schedule in the Read 180 classroom began with a whole group session that focused on the grade level textbook. This whole group session was lead by the teacher and the duration of the
Figure 6. Read 180 Activity System with primary problems (1), within the components of the activity system, secondary problems (2), between the components, and tertiary problems (3), between the activity systems and surrounding activity systems.
session was approximately 20-25 minutes. The first problem was created by the insertion of a basal reading program textbook into instruction. The teacher read aloud a selection from the basal reader. The field note excerpt demonstrates this type of teacher directed behavior: “Students read along and the teacher expected the student to repeat the last word of the sentences. This is done so that the teacher knows that the students are following along.” The students followed along in their basal readers as she read aloud. Students were required to engage in choral reading in order to ensure that they were paying attention to the text. The students read aloud the last word of each sentence in unison. When this was done the teacher would use a visual or auditory check to verify whether or not the students were paying attention. The basal reading text and the teacher’s routine disrupted instruction. The students were not able to read on grade level, but the teacher was obligated to use the grade level basal reader.

The need for the students’ to read a text on their grade level was an obligatory non-negotiable rule of the school system the teacher stated in the interview. The teacher followed the mandate in order to keep a record of the activity and to keep a log indicating that students had instruction in a grade level text.

According to the teacher, in the first whole group instruction (25 minutes) the students get a “watered down” version of their grade level basal. They are exposed to the spelling words and the vocabulary words from a basal reader selection during a four week period. The teacher comments “we split up the words...” “It is in a way an intervention because they are getting it at a slower pace.” The teacher was not observed providing any individualized instruction at any time during whole group sessions. A minimal amount of discussion took place during whole group instruction. When the teacher conducted a
discussion, the mediating discourse used was an Invitation Response Evaluate (IRE) routine. The teacher invited the student to answer a question, the student responded, and the teacher evaluated the response. In other words the teacher talked (at) the students and did not make reading instruction meaningful by using discourse to connect new concepts to students’ prior knowledge.

*Primary problem 1.2: Computer stands in for teacher.* The second problem was created by the discoordination between the computer and the teacher. The teacher relied on the computer software to provide instruction. She rarely checked on students to make sure they were making sense of the interaction provided by the computer. She stated in her interview that “as a teacher she would never be able to provide the same rate of instruction as a computer does”. She believed that the computer was providing appropriate, if not better, reading instruction. As long as the students seemed to be interacting with the computer, she seemed confident that they were on task and engaged in reading activities. She also conveyed confidence in the computerized instruction by assigning students’ spelling improvement to the computer/keyboard. Her interpretation was that because students were using a keyboard instead of writing their spelling words, their spelling skills improved. Her comments point to the idea that a computer can stand in for a teacher.

*Primary Problem 1.3: Instruction gone awry.* The third problem emerged during small group instruction which did not focus on the core reading components on which students needed improvement, such as comprehension, fluency, vocabulary, and writing skills. During the small group instruction rotation, the teacher sat with 4-5 students at a table. The majority of the time the students completed assignments from the grade level
companion workbook to the basal reading program. The teacher announced the page the students would work on and then allowed 10-15 minutes for the students to complete the assignment.

Video analyses revealed that during all small group sessions the teacher assigned certain page numbers from the workbook as the main task for small group instruction. As an illustration, the instructions during one such small group session on the workbook page were to “create original analogies”. However, the students didn’t know the meaning of the word analogy. When the students asked for clarification, they received no response from the teacher. The teacher went on to continue giving examples of analogies, but never explained or defined the concept to the students. Nor did the teacher engage in any strategy that would have activated the students’ prior knowledge of analogies. The teacher did not seem to understand that to be meaningful tasks students are to perform must be linked to prior knowledge, have purpose, and be accompanied with explanations, modeling and guided assistance.

Primary problem 1.4: Fleeting fluency. The fourth problem that emerged was that the computer was not able to provide fluency instruction. The component called the “Success Zone” allowed the students who completed all the comprehension questions based on a reading passage to record an oral reading of the story and then listen to their recording. The program does not provide feedback on the accuracy of their oral reading. The field note excerpt was a typical example of this problem:

Student at the computer reading aloud; recording a passage. She has trouble recording the last sentence of the passage about ‘funny art cars’. She completes the recording. Every sentence is accurately read except the very last one. I ask her
about how a student who reads a passage incorrectly will know if they did not do it properly.

   R: “Does the computer tell you?”

   S: “No.”

   R: “Then how does a student know if they read something wrong?”

   Student shrugs her shoulders unknowingly.

The teacher did not provide instruction on this essential component of reading.

   In summary, primary problems disrupting the activity system included the following: 1) inappropriate tools used when a grade level basal reading program textbook was used to provide instruction, 2) students were not engaged in meaningful conversations about how to perform tasks and how they were used in activity, 3) computer software was relied on to provide reading instruction as a stand-in teacher, and 4) individualized instruction was not provided.

   Solution innovations. As discussed earlier, Engestrom (1993) proposes several methods of repairing problems. Solution innovations can solve the problems that are located within and between the activity system’s mediating structures. For example, the problem created by inappropriate use of a grade level basal reading program textbook with a group of struggling readers, by using any kind of reading material on the student’s instructional level for example, particular texts on topics that interested them. Students’ prior knowledge could have been activated as way to make instruction meaningful to them. With this group of ELLs the teacher might use the native language of students to facilitate instruction. Providing instruction in the students’ native language, along with a
special focus on developing vocabulary and background knowledge, would have resolved many of the misunderstandings the students’ experienced during their participation in instruction.

Secondary problem 2.1: Indistinguishable instruction. Secondary problems disrupt the transformation of objects of instructional activity and the production of desired outcomes. The teacher stated in her interview that she incorporated both grammar and comprehension strategies during small group instruction. She also stated “…it’s not guided reading for five kids, it’s guided reading per child. Each child is individualized within the system.” The teacher was referring to the Read 180 program and that reading instruction was tailored to meet the needs of the students. In contrast to the teacher’s comments, observations of whole and small group instruction indicated that the same instruction was provided for all the students in the program. In all the instruction observed students were assigned workbook pages that focused on grammar, spelling, and writing skills. The teacher commented that “the only modifications I have made is extending the whole group time to 25 minutes and using the basal during that time.”

Secondary problem 2.2: Breaking the rules. The teacher required students to follow the learning zones in Read 180 in a specific sequence. The students each spent time at the computer receiving individualized reading instruction from the Read 180 program in the following areas: vocabulary, spelling, and reading comprehension. First, the students typically watched a video that helped to create background knowledge on the topic at hand. Next they read a passage pertaining to the video that they saw. Depending on their reading level, the computer provides a recording of the passage to the student initially to provide a correct reading model.
Afterwards the student could decide on which area to work on first, word zone, spelling zone or success zone. The field note demonstrates this rule:

Teacher discusses that they should go into reading zone, word zone, then spelling zone.

T: “You get a grade on Friday and if you don’t do all the zones then you don’t get a good grade. When you start the new CD you will start at the beginning and get good grades. Some of you have gone into one zone too many times and can’t do it anymore because you did not go in order.”

Despite the rule many students skipped around the areas of instruction with no attention given to the order in which the learning zones were completed, many times switching back and forth between zones. They broke rules and procedures in order to enjoy themselves on the computer activities they preferred during this activity.

**Secondary problem 2.3: Ignoring the questions.** The third problem emerged when students did not follow procedures during the independent/silent reading group. This particular activity for students was to respond to leveled texts. In order to move from one level to the next, the students had to read the books and complete hand-written quick writes to answer the comprehension questions at the end of each book. If a student chose not to read or complete any quick writes their choice was not noticed at that moment, since the teacher insisted the students “work on their own” during the rotations.

**Secondary problem 2.4: Look who is not talking.** The fourth secondary problem emerged when discussions of the literature or passages the students read did not occur because the student’s had to read and work alone without interacting with each other. If the students chose to read on their own, there was a section in the classroom with comfortable seating for three students. The guided reading section had seating for four
students and had tape recorders and cassettes. Students would often choose to listen to their text rather than engage in independent reading. As a result, students did not have opportunities to engage in conversations relevant to their response to reading.

*Secondary problem 2.5: Rewards instead of reading.* The fifth problem emerged as students were more intent on earning points for their good conduct than actually engaging in reading tasks. The teacher used a point system as a way to manage the students’ behavior. Each Read 180 program block of time ended with the entire class returning to their assigned seats after the last rotation. The teacher used this time to bring the students back together as a whole and reward their behavior. The teacher distributed points at this time to students who had demonstrated on task behavior throughout the block of time spent in the classroom. With the introduction of the point system the students changed their focus to attain a tangible reward, such as free homework passes, treats, and verbal praise from the teacher. Rather than focusing on improving reading proficiency, both the teacher and students began to focus on an object that was inappropriate to achieve the desired outcome, proficient reading.

*Trajectory innovations.* Trajectory innovations are developed to alter the direction of the activity system when an activity directed on an object does not produce the desired outcome. In the Read 180 system the objects to be transformed into outcomes were often inappropriate. As an illustration, the most simple and straightforward manner to solve the problem observed was to provide instruction that focused on meaning, understanding, and how reading works. This focus would have changed the instructional activity comprising small group instruction by engaging students in conversations about what they read, as opposed to answering questions correctly.
Tertiary problem 3.1: Clashing tools and rules. Tertiary problems emerged as a result of interactions between activity systems. The first tertiary problem emerged with the teacher’s obligation to use the grade level basal reading program mandated by the school district. The mandate resulted in changes in the teacher’s behavior and confusing instruction for students.

Tertiary problem 3.2: Writing mishaps. The Read 180 Quick Writes engaged students in writing after they finished reading a chapter or a certain number of pages in their leveled texts. However, the teacher explained that she had to incorporate journal writing during the first 15 minutes of the 2 hour language arts block because it was part of the school improvement plan. The outcome was that the students engaged in two writing activities. The arbitrary writing activity imposed from the school took much needed instructional time away from the students.

Tertiary problem 3.3: Technical breakdowns. A third tertiary disruption was created by the internet link to the Read 180 main server at Scholastic that managed computer activity. At one point, the Read 180 server at Scholastic, Inc. was down for three months. A variety of technical malfunctions, such as student performance data not being archived was a regular problem.

Discussion

The Read 180 activity system was examined to determine how participation in the program would affect the reading proficiency of ELLs. The students who participated in the Read 180 program made significant gains in their reading proficiency, as measured by the Scholastic Reading Inventory. When this group was compared to a control group of similarly matched peers no significant differences were obtained. These findings are
similar to the findings of a nationwide randomized experimental study that examined widely used computer software programs (Dynarski et al., 2007). Findings revealed performance on measures of reading achievement was not significantly higher in classrooms using selected software. Treatment effects were correlated with classroom and school characteristics. While the Read 180 students did improve their reading Lexile levels there was no difference in FCAT reading achievement levels when compared to a group of similar students who participated in regular classroom reading instruction.

The Read 180 curriculum appears to be aligned with the five core areas of reading components advocated by researchers: 1) phonemic awareness, 2) phonics, 3) vocabulary, 4) text comprehension, and 5) fluency. However, a close examination of Read 180 instructional activity, coordinated with other classroom activity, revealed significant breakdowns and disruptions that affected student learning such as rules and procedures obligating the teacher to provide inappropriate instruction, lack of opportunity to engage students in meaningful conversations about learning, and classroom management that constrained learning activity. The results are also similar to Becker’s (1992) findings that ILS teachers experienced difficult in coordinating and modifying their instruction to incorporate the ILS effectively due to classroom management issues.

Participation in learning activity leads to the internalization of language used to mediated learning activity (Vygotsky, 1978). The organization of instructional activities in this classroom provided little opportunity for students to internalize language to regulate their reading. Students engaged silently at computerized activity. Teacher support was generally enacted by telling students the correct answers to the questions students requested.
Being talked to, told, or otherwise given ways of constructing knowledge and understanding is fundamentally different from having focused conversations about what one is learning.

Engaging in conversation makes a significant difference (Heath, 1983). Learning activity that promotes conversation tends to be more interesting and motivating for learners. From the perspective of a teacher, conversations with learners also provide opportunities for students to formulate and externalize what they are doing internally, and to describe and reflect on the meaning of what they are experiencing. The construction of knowledge is located in the social organization of classroom learning activity and discussions can help teachers diagnose the problems students are experiencing (Ares & Peercy, 2003). In other words, nature of the activity that shaped the learning of the participants of the Read 180 program were not arranged to engage students in the co-construction of knowledge and understanding. The learning activity that occurred tended to be isolated and fragmented.

The back-bone of teacher-mediated, computer-mediated instruction that took place in this classroom focused exposure to drill and practice core reading components. and followed a one-size-fits all approach to reading instruction. Observation data revealed no evidence of reading instruction comprehension strategies, save one whole group session. The teacher used a Venn diagram to display similarities and differences between mountains and volcanoes. During this session, the teacher did not engage the students in any type of reading discussion about the strategy. For example, such as talking about the compare/contrast comprehension strategy and how to plan use it and think with the strategy during reading. A major tenet of the theoretical approach of this
study promotes arranging instruction in such a way that the language for self-regulating reading is located in learning interactions and is internalized by the reader. Instructional activity is culturally mediated with tools and language. Language is the most important tool; it mediates activity by regulating and directing social communications. The teacher’s instruction in this particular Read 180 system focused on behavior principles. A reward system was used to encourage students to follow academic, program, and teacher created rules. The teacher often rewarded students who remained silent, seemingly on task, and completed the sequence of steps in the Read 180 program. Students were not observed in activity that encouraged them to understand how to regulate their participation in instruction. The reward system was indicative of repetitive systems that reproduce larger historical/social norms that often mediate teacher-student interactions (Cole and Engestrom, 1993).

The teacher’s response in the interview about her pre-service teacher preparation indicated that she did not have a background in reading instruction, but rather in special education and psychology. The observed overreliance on the computer program and basal reading instruction may have been a product of her professional preparation and lack of supervision by the school’s administrators. Neither was there any evidence of supervision and distributed leadership observed within the data, pointing toward another reason for the teacher’s lack of ability to organize reading instruction effectively. Professional development and supervision are essential to coordinating classroom instruction with new and appropriate tools (Spillane, Halverson, & Diamond, 2001).

Learning and development of proficient reading is not a sprint; it is a marathon. During the marathon, learners acquire information, knowledge, and coordinative skill to
enact the accomplishment of tasks, with the social assistance provided by others. The outcome is a hierarchical and qualitative reorganization of their functional thinking and core reading systems. The enactment of knowledge and tools to accomplish tasks leading to proficient reading ability should be just beyond the ability of students (Blanton et al., 2007). The Zone of Proximal Development (ZPD) is a social space that exists between a student’s level of ability and their potential to accomplish an increasingly complex task with the social support of more knowledgeable others. Social assistance for completing tasks is provided, as needed, but only as much as needed (Chaiklin, 2003; Griffin, and Cole, 1984; Wells, 1999). If tasks are too easy, the students learn very little. If tasks are too difficult, learning is disrupted and the attention of students is directed away from the task at hand.

There was no evidence of a social arrangement approaching the idea of a ZPD in this Read 180 classroom. Students always worked in silent isolation and without help from others. Students were not supported with resources necessary to accomplish increasingly complex reading tasks leading to proficient reading (Blanton et al., 2007). The teacher used the grade level basal reader workbooks and read passages aloud from the basal reader since the students could not read them independently. During whole and small group instruction, students were engaged in reading tasks that were well above their independent reading ability or their instructional level.

It is doubtful that students were engaged in increasingly difficult tasks to improve their reading ability. The individualized computerized instruction provided reading tasks that may have been slightly above their instructional level, but students only received support from the teacher when problems were technical ones, such as not being able to
log on to the computer. In other words, students were consistently engaged in tasks that were either too easy or too difficult without social support, theoretically constraining the restructuring of the students’ core reading systems. Tharp and Gallimore (1988) propose that an essential function of the teacher is to co-construct a ZPD with the student that moves them forward to independent performance.

In summary, the data analyses revealed the following: a) minimal to zero explicit and meaningful instruction was presented to the students such as, modeling, think-aloud, and responsive elaboration, b) inordinate amount of time allocated to procedural issues, and c) little scaffolding when students were experiencing difficulty engaging in reading tasks. The use of inappropriate tools often threw the entire instructional system into disarray by creating problems, disruptions, and breakdowns among the elements mediating activity.

Instructional strategies recommended by researchers to be used with ELLs that arrange for students to be supported socially during instruction were not observed during instruction. Instruction seemed to be driven by a transmission model of teaching and learning. The students in the current study seemed to be viewed as containers with deficits in information and thinking processes. They were talked at rather than engaged in conversation. Their “funds of knowledge” were not acknowledged during instruction (Moll, Amanti, Neff, & Gonzalez, 1992). The findings of this study indicate that learning activity failed to connect students’ prior knowledge to learning.
CHAPTER V
Conclusions

This chapter begins with the conclusions of the study, followed by a discussion of the limitations of the study. The chapter concludes with implications for practice and future directions for research. The goal of this study was to determine the effects of Read 180 instruction, an Integrated Learning System (ILS), on the reading achievement of a group of ELL struggling readers and to examine the effects of the teacher-mediated, computer-mediated activity and interactions with surrounding activity systems.

Read 180, a teacher-mediated, computer-mediated an ILS, is one of the most popular interventions educators use to improve the reading achievement of struggling readers. These evaluation studies included elementary, middle, and high school participants, but they have rarely included ELLs. The extent to which the program is effective has rested on the results of program evaluations that report positive results for student participation in Read 180 instruction. However, these evaluations have not been published in refereed journals. Thus their scientific rigor is questionable.

Two investigations meeting standards of scientific research have been conducted. The first, a dissertation study (Campbell, 2006), compared the effects participation Read 180 (teacher-mediated, computer-mediated reading instruction) with participation in intensive reading instruction (teacher-mediated) on middle school struggling readers who read below grade level. The results of her study revealed that there was not a significant difference on the Reading 180 group and students participating in intensive corrective reading instruction provided by classroom teachers on the Scholastic Reading Inventory.

The second, a national study (Dynarski, et al., 2007), tested the effects of participation in
the most widely used computerized reading and math programs. Read 180 was one of the programs investigated. Experimental groups participated in computerized instruction and control groups participated in regular classroom instruction. Again, the participation of ELLs was limited. Across the board, participants in computerized reading instruction, including Read 180, did not outperform participants in traditional classroom instruction on measures of achievement. The social organization of instruction was highly correlated with achievement. Again, the participation of ELLs was limited.

The findings of this investigation support three conclusions:

The first finding was that participation in Read 180 instruction incrementally and significantly improved the reading proficiency of participants, as measured by the SRI, a measure of reading comprehension, correlated with the level of difficulty of deliberately selected reading material. Thus, it can be concluded that participants in Read 180 did significantly increase the reading proficiency of a group of ELLs over the course of the school year on a measure of near transfer. Measures of near transfer generally correlate with the content of curriculum. The Read 180 curriculum and the content of the SRI are correlated.

The second finding was that participation in Read 180 instruction did not have a significant effect on the reading achievement of participants on the Florida Comprehensive Achievement Test (FCAT), a far measure of transfer. This finding is indicative of the problem designers of reading instruction must overcome. Obtaining transfer on measures of far transfer continues to be perplexing (Salomon & Perkins, 1989; Singley & Anderson, 1989). A reasonable inference is that computerized reading instruction, such as Read 180 may require more robust and meaningful instructional
activity and coordination of teacher-mediated, computer-mediated instruction to support and sustain the gradual transition of student performance on measures of near transfer and on to measures of far transfer.

Additionally, problems of intellectual freedom arise when computer software programs establish what content or text is incorporated into classroom reading instruction. Bowers (1988), Provenzo (1992), and others have argued that the computer, like any technology, is not neutral. Bowers (2000) asserts that technology and computer software enforces the cultural norms of the group that creates the programs. Some cultural groups may be marginalized as they engage with the technology without even realizing the subtle changes that occur to them (Bowers, 2000, p. 22-23)

The third finding was that the elements constituting the learning environment of Read 180 were not neutral. Classroom instruction, particularly classroom instruction that requires an active teacher to coordinate teacher-mediated, computer-mediated instruction, can create breakdowns and ruptures in instruction and have a significant effect on learning outcomes. When not corrected, a single disruption or sets of disruptions persist. However, problems that are presented can be repaired to stabilize instructional activity.

Limitations

A number of constraints limit the interpretation and generalization of this investigation. The most important limitations include the following:

Instrumentation

First, although the SRI is a reliable and valid instrument, it is a limitation, given that it is based on the Lexile Framework. Furthermore, the item-test difficulty could be an important consideration when examining the SRI test scores. Another assessment
method, such as a standardized informal reading inventory (IRI), may be more sensitive to changes in reading proficiency. The SRI focuses on the comprehension of material on which students have had deliberate on. In contrast, the IRI focuses on the reading of unfamiliar content written at increasingly difficult levels of difficulty. In addition, the IRI identifies changes in the kinds of tasks students experience difficulty and success in performing.

Next, the instructional management system of Read 180 is a limitation. Computerized diagnosis and prevention of reading problems by a computer managed system may not be as effective as that of classroom teachers. Classroom teachers have opportunities to converse with students, observe their problems as they engage in different tasks in different contexts, have an understanding of their culture, and to observe and interpret their responses to instruction. Teachers also have opportunities to respond to direct the attention of students to the meaning-making resources they should index to during instruction.

Last, the FCAT is a norm-referenced statewide instrument with a negative reputation among students and teachers. Promotion and graduation decisions about students are made with results obtained with the test. It is possible that text anxiety affected student performance. Additionally, standardized tests are specifically designed to highlight individual differences in performance and achievement.

Sample

The sample for this study was a sample of convenience, based on the participation of the teacher, who agreed to allow the researcher into her classroom because of her stated comfort level and past experience with the university in general. Participant
characteristics, such as motivation and interest, are not always present when the sample consists of non-volunteers. However, all participants and their parents signed documents of informed consent prior to the start of the study.

The sample was a non-random sample comprised of a nested group of students reading below the 25th percentile on the FCAT and recommended by their teacher. The results of other studies examining the effects of participation in Read 180 reveal an interaction with level of reading ability. High performing struggling readers seem to benefit more from instruction than lower performing students (Campbell, 2006; Paterson et al., 2003). According to Stanovich (1986), higher performing students possess more prior knowledge and core reading knowledge and skill can recruit for “bootstrapping” their participation in reading instruction and the successful acquisition of proficient reading.

*Researcher Bias*

Although the researcher was not aware of any known personal biases, researcher bias is a common phenomenon when the researcher acts as a participant and observer. The researcher was primarily an observer, with an intermittent role of participant as observer. However, there was minimal interaction with the students and teacher during observations and video-recording unless researcher was specifically addressed by students and teacher.

*Teacher Characteristics*

Teacher characteristics and their influence on this study are unknown. All students in the sample had the same teacher for their homeroom assignment and instruction in other curriculum areas. Nonetheless, it is reasonable to speculate that the
prior professional experience of the Read 180 affected instruction. The classroom teacher had limited regular classroom experience and experience providing classroom reading instruction. In addition, the Read 180 classroom assignment was her first responsibility for providing instruction to struggling readers.

Implications for Practice and Future Research

The findings of this study point to a number of implications for practice and future research. Among the implications are the following:

*Implications for Practice*

1. When planning and implementing reading instruction for struggling ELL readers, it is important to use instructional strategies that activate, organize, and to connect instruction to their background of experiences (Moll, Amanti, Neff, & Gonzalez, 1992). Tapping student’s personal resources contextualizes instruction and facilitates meaningful learning (Matthews & Cobb, 2005).

2. Decisions to adopt the program should not be based on its popularity. Before investing resources in a computerized reading program targeted on ELL struggling readers, it is important for adopters to be knowledgeable of the extent to which the effectiveness of the program is based on evidence obtained with research meeting standards of scientific research, and, in particular, includes ELLs in the research.

3. Computerized reading, such as Read 180, cannot simply be pushed into a classroom; nor can it be a stand-in for a knowledgeable, resourceful, skillful, classroom teacher.

4. Computerized reading instruction, such as Read 180, requires professional development, supervision, and classroom support. The level of professional development, supervision, and classroom support needed is directly related to the teacher’s knowledge and skill.
5. English language learners who participate in computerized reading instruction need to have opportunities to engage in meaningful conversations about their engagement with the computer and the tasks they are performing: what and how, to do it; how it works in reading; for what purposes it is used in reading; opportunities to apply it to different genres of text; to discuss their success; how they can do better next time; and how reading tasks they are learning to perform work while reading outside of school settings.

Recommendations for Future Research

The results of this study and others indicate that there is a need for research programs that investigate teacher-mediated, computer-mediated instruction, particularly how the organization, tools, and social interactions constituting the classroom affects learning outcomes. Other topics and issues that seemed most important are identified below.

1. Research on precisely what material and social resources are needed by teachers to support the implementation of teacher-mediated, computer-mediated instruction.

2. Research is needed to investigate whether incremental gains in reading proficiency are limited to near measures of transfer or extend beyond, to far and distant measures.

3. Research needs to examine the characteristics of classroom teachers who successfully coordinate teacher-mediated, computer-mediated reading instruction, and how.

4. Research needs to determine how the characteristics higher performing and lower performing struggling readers interact with teacher-mediated, computer-mediated learning.
5. Research needs to investigate how students who are participating in teacher-mediated, computer-mediated reading instruction request help during instruction, whether the requested help is provided and how, and how students respond to the help received.

Summary

In summary, this study utilized CHAT and as a guide to examine the effects of participation Read 180, a teacher-mediated, computer-mediated ILS, on the reading achievement of ELL struggling readers. The results of the study reveal that CHAT is a meaningful approach to understanding how proficient reading develops in teacher-mediated, computer-mediated activity coordinated by a teacher. In addition, the results indicate how the application of a CHAT model of collective activity yields a meaningful understanding of how the learning environment in which learning activity occurs affects outcomes.
References


Interactive, Inc. (2002). An efficacy study of Read 180 in the Council of Great City schools. Scholastic, Inc.


APPENDIX A
Teacher Interview for Read 180® Study

Teacher name: ___________________________ School: _______________ Grade: _____

1. Describe yourself as a reading teacher. (background, years teaching reading, philosophy of reading instruction, expectation for student learning, use of differentiated instruction and individualization, and commitment to on-going professional development)

2. Describe your targeted population being served by Read 180.

3. When did you begin the implementation of Read 180?

4. Describe the level of training you received before and during the implementation of Read 180.

5. Describe in detail how you are implementing the Read 180® program. What is the process (during the 90-minute block)?

6. Have you made adaptations or modifications to the recommended implementation model of Read 180? If so, what are the adaptations or modifications?

7. If you made adaptations or modification to the recommended implementation model of Read 180, what was your rationale?

8. Were there any barriers to the effective implementation of the Read 180® program? (hardware, software, training, schedule, administrative support, technical support, etc.)

9. What helped facilitate the effective implementation of the Read 180® program?

10. On a scale of 1 to 10 (1=low and 10=high), how would you rate the effectiveness of your implementation of the Read 180® program? ___________

11. On a scale of 1 to 10 (1=low and 10=high), how would you rate the quality of the Read 180® program? ___________

12. On a scale of 1 to 10 (1=low and 10=high), how would you rate the improvement in students’ reading as a result of your implementation of the Read 180® program? ___________

13. On a scale of 1 to 10 (1=low and 10=high), how would you rate your motivation to implement the Read 180® program? ___________
14. On a scale of 1 to 10 (1=low and 10=high), how would you rate the interest and motivation of your students in participating in the Read 180® program? __________

15. On a scale of 1 to 10 (1=low and 10=high), to what extent would you recommend this program to another reading teacher. __________

16. Students get grades A,B,C,D,and F for the quality of their school work. What overall grade would you give the Read 180® program?
Transcription of Teacher Interview

R: Hello, this is an interview with Belinda Chayeb at Kensington Park, oops, that’s OK, it’s going on the computer. I am the only one that’s going to see it. Today’s date is August 15th, 2006. OK, number one. Hi Belinda.

B: Hi Rita.

R: Describe yourself as a reading teacher, for example your background, years teaching, philosophy, expectations for student learning, use of individualized instruction, and commitment to professional development.

B: Umm, let’s see. I went to UM for four years. I got my bachelors in special education and psychology. I think this is my seventh year teaching. I have been teaching Read 180 for four out of those seven years.

R: Your were here before?

B: Yes.

R: OK. So you have been here the whole time?

B: Yes I have taught at KPE the whole time. Umm, I taught trainably mentally handicapped for three of those, my first three years. Then I was fortunate enough to get the position as the Read 180 teacher. Umm, my philosophy of reading is read everything you can. Anything and everything you can get your hands on you should read, whether it’s signs on the streets, a cereal box while your having breakfast, just read.

R: OK

B: There’s always something that you can find that you should read. Umm, expectations of student learning, I don’t believe in oh “pobrecito” (poor thing) or oh poor guy he can’t,
or he doesn’t have the ability, no, you don’t know what a kid can do. You should always try and try harder. They should reach for the star, there is no, so they should keep going..

R: To you everyone has potential.

B: Yes, everyone has potential to learn and to learn something to their ability. Use individualization and differentiated instruction. Each child learns different, each child processes different. So, each needs a different technique. One of the things I like about read 180 is the, a lot of them are in this new age of technology, they process different than what we teach. We don’t teach at the same rate of speed that a television set does.

R: Right.

B: They process a TV set better than they process me. So having the computers to facilitate gives them 20 minutes of non-emotional presentation of material…

R: Right

B: Where they are actually grasping and listening and they are using their tactile you know they are using lots of different senses to be able to incorporate. Their spelling improves magnificently because of the keyboard to the computer screen.

R: That’s one of the arguments in the literature for the computer is that it provides a stimulus no human being can.

B: No, it’s impossible, I don’t know how many seconds per whatever the TV does it versus a human being and there is no competition. Individualization, it helps with individualization, each, instead of having guided reading groups they have, it is not guided reading for five kids, it’s guided reading per child. Each child is individualized within the system. Umm, commitment to ongoing professional development… I try to go
to as many workshops as I can, I try to get, weasel myself into whatever workshops are available for Read 180.

R: Does the KPE administration let you go…

B: Yes, they are very good about if there is anything for Read 180 allowing me to go, I have a harder time getting into regular education workshops

R: Umm, I see that are done by the county, umm by the district

B: Yes, that’s right.

R: Does Read 180, does Scholastic itself, do they give you professional development, you know ongoing? For example once a year

B: They are working on that, I have done the first day training, and I did an intensive workshop that they did here at the school where they got a teacher come and give us a step by step of what she did

R: I remember her, la rubia (the blonde)

B: Ummhuh, from Ft. Lauderdale. And she is still working with them.

R: Oh cool.

B: Umm and what else did we do. Then I did the first day training that they did at the TEC (teacher education center) and then they do a second day training that’s for the people that have the system already. But they are working on coming up for more training for Read 180. They have also implemented a new “R” (resource) book, which we haven’t, we are trying to see if we can purchase this year. Which incorporates for the whole group time. Many teachers didn’t know what to do during that time. I incorporated the basal because we are supposed to grade according to whatever grade they are at, if they are at the fourth grade they should be working at, their grade should reflect what
their ability is against the fourth grade not just Read 180 because in Read 180 they are always going to be doing better they are always going to be doing good.

R: They (the district) are trying to incorporate the reading basal for your grade level?

B: No, I incorporate it as a term of what to do with whole group because that is something that was pretty lax in the beginning with the Read 180 program. I incorporated it because if they need to have a grade reflecting fourth grade material then they need to be taught fourth grade material.

R: That’s the grade that is required through the district?

B: No, let’s say, this class is an intervention, but it is also a fourth grade language arts class and a fifth grade language arts class because I have one in the morning and one in the evening. Or one in the afternoon. They need to, their grades need to reflect what they can really do in fourth grade.

R: In Fourth Grade, gotcha ya.

B: So I watered down fourth grade material. Instead of two weeks, instead of a week that the regular education class does it I do it within a two week period.

R: OK

B: We split up the words for spelling. We split up the words for vocabulary. We water down the story. We read it like three or four times. It is in a way an intervention because they are getting it at a slower pace.

R: Right

B: But they only get it for 25 minutes because they get it during whole group time.

R: 25 minutes each day.

B: Right, because we don’t have the 90 minute schedule.
R: Sure sure.

B: We have the, we use 120 minutes for Read 180.

R: Right.

B: Because that’s our language arts block.

(pause)

R: OK, Number two, describe your targeted population.

B: Our targeted population is primarily ESE, any children that are labeled either LD, any ESE child has the ability to come into the, LD, Autistic, other health impaired, whomever.

R: OK

B: After we have selected, they have priority, whatever spots are open.

R: OK.

We have 15 spots per lab or block. Umm, then we go into level 1 or level 2 FCAT scores.

R: OK

B: With primary to level 1.

R: And what about ESOL? Is that given any consideration or?

B: If they are level 5 we take ESOL

R: Only level 5 ESOL, so the only ESOL you would have in this classroom would be Level 5?

B: Right.

R: When did you begin the implementation of Read 180?

B: When? Four years ago.
R: OK, Describe the level of training you received before and during implementation.
Which we kind of went over already…
B: Yes, we went over that already.
R: Just to just to clarify, you got the first day.
B: Yes, first day training.
R: And then the intense one where the teacher, the actual Read 180 teacher, from Broward came.
B: Right
R: Then after that anything else?
B: Yes, I went to TEC to take a one day workshop.
R: Specifically geared towards Read 180?
B: Yes, I actually think I took two of them.
R: Oh that must be nice! Did you get to meet the other, of course, you got to meet the other Read 180 teachers. Do you still stay in touch with them to chit chat?
B: No, not really. Each school has a different model of Read 180. Not everyone follows it as well as we do I think.
R: Those are the findings in Monroe county. That every, not only each school, but each classroom because each school has 5 or 6 classrooms. Each teacher does it different.
B: Here at K-Park it’s me and another teacher. We both kind of plan together and pretty much implement it exactly the same. We may have different teaching styles but that is normal but other than that we are in sync.
R: Ok, describe in detail how you are implementing the Read 180 program, you know from start to finish.
B: We have two hour block as I said, the first fifteen minutes is journal because we need to incorporate writing as this is part of our school improvement plan. Uhh, then they do whole group, instead of 20 minutes we do it for 25. Lets see. Then we do centers. 20 minutes for each center, then we do wrap up at the end for 15 minutes.
R: Which is supposed to be 10 minutes but you have an extra 5. OK, Ok, Ok. So, anything else you want to say about the process?
B: No.
R: Have you made any modifications or adaptations to the recommended implementation model? If so what are they? I think you mentioned it before.
B: Uhhmm, yes, the only modification I have made is extending the whole group time to 25 minutes and using the basal during that time.
R: Now what do they normally, is there something that they ask you to do…
B: They recommend to focus on strategies of different comprehension issues.
R: Ok
B: They give you some sample work book pages to look up and do. But there wasn’t anything specific. They’ve come up with something new that’s very interesting
R: Ok
B: That’s called the R book and I would love for our school to purchase.
R: Oh it’s an additional component.
B: Yes, it brings a video to introduce the theme and it brings a book that kids work with and it’s really good. And it brings a whole new… They’ve updated from tapes to CD’s and there are other components that I don’t remember everything right now but it’s very interesting the new modification they have made.
R: How about the small group, do you, is there something that they recommend to do during small group?

B: They recommend that two out of the five days you pinpoint their weaknesses and focus on what their comprehension weaknesses...this is a comprehension intervention.

R: Just comprehension?

B: Right, they don’t focus so much on the reading but them understanding what they should be reading. So everything is main idea, sequence of events, compare and contrast, so they want you to focus two out of the five days.

R: Details, summarize…

B: You can see who’s scoring how on the computer print out a report and then on those days switch your groups around

R: Oh OK.

B: I do that and also focus on grammar because I have to teach language arts so during small group I focus on grammar and comprehension strategies for Read 180.

(Then we discuss data that she may still have on the computer for me, not relevant to interview at all) Elapsed time: 11:54 – 12:37

R: Ok, were there any barriers to the effective implementation of Read 180?

B: No, the school was very forthcoming with helping us and getting us whatever materials we needed. We got all brand new computers. I have heard of other schools that had older computers and there were issues with being supported with Read 180.

R: Yes, yes, that they didn’t get the servers y todo por gusto. That happened a lot in Monroe.
B: Our computer tech has been awesome. Every time we have any issue...you know. Although last year we had an issue that wasn’t the school’s fault it was the district, we were off-line for three months.

R: I remember that. Because there was a virus?

B: Before I was on maternity leave.

R: No hardware, software, technical support issues?

B: No, everything has been awesome. I really like Read 180, it’s a really good program that works.

R: So what about glitches,

B: After a while it hiccups itself, and then after a while you start having recording issues. So they are working on improving it,

R: It gets bogged down?

B: So every once in while you have to call tech support and they talk us through how to, this time it got to the point that is so, the new R book and the new implementation, which you have to purchase comes with a way to take care of all those issues.

R: Do you think it was done on purpose? Or do you think the R book was brought in to kinda of take of all these issues?

B: Many teachers were complaining on what to do during whole group. Some teacher were doing ..

R: AR

B: Trade books some teachers were using trade books during whole group...I happened to grab onto the basal and that worked for me. There was no consistency as to what was going on during whole group.
R: No standard. Ok number 9, What helped facilitate the implementation of Read 180?
B: Scholastic is very helpful. They are very proactive. Anything that you need they are pretty much gun ho about helping you. The administration has been very good about it too. It really does show a difference I have had more than half my class go up on there FCAT scores, which is what really makes a difference to the administration. I have lower 5% of the school.
R: Right so that when their scores go up it is very impresionante.
B: Maybe there are two or three kids you don’t reach because of issues that may be going on at home. I had two kids last year that didn’t do want to work, that would literally sit there. His mom would tell me: “When was little he wouldn’t eat food so we would give him a bottle”. It was learning helplessness, he didn’t have to do anything because everything was done for him. Emotional issues...
R: He was just expecting you to do that same things his family would do for him.
B: Right. There are certain kids that it is not for them, if they happen to come to me during the 4th grade, at 5th grade I give them a chance, I make sure they go into an inclusion setting. Maybe there is another teacher that can reach them I, or another method.
R: Sure another strategy, how about Robert..
B: Are you sure it’s Robert, not Alfredo? Was he autistic? I don’t remember..
R: He was always making excuses for not engaging in work..he was definitely ESE.(GO BACK AND LISTEN AGAIN)
B: We discharge kids when they meet criteria they get sent out.
R: If they are discharged they are...
B: It means that they are succeeding at grade level.

R: Anything else you want to add?

B: No.

R: OK thank you!

B: It was a pleasure working with you.

R: We are not done yet!

**Taping ends...**