

Examining the Effectiveness of the Corrective Reading Program for Special Education  
and Non-Special Education Students

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APPROVAL PAGE

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## Abstract

The traditional classroom educational approach has been unsuccessful in helping special education and non-special education students who are not proficient readers. The problem addressed in this study was that a large number of American children are experiencing difficulty learning to read. One possible way to help students learn to read is through programs that use direct instructional techniques based on the instructional theory into practice model. One such program, the Corrective Reading Program, has been successful in some situations, but the differential effectiveness of this program for special education students and non-special education students has not been addressed. Therefore, the purpose of this quantitative, quasi-experimental study was to determine if a direct instructional technique based on the instructional theory into practice model was effective for both special education and non-special education students in terms of phonological awareness improvements and attitudes toward reading. A quantitative, quasi-experimental research design was used in the current study. The population of interest in this study consisted of third-grade through fifth-grade students in rural school districts in the Northwest region of the United States who were currently engaged with the Corrective Reading Program. The sample consisted of all students in third through fifth grade in a Northwest rural school district who were enrolled in the Corrective Reading Program. There were 125 of these students in the target school district, of which 88 students were in the Corrective Reading Program based on at-risk status for academic failure and consequent participation in the Learning Assistance Program in the school district (the non-special education group), and 37 had a disability, determined through eligibility for special education services (the special education group). The results

showed that there were larger gains in Phonological Awareness scores for the special education group ( $M = 29.43$ ,  $SD = 9.11$ ) than for the non-special education group ( $M = 24.12$ ,  $SD = 9.68$ ) based on the Mann-Whitney U test,  $U = 1,046.50$ ,  $p = .002$ ,  $r^2 = .08$ . Whether this represents a meaningful difference in the comparison of the two groups is a subjective question, but a difference of more than 5 points (which is over one-half of a standard deviation of the pretest/posttest difference scores) may have practical significance. Thus, in the context of instructional practice, it appears that direct instruction can be more effective with some types of students (i.e., special education students) than with others (i.e., non-special education students), based on the statistical differences between the groups. However, the null hypothesis for no difference between the groups for reading attitudes was not rejected,  $U = 1,480.00$ ,  $p = .419$ ,  $r^2 = .01$ . Pre-test to post-test differences in reading attitude were not statistically significant for either group. It is recommended that researchers continue to explore the effectiveness of the Corrective Reading Program with a variety of types of students, address the apparent lack of progress in reading attitudes, and perform case studies on Corrective Reading Program implementations. It is also recommended that educators differentiate between special education students and non-special education in determining the most appropriate reading intervention.

## Dedication

I would like to dedicate this to my father Gordon E. Stein who passed away July, 2012. His enduring love and endless faith in me helped me become the person I am today. He never doubted in me and warded off skeptics.

I wish to acknowledge the following people:

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## Chapter 1: Introduction

Researchers and panels of experts in the field of reading are eager to address the problem of the number of American children who experience difficulty learning to read (Cheesman, McGuire, Shankweiler, & Coyne, 2009). Improving reading skills has become a national priority, but the debate of how reading should be taught continues to be a topic on which researchers and panels of experts cannot agree (Croninger & Valli, 2009). One significant question involves the causes of the difficulties experienced by below average readers, and one answer may be that many of those students exhibit deficits in phonological awareness (Savage & Frederickson, 2006). Phonological awareness is an essential component of learning how to read, and the inadequate development of phonological awareness may hinder the acquisition of skills necessary to reach crucial literacy milestones (Burke, Hagan-Burke, Kwok, & Parker, 2009). Inadequate development of phonological awareness may result from memory deficits (Jarrold, Stephens, & Thorn, 2009).

Although an abundance of programs and materials are available for reading instruction, with financial cutbacks, school districts have limited resources to devote to reading improvement. Despite these current financial obstacles, school districts must invest in reading programs to reach students who are failing to learn how to read. The Corrective Reading Program (Hempstall, 2008) is a remedial reading program created for students in third grade or above. In the school system involved in the current study, the Corrective Reading Program has been implemented, but not evaluated. The current study represented the first step in the evaluation of the Corrective Reading Program to

determine if it was equally effective in improving reading abilities and attitudes in special education and non-special education students.

The current chapter provides an introduction to the current study. First, background information on this topic is provided. Then, the specific problem addressed in this study and the purpose of the study are discussed. The theoretical framework that guides this study is discussed, and the research questions and hypotheses are stated. The nature and significance of the study are presented, key terms are defined, and the chapter ends with a summary.

### **Background**

Teaching reading can be a daunting task for any educator, whether he or she is a veteran teacher or a beginning teacher. Following the implementation of the No Child Left Behind Act (NCLB), the focus on accountability has increased, and the requirement that all students meet certain academic achievement criteria necessitates an examination of the effectiveness of reading intervention programs with disabled and non-disabled students. Foorman (2007) described the components of effective reading instruction as “phonemic awareness, letter knowledge, and concepts of print, the alphabetic code: phonics and decoding, fluency in word recognition and text processing, construction of meaning, vocabulary, spelling, and writing” (p. 24). Training in phonological awareness is necessary for effective reading instruction (Jarrold et al., 2009). Educators are faced with the question of how to teach explicit and systematic phonics to students with memory deficits and the inability to acquire phonological awareness.

Hempenstall (2008) examined recent theoretical and empirical research on reading development and instruction in English-speaking countries. The researcher

investigated the effects of a synthetic phonics-emphasis Direct Instruction remedial reading program on the phonological processes of students with teacher-identified serious reading problems. The study included 134 students plus 72 students in a control group, all between the ages of 7 to 13. The participants were individually assessed with the Corrective Reading: Decoding program placement test to ensure the presence of the program entry skills and the absence of the program outcome skills, originally developed by Engelmann, Carnine, and Johnson (1999). Hempenstall used the Test of Phonological Awareness (Torgeson & Bryant, 1994) to assess phoneme awareness skills. Hempenstall concluded that the phonemic awareness scores of the experimental group (i.e., those in the program focused on synthetic phonics) improved significantly more than the control group (i.e., those who were not in this program).

One of the key determinants of reading ability is a student's attitude toward reading. Numerous studies have indicated that students who have more positive attitudes toward reading have higher levels of reading achievement, as summarized in a meta-analysis performed by Petscher (2009). Theoretical arguments, primarily revolving around the affective role of reading attitude in determining reading ability, have also been offered (Kaniuka, 2010). Research has suggested that the Corrective Reading Program can have positive effects on students' attitude toward reading (Kaniuka, 2010). However, the current study expanded upon this work by differentiating between special education students and non-special education students while examining the effect of the Corrective Reading Program on students' attitude toward reading. The study by Kaniuka (2010), like most studies in this area, grouped special education students and non-special education students together when examining the Corrective Reading Program.

McKenna and Kear (1990) developed the Elementary Reading Attitudes Survey (ERAS) to measure students' attitudes toward reading to "enable teachers to estimate attitude levels efficiently and reliably" (p. 626). While studies on the effects of reading attitude on reading achievement have been conducted, none of these studies has specifically examined special education and non-special education students in terms of phonological awareness improvements. Due to the importance of attitude toward reading in determining reading achievement and the fact that it has not been studied with such students, the ERAS was used in the current study to measure attitudes toward reading in an academic context and a recreational context.

### **Statement of the Problem**

Many American children experience difficulty learning to read (Cheesman et al., 2009; Croninger & Valli, 2009). Reading is essential for success in school and in life, and when students do not have appropriate reading skills, the effects are felt not only in school, but within their community and society (Burke et al., 2009). Direct instruction, based on Hunter's (1993, 1994) instructional practice into theory (ITIP) model, may provide a tool through which struggling readers can be helped, as direct instruction methods have been shown to be effective in promoting student learning (Leno & Daugherty, 2007; Skjold et al., 2010). However, direct instruction methods based on ITIP theory are not applicable to all types of students (Cicciarelli, 2007). Therefore, it is important to determine whether direct instruction methods based on ITIP theory are applicable to both struggling readers who have a disability and struggling readers who do not have a disability. The direct instruction method used in the current study to represent ITIP theory was the Corrective Reading Program. This program has been empirically

validated for struggling readers, but its differential effectiveness for special education and non-special education students had not been examined (Benner, Nelson, Stage, & Ralston, 2010; Kaniuka, 2010). The Florida Center for Reading Research (2008) concluded that “the existing research base provides only preliminary support for the program’s efficacy” (p. 4). Through the comparison of the effectiveness of the Corrective Reading Program with special education and non-special education students, the generality of this ITIP theory-based direct instruction method was tested. If this study had not been performed, educators would have continued to lack an empirical basis for determining if special education or non-special education students should be referred to programs like the Corrective Reading Program; the generality of the ITIP-theory based direct instruction approach for these two student groups would have remained untested.

### **Purpose of the Study**

The purpose of this quantitative, quasi-experimental study was to determine if a direct instructional technique based on the instructional theory into practice model is effective for both special education and non-special education students in terms of phonological awareness improvements and attitudes toward reading. The participants were 37 special education students and 88 non-special education students for a total sample size of 125. All students were involved in the Corrective Reading Program. A power analysis was conducted, indicating that 98 students would provide sufficient statistical power for this study, but 125 students were available and were included. The site of this study was a small public school district in a Northwest rural area. The independent variable in this research study was whether the student is participating in the Corrective Reading Program through special education or a non-special education



referral. The dependent variables were phonological awareness skills, as measured using the Dynamic Indicators of Basic Literacy Skills (DIBELS; Good & Kaminski, 2002), and attitudes toward reading, as measured using the ERAS created by McKenna and Kear (1990). Two Mann-Whitney *U*-tests were performed with special education or non-special education status as the independent variable and DIBELS Phonological Awareness pretest/posttest difference scores and ERAS Reading Attitude pretest/posttest difference scores as dependent variables.

### **Theoretical Framework**

The theoretical framework for the current study was Hunter's (1993, 1994) ITIP, which forms the basis for the direct instruction model of education. According to Hunter's ITIP theory (1993), direct instruction is a teaching method that requires the following seven components: (a) well-defined and appropriate learning objectives, (b) an anticipatory set in which the students are introduced to the topic by relating the topic to prior knowledge, (c) sharing the lesson objectives with the students so that students will know what it is that they are supposed to learn, (d) presentation of the primary skills and concepts (referred to as the input), (e) checking the students' understanding, (f) providing the opportunity for guided practice, and (g) providing the opportunity for independent study.

The Corrective Reading Program examined in the current study was based on the method of direct instruction which in turn is based on Hunter's (1993, 1994) ITIP theory. Direct instruction techniques based in ITIP theory have been shown to be effective in promoting student learning (e.g., Leno & Daugherty, 2007; Skjold et al., 2010), but "critics of the direct instruction theory note that the application of this theory should be

used with caution because it is not appropriate for all educational objectives and all students” (Cicciarelli, 2007). Therefore, it is important to examine the applicability of direct instruction techniques such as the Corrective Reading Program to various student groups. In the current study, the applicability of direct instruction delivered through the Corrective Reading Program was compared between two student groups: special education and non-special education students. This resulted in both a test of the generality of the ITIP theory and direct instruction across student types, and an applied test of the Corrective Reading Program for promoting student reading ability.

### **Research Questions**

The purpose of this quantitative, quasi-experimental study was to determine if a direct instructional technique based on the ITIP theory was effective for both special education and non-special education students in terms of phonological awareness improvements and attitudes toward reading. Using the Corrective Reading Program as an example of a direct instruction technique based on the ITIP theory, two research questions were developed to guide the current study and examine specific variables:

**Q1.** Is there a difference in the effectiveness of the Corrective Reading Program for special education students and non-special education students in terms of phonological awareness improvements?

**Q2.** Is there a difference in the effectiveness of the Corrective Reading Program for special education students and non-special education students in terms of reading attitude improvements?

## **Hypotheses**

Based on the two research questions in this study, two sets of null and alternative hypotheses were developed.

**H1<sub>o</sub>.** There is no difference in the effectiveness of the Corrective Reading Program for special education students and non-special education students in terms phonological awareness improvements.

**H1<sub>a</sub>.** There is a difference in the effectiveness of the Corrective Reading Program for special education students and non-special education students in terms phonological awareness improvements.

**H2<sub>o</sub>.** There is no difference in the effectiveness of the Corrective Reading Program for special education students and non-special education students in terms reading attitude improvements.

**H2<sub>a</sub>.** There is a difference in the effectiveness of the Corrective Reading Program for special education students and non-special education students in terms reading attitude improvements.

## **Nature of the Study**

This quantitative study included students who had been identified as special education and non-special education students. A quantitative, quasi-experimental research design was used in this study. The experiment was conducted for 15 weeks, Monday-Thursday. The Corrective Reading Program was administered 1 hour each day in a before school program. Pretest assessments on the dependent variables and posttest assessments on the dependent variables were compared to determine if there have been changes following participation in the Corrective Reading Program. The rationale for the

choice of the quantitative approach was that it is best suited to address the purposes of this study because they involved quantitative variables (Creswell & Plano Clark, 2007) such as phonological awareness skill and reading attitudes. A quasi-experimental design was selected as most appropriate for this study because random assignment of students to groups was not possible; rather, preexisting group differences were examined.

The primary data for this study consisted of Phonological Awareness scores from the DIBELS (Good & Kaminski, 2002). Additional data consisted of a survey administered to students regarding their attitudes toward reading, the ERAS (McKenna & Kear, 1990). The independent variable in this research study was whether the student is participating in the Corrective Reading Program through special education or a non-special education referral. The dependent variables were phonological awareness skills, as measured using the DIBELS (Good & Kaminski, 2002), and attitudes toward reading, as measured using the ERAS (McKenna & Kear, 1990). Two Mann-Whitney *U*-tests were conducted with special education or non-special education status as the independent variable and DIBELS Phonological Awareness pretest/posttest difference scores and ERAS Reading Attitude pretest/posttest difference scores as dependent variables.

### **Significance of the Study**

This study provides important information and answers for educators, so they can expand their knowledge on how to provide reading instruction to those students who experience deficits related to reading ability. The evidence from the current study would confirm or refute the effectiveness of the Corrective Reading Program in helping special education and non-special education students learn how to read. The data would further support the effectiveness of a specific reading program, the Corrective Reading Program.

Research has identified at-risk students as those who do not have a solid foundation in the area of phonological awareness (Burke et al., 2009). The current study would be of interest to individuals who work with students who struggle with reading. Understanding which students can be effectively taught with the Corrective Reading Program is important for ensuring that students receive appropriate interventions that have been shown to be effective based on student characteristics.

### **Definitions**

**Corrective Reading Program.** The Corrective Reading Program is an intervention reading program designed to help struggling students in the third grade or beyond develop decoding, fluency, and comprehension skills (U.S. Department of Education, 2007). The Corrective Reading Program used in the current study had several defining characteristics: (a) a structured format, (b) an emphasis on the lessons occurring daily, (c) sufficient daily spaced practice to reduce the risk of forgetting, (d) immediate correction of errors to guide the student towards mastery, and (e) on-going assessment of progress to validate the effectiveness of the teaching (Hempenstall, 2008).

**Direct Instruction.** Direct Instruction (DI) is a model for teaching that emphasizes well-developed and carefully planned lessons designed around small learning increments and clearly defined and prescribed teaching tasks. It is based on the theory that clear instruction that eliminates misinterpretations can greatly improve and accelerate learning (National Institute for Direct Instruction, n.d.).

**Instructional Theory into Practice.** Hunter's (1993, 1994) ITIP theory forms the basis for the direct instruction model of education. In this theory, direct instruction requires seven components: (a) well-defined and appropriate learning objectives, (b) an

anticipatory set in which the students are introduced to the topic by relating the topic to prior knowledge, (c) sharing the lesson objectives with the students so that students will know what it is that they are supposed to learn, (d) presentation of the primary skills and concepts (referred to as the input), (e) checking the students' understanding, (f) providing the opportunity for guided practice, and (g) providing the opportunity for independent study (Hunter, 1993).

**Phonological Awareness.** Researchers tend to concur that phonological awareness is a meta-linguistic skill which facilitates the reader's awareness that words are composed of smaller component sounds called phonemes (Jarrold et al., 2009). The connection between phonological impairment and phonological awareness is that exact word pronunciation stimulates and supports awareness of decoding and spelling patterns. As a result, the presence of phonological impairment may impede the reaching of two essential literacy milestones: (a) the accurate manipulation of speech sounds that phonological awareness entails, and (b) understanding that speech sounds in words are represented by certain patterns of letters and applying phonologically-based decoding and spelling skills (Pershey & Clickner, 2007).

**Reading Attitude.** As measured by the ERAS (McKenna & Kear, 2000), reading attitudes are composed of two facets: academic reading attitudes and recreational reading attitudes. A student's positive or negative perceptions about reading are the student's reading attitude (McKenna & Kear, 1990).

## **Summary**

The problem addressed in this study was that the differential effectiveness of the Corrective Reading Program, a direct instruction method based on the ITIP theory, for

special education and non-special education students was unknown. Consequently, valuable information regarding the best way to address reading problems for special education students and non-special education students was unknown. This was a problem because the number of American children who have difficulty learning to read (Cheesman et al., 2009; Croninger & Valli, 2009) and the negative outcomes when children fail to learn to read (Burke et al., 2009).

Therefore, the purpose of this quantitative, quasi-experimental study was to determine if a direct instructional technique based on the ITIP theory is effective for both special education and non-special education students in terms of phonological awareness improvements and attitudes toward reading. A total of 125 students participated in this study, including 37 special education students in the Corrective Reading Program and 85 non-special education students in the Corrective Reading Program. The research site was a small, rural public school district. The independent variable in this study was whether the student was participating in the Corrective Reading Program through special education or a non-special education referral. The dependent variables were phonological awareness skills, as measured using the DIBELS (Good & Kaminski, 2002) and attitudes toward reading, as measured using the ERAS (McKenna & Kear, 1990). The dependent variables in this study were selected because phonological awareness is an essential component of learning how to read (Burke et al., 2009; Foorman, 2007; Jarrold et al., 2009) and because attitudes toward reading are associated with reading success (Kaniuka, 2010).

Although there have been some studies that have found support for the Corrective Reading Program, the research base was inadequate (Florida Center for Reading

Research, 2008). Furthermore, the types of students for which the Corrective Reading Program would be more or less effective is not known. This chapter has presented an introduction to the current topic. In the next chapter, a review of the literature is provided, and Chapter 3 presents the methodology employed to answer the two research questions of this study. The answers to these questions contributed to the literature by evaluating the need for programs, such as the Corrective Reading Program, for students with and without disabilities and the inability to acquire phonological awareness.

The current chapter has presented an introduction to this topic including the problem statement, purpose of the study, theoretical framework, and research questions. The problem addressed in this study was the lack of research regarding the effectiveness of the Corrective Reading Program for special education and non-special education students in terms of phonological awareness improvements and reading attitudes:



## Chapter 2: Literature Review

The purpose of this study was to determine if a direct instructional technique based on the ITIP theory is effective for both special education and non-special education students in terms of phonological awareness improvements and attitudes toward reading. The purpose of this chapter is to review the literature relevant to the current study. In order to locate articles for this review of the literature, several sources were examined. Research databases such as the Educational Resource Information Center, PsychInfo, and Dissertation Abstracts were searched. Keyword searches were used including the terms *Corrective Reading Program, special education, reading attitudes, and phonological awareness.*

The first section of the literature review contains background information and empirical research on literacy development in non-learning disabled students and learning disabled students. Then, research on phonological awareness and the importance of phonological awareness in reading are addressed. Instructional methods, particularly those related to Corrective Reading Program, are addressed in the next section, followed by a discussion of the importance of reading attitudes. The chapter ends with a summary.

### **Literacy Development**

**Literacy development for non-disabled students.** The distinction between a reading “difficulty” and a reading “disability” is that the student has not been formally diagnosed with a disability. Non-disabled students may not show the severe learning deficits that alert teachers and parents to the need for special education. However, non-disabled students who have not become proficient at reading by fourth grade face a significantly greater risk of poor educational outcomes than proficient readers (Johnson,

Jenkins, Petscher, & Catts, 2009). Further, proficient, independent readers are better able to experience independent intellectual growth throughout their lives by continuing to use skills they learned in childhood (Johnson et al., 2009).

Organized reading instruction usually begins in Kindergarten, when children are given models of how to decipher words. At this time, words are broken into phonemes, and students are taught how sounds blend together to form words. This phonemic approach is frequently combined with placing words in the context of a sentence. In this way, students are taught to use adjoining words to identify the target word and its meaning. These skills are mastered around third grade, at which time strategies for reading comprehension are usually introduced (Schoenbach, Greenleaf, Cziko, & Hurwitz, 1999).

The use of phonics and context are begun in first through fourth grades, and the remainder of elementary education builds upon this learning. By the end of fifth grade, more proficient students have fully grasped these strategies and are ready to move from learning to read to reading to learn (Schoenbach et al., 1999). Students who have achieved this level of mastery are able to employ the strategies to content-specific reading and are able to understand most texts.

However, many students do not develop decoding skills and need more modeling and instruction (Tong, 2009). These students often appear to have been successful at reading in the primary grades, only to struggle in the face of upper-grade reading tasks, which require that decoding skills be completely mastered. Lubliner (2004) argued that the emphasis on mechanical reading skills in the primary grades may conceal comprehension problems that only become apparent when children are asked to read for

comprehension. The consequence of this failure to develop automatic decoding skills is that the reading process becomes divided between decoding and comprehension.

Decoding requires most of these students' cognitive resources; as a result, comprehension is neglected or overlooked completely (Lubliner, 2004). Non-disabled students who have problems learning to read often have phonological processing deficits and are poor at word recognition. Students who are struggling to read display an inconsistent use of word-attack skills, use of a limited number of decoding strategies, repetition of errors, and failure to consider context, along with having negative feelings about reading (Sutherland, 2000). As these problems persist, students who experience them may avoid reading because it is difficult, slow, and frustrating (Ackerman & Dyckman, 1996; Cunningham & Stanovich, 1997). With time, these readers' comprehension skills decline with lack of practice, and skills such as spelling and writing languish. Thus, what often begins as a basic phonological and word recognition problem, sometimes in conjunction with other language weaknesses, becomes a generalized, disabling problem with all types of language (Moats, 2002). As the next section will show, however, the situation is different and more complicated for students with learning disabilities.

**Literacy development for learning disabled students.** Learning disabled students have difficulties learning specific or particular skills because of neurological differences in how their brains process information. One contributing factor that may cause learning disabled students to struggle in reading is memory impairment (Nummimen, 2002). Memory is conceptualized as a function that enables the entry, storage, and retrieval of information. The main purpose of memory is to enable retrieval of information, but there are factors that make retrieval problematic. When a person

forgets, the cause may be a loss of availability of stored information, insufficient rehearsal or repetition of information, or that recently-acquired information receives precedence over previously-learned information, making the old information no longer available (Fisher, 2004). Memory closely supports reading comprehension; as Numminen (2002) noted, deficits in working memory or disorganization of long-term memory can cause problems in reading and reading comprehension. Three specific areas of memory functioning have been researched as possible critical information-processing deficiencies in children with problems in learning (Hasselhorn & Mahler, 2007). The third area consists of short-term memory performance, which is the focus of this section.

In the studies in this section, the researchers examined memory issues, particularly short-term memory and working memory, which may cause difficulty in learning to read. The studies focus on how memory affects learning to read, such as how memory can affect students' ability to recall words. Students with memory deficits may not develop phonological awareness skills due to their inability to manipulate sounds to formulate words. This section of the literature review will explore and provide some explanation of why some students with memory deficits experience difficulties learning how to read.

**Learning disabled students and reading.** Reading is a receptive language process that utilizes both visual and auditory abilities to derive meaning from the language symbols found in written text. Raymond (2003) described the reading process: "In order to read effectively and efficiently, the reader must be able to decode the graphic symbols to determine their morphemic referents, infer meaning from the combinations of words using syntactic and semantic clues, and perform these decoding and inference

functions fluently enough to make this a feasible way to get information” (p. 296). Reading poses the greatest challenge for a considerable population of students with learning disabilities. An estimated 90% of all children identified with a learning disability are referred for special education because of reading problems (Heward, 2006). Reading disabilities can be characterized by marked difficulties in mastering skills including word recognition, spelling, and reading comprehension. Memorization is also important, as students need to memorize frequently used words, such as the word “and,” because they will encounter them often (Kelly & Campbell, n.d.). One particular area that is crucial for students to learn how to read is memory, which allows the student to apply the skills when reading.

### **Effective Reading Programs**

Florida Reading First Guidance to Local Education Agency (LEA) suggested that explicit and systematic instruction must be provided in five areas, with the three most important being phonemic awareness, phonics, and vocabulary development. Phonemic awareness is the understanding of and ability to manipulate individual sounds that make up speech. Phonics is the understanding that phonemes have predictable relationships that form words. Vocabulary development rests on four dimensions: listening, speaking, reading, and writing vocabulary. For children with disabilities, reading instruction should be explicit, direct, and intentional, and lessons should include direct teaching of phonemic awareness and phonics (Kelly & Campbell, n.d.), since difficulty with phonological processing is the most common problem experienced by struggling readers (Kudor, 2008). One key aspect of phonological awareness is phonemic awareness. Acquiring phonemic awareness is challenging for students with cognitive and language

disabilities because from word to word and speaker to speaker, the sound of any phoneme can differ considerably, according to Kelly and Campbell. Scaffolding and modeling during a phonemic awareness lesson is one way to help students develop this skill. When teaching phonemic awareness to students with disabilities, scaffolding would begin by identifying the most phonemic skills and teaching them slowly, one at a time (Bender, 2008).

### **Phonological Awareness**

The first steps when teaching students to read is developing their phonological awareness. This includes developing skills related to letter recognition, letter sounds rhyming, manipulation, segmenting, and blending. Phonological awareness is the understanding of different ways that oral language can be divided into smaller components and manipulated. Phonics unlocks the code and reveals to students how letters and sounds work together to form words. Several instructional techniques to teach phonological awareness exist that include the incorporation of a variety of modalities, such as tactile, visual, and hearing. In order to develop reading skills, the students need to familiarize themselves with sight words, so they know them with automaticity.

Phonological awareness is an essential component of learning how to read, and the inadequate development of phonological awareness may hinder the reaching of crucial literacy milestones (Burke et al., 2009). In the National Reading Panel's 2000 report to the U.S. Congress, the results from a meta-analysis of 52 controlled, experimental studies published in peer-reviewed journals was described. Researchers tend to concur that phonological awareness is a meta-linguistic skill which facilitates the reader's awareness that words are made up of smaller component sounds termed

phonemes (Jarrold et al., 2009). In other studies, phonological awareness instruction improved the students' reading skills, including word reading, phoneme blending, and segmenting.

Poor readers have difficulty taking a phonological approach to reading. According to Smith (2004), several researchers have suggested that phonological sensitivity depends on the size of the phonological unit (e.g., phonemes, syllables). Readers who are not capable of acquiring the knowledge of letter-sound correspondences and the segmental nature of speech will be unable to read unfamiliar words that they encounter. This lack of generativity in reading newly-encountered words can be attributed to a phonological processing deficit which makes it challenging to master early reading skills such as letter sound knowledge and phonemic awareness (Jarrold et al., 2009).

The connection between phonological impairment and phonological awareness is that exact word pronunciation stimulates and supports awareness of decoding and spelling patterns. As a result, the presence of phonological impairment may impede the reaching of two essential literacy milestones: (a) the accurate manipulation of speech sounds that phonological awareness entails and later, (b) understanding that speech sounds in words are represented by certain patterns of letters and applying phonologically-based decoding and spelling skills (Pershey & Clickner, 2007). Inadequate development of phonological awareness may result from memory deficits (Jarrold et al., 2009).

Memory deficits can affect the ability to learn how to read. Some students exhibit an inability to retain a specific skill long enough to transfer and apply the skill as they

read. Typical readers temporarily store phonological codes in working memory for availability during reading. Among those individuals who have weaker phonological loops, it is necessary that other working memory resources, such as the central executive resource, are enlisted to help process the phonological codes in the text. Therefore, fewer central resources are then available to process the reading context. Thus, phonological loop weakness prevents information from reaching higher order cognitive processes, reading is slower, and comprehension difficulties are more likely to occur (Savage et al., 2007).

Students with phonological processing deficits have a difficult time mastering early reading skills (Pogorzelski & Shedall, 2005). However, that study did not provide solutions on how to present reading instruction to students who have phonological awareness deficits. The current study used the Corrective Reading Program for students with phonological deficits.

The purpose of a study by Pershey and Clickner (2007) was to examine students who struggle to acquire phonological awareness and/or experience persistent academic deficits. For these particular students, the question arose about identifying the factors that lead to risk for reading and spelling difficulties. The first research question they focused on was whether children with phonological impairment would perform more poorly than typically developing peers using six sets of measures. The second question explored measures of association among variables. The participants consisted of two groups: 23 children who had been diagnosed with phonological impairments and were receiving speech-language therapy, and 23 unimpaired students.



The procedures included administration of standardized tests and observational measures (Pershey & Clickner, 2007). The results indicated the coexistence of deficits in phonological awareness and rapid naming among the groups of students with phonological impairment. Pershey and Clickner drew attention to one cause for phonological impairments, and that is speech disabilities. The authors did not offer suggestions on how to provide reading instruction to students who struggle to acquire phonological awareness. In the current study, the Corrective Reading program will be investigated in an attempt to determine the effectiveness of the program for students who exhibit phonological awareness deficits. Pershey and Clickner's study helps support the definition of variables by providing research on the impact of phonological impairments.

Gernand and Moran (2006) conducted a study to investigate the performance of first-grade children with mild-to-moderate phonological impairment and no concomitant language disorder on both standardized and non-standardized tests of phonological awareness abilities. Twenty-four first-grade students participated in the study. Each participant was administered the Test of Phonological Awareness Skills (Newcomer & Barenbaum, 2003), a standardized test consisting of four parts: rhyming, incomplete words, sound sequencing, and sound deletion. The test provides a standard score for each of the four factors as well as an overall composite score. The standard scores achieved by both groups on each of the four sub-scales of the Test of Phonological Awareness Skills were compared by means of a two-factor analysis of variance (ANOVA) with repeated measures.

The composite Test of Phonological Awareness Skills scores for each group were subjected to a two-tailed *t*-test (Gernand & Moran, 2006). The percent of correct

responses for each group on the three non-standardized phonological awareness tasks were subjected to a two-factor (group x task) ANOVA with repeated measures. The non-impaired group performed significantly better ( $p = .008$ ) than the phonologically impaired group on the Test of Phonological Awareness Skills. There was a significant difference ( $p = .001$ ) among the scores attained on the Test of Phonological Awareness Skills subtests. Post-hoc analysis revealed that the non-impaired group's scores on the sound-sequencing portion were significantly higher than their scores on the rhyming and the incomplete word portions.

For the Test of Phonological Awareness Skills composite score, the non-impaired group demonstrated a mean composite score of 124.083 ( $SD = 12.36$ ) compared to a mean score of 106.917 ( $SD = 18.84$ ) for the phonologically impaired group (Gernand & Moran, 2006). This indicated a better performance by the non-impaired group. A two-tailed  $t$ -test indicated that this difference was significant ( $p = .015$ ).

For the non-standardized tasks, the non-impaired group performed significantly better ( $p = .021$ ) than the phonologically impaired group. There was a significant difference ( $p < .001$ ) among the scores attained on these three phonological awareness tasks. Post-hoc analysis revealed that all three tasks differed significantly from each other with the best performance on sound blending, next best on rhyming, and the poorest performance on phoneme counting (Gernand & Moran, 2006). The results of Gernand and Moran's study indicated that children with mild and moderate phonological disorders independent of any coexisting language disorder performed more poorly on both standardized and non-standardized tests of phonological awareness than did a control group of children without phonological errors.

Gray and McCutchen (2006) investigated the relationship between beginning readers' phonological awareness and other aspects of phonological processing, particularly as manifested in short-term memory and comprehension tasks. The sample consisted of 82 kindergartners and 70 first graders with a wide range of reading abilities. The participants did not receive special education services. Students completed a list memory task and a sentence comprehension task. During the sentence comprehension task, the examiners read all the sentences orally and the students responded "yes" if the sentence made sense to them and gave a "no" response if the sentence did not make sense. The study revealed a relationship among phonological processing in list memory and word reading. However, phonological processing in sentence comprehension was not related to other types of phonological processing.

The purpose of the Gray and McCutchen (2006) study was to investigate the relationship between children's phonological processing in short-term memory and phonological processing in sentence comprehension in regards to reading skills. However, the study did not provide suggestions on how to teach reading with students who exhibit phonological awareness and memory deficits. The current study addresses the effectiveness of the Corrective Reading program for students who exhibit phonological awareness and memory deficits. The Gray and McCutcheon (2006) study helps support the definition of variables by providing an in-depth examination of phonological awareness.

According to Trehearne (2003), students who have a good understanding of phonics and phonological awareness tend to be those who have a framework in place for learning how to read, known as decoding, and learning how to write, known as encoding.

In addition, these students understand the letter-sound correspondence, which puts them in an advantageous position in learning to read. On the other hand, students who have difficulty with phonological awareness tend to be those who have difficulty transferring their knowledge about letter-sound correspondence to actual reading tasks. Therefore, it is not enough for a student to understand the letter-sound correspondence; they must also be able to apply this knowledge to actual reading tasks. Trehearne estimated that approximately 20% of students have difficulty in transferring basic phonics knowledge into the phonological awareness necessary for them to become skilled readers.

Studies such as Wagner et al. (1997) and others (Wagner et al., 1993; Wagner et al., 1994; Wagner et al., 1999) have found a high correlation between phonological awareness and short-term memory. One explanation for the importance of phonological awareness in learning to read is that although the memory demands of phonological awareness tasks are similar to those of verbal memory tasks, letter knowledge and other aspects of lexical information play an important role in the performance of phonological awareness tasks (see Wagner & Muse, in press, for further discussion).

Indeed, phonological short-term memory tasks that draw on lexical knowledge, such as nonword repetition, have a similarly close relationship to vocabulary acquisition (Gathercole & Baddéley, 1989; Gathercole et al., 1992; Hu, 2003; Swanson et al., 2004). With respect to verbal working memory tasks, it is well established that children with reading disabilities show significant and marked decrements on such tasks relative to typically developing individuals (Swanson, Zheng, & Olga, 2009). In typically developing samples of children, scores on working memory tasks predict reading

achievement independently of measures of verbal short-term memory and phonological awareness skills (Swanson et al., 2009).

Gathercole, Claire, Briscoe, Thorn, and The ALSPAC team (2005) performed a longitudinal study in order to investigate the cognitive skills and scholastic attainments for students who were 8 years old. The focus of this study was on whether or not the phonological loop skills for these children at 5 years of age were predictive of cognitive skills or scholastic attainment 3 years later. Children were assessed at 5 years old and at 8 years old on a variety of memory, phonics, and achievement tasks including:

1. Working memory
2. Phonological awareness
3. Vocabulary
4. Language
5. Reading
6. Number skill

Gathercole et al. (2005) created two groups of students: students with poor performance on phonological memory tasks at age 5 and students with average or high performance on phonological memory tasks at age 5. The students with poor performance on phonological memory tasks at age 5 were further subdivided into two groups based on their performance on the remaining measures at age 8:

1. Those with poor phonological memory skills that persisted at 8 years and scored poorly on literacy assessments but performed at levels comparable to the average or high performing students on the tests of vocabulary, language and mathematics at age 8.

2. Those who scored better on the phonological memory tests at 8 years, but did not improve relative to the average and high performing students on measures of language ability.

Gathercole et al. (2005) concluded that having low levels of phonological memory skills at age 5 and age 8 did not necessarily hinder the development of language skills or mathematics skills. However, Gathercole et al. also concluded that students whose working memory skills were poor at age 5 and age 8 tended to have reduced levels of language and mathematics skill development.

### **Instructional Theory into Practice and Direct Instruction**

Hunter's (1993, 1994) ITIP theory is the theoretical framework upon which the current study is based. Hunter (1993) developed the ITIP theory in order to provide a framework and justification for the use of direct instruction techniques to promote effective learning. Direct instruction is a teaching method that promotes the use of the following seven components: (a) well-defined and appropriate learning objectives, (b) an anticipatory set in which the students are introduced to the topic by relating the topic to prior knowledge, (c) sharing the lesson objectives with the students so that students will know what it is that they are supposed to learn, (d) presentation of the primary skills and concepts (referred to as the input), (e) checking the students' understanding, (f) providing the opportunity for guided practice, and (g) providing the opportunity for independent study (Hunter, 1993).

Techniques of direct instruction based in ITIP theory have been studied in terms of their ability to promote student learning, and some researchers have found them to be effective (e.g., Leno & Daugherty, 2007; Skjold et al., 2010). However, the research base

on the effectiveness of direct instruction techniques based in ITIP theory for disabled students in area of reading development is very limited. Some researchers such as Flores and Ganz (2009) have conducted studies in this area with very small sample sizes (i.e.,  $n = 4$ ) but found preliminary evidence for the effectiveness of direct instruction techniques based on ITIP theory for disabled students in reading development.

Despite some demonstration that direct instruction techniques based in ITIP theory can be effective, other researchers have been more critical of direct instruction techniques and ITIP theory because they may not be effective in teaching all types of students (Cicciarelli, 2007). The applicability of direct instruction techniques based on ITIP theory for special education students and for non-special education students in particular has not been empirically tested. The Corrective Reading Program examined in the current study was based on the method of direct instruction which in turn is based on Hunter's (1993, 1994) ITIP theory, and the next section of this literature review focuses on this particular reading intervention program.

### **Corrective Reading Program**

**Effective Reading Instruction.** Foorman (2007) described the components of effective reading instruction as “phonemic awareness, letter knowledge, and concepts of print, the alphabetic code: phonics and decoding, fluency in word recognition and text processing, construction of meaning, vocabulary, spelling, and writing” (p. 24). Wilson, Martens, Arya, and Altwerger (2004) highlighted a report from the National Reading Panel, a keystone resource for the Reading First program of the No Child Left Behind Act, which used 38 studies to determine that explicit and systematic phonics instruction in the early grades is necessary.

According to Engelmann et al. (1999), well-designed instructional programs are a necessary but not a sufficient condition alone for improving students' reading abilities. The key components of literacy development, according to Engelmann, are: (a) students must be provided with practice and feedback, and (b) decoding and reading comprehension strategies must be used. The Corrective Reading Program examined in the current study meets these conditions.

In addition, Carnine, Silbert, Kame'enui, and Tarver (2004) provided guidelines for establishing a comprehensive program for children who are behind in reading:

1. Intervene early by placing students in Corrective Reading Program starting in third grade.
2. Providing extra instructional time is a crucial component of the Corrective Reading Program.
3. Lessons for each of the Corrective Reading Programs (*Decoding* and *Comprehension*) can be completed comfortably in a 45 to 50 minute block of time
4. Employ up to 150 minutes of language arts instruction weekly.
5. Utilize small-group instruction.
6. Use flexible skill grouping.
7. In classes with low levels of reading ability, groups developed for small-group work should be small.
8. Use small group instruction.
9. Use effective instructional materials.



10. Include explicit instruction in phonemic awareness, phonics, fluency, vocabulary, and comprehension.
11. Create a comprehensive aligned program.
12. Include all elements of effective reading instruction, offering a seamless approach to reading remediation (one level leads to the next with carefully designed cumulative skill development).
13. Administer progress-monitoring assessments frequently.
14. Monitor progress continually.
15. Use individual reading checkouts ensure that fluency goals are met.
16. Have students graph their own data on individual reading progress charts.
17. Have students complete workbook exercises to reinforce what they learn during the lesson.
18. Use mastery tests and fact games help ensure confident responses.
19. Ensure students are placed at their specific instructional level so they experience success rather than failure.
20. Counter faulty strategies that children reading below grade level are likely to have developed.
21. Use research-based strategies.
22. Teach students to sound out words using blending and then to say the words the fast way is used compared to sight word or “guess and go” strategies. (p. 17)

**Corrective Reading Program.** The Corrective Reading Program is an intervention reading program designed to help struggling students in the third grade or

beyond develop decoding, fluency, and comprehension skills. The Corrective Reading Program was designed to be consistent with the guidelines of Carnine et al. (2004) above and with the ITIP theory. The Corrective Reading Program consists of two components: decoding and comprehension. Within these strands are a number of levels: A, B1, B2, and C (Hempenstall, 2008). The Corrective Reading Program format provides sequenced lesson from simple to complex. It also provides appropriate examples such as teaching scripts to reinforce a lively and quick instructional style, practice exercises matched to the instructional content, and a system of guidebooks, tests, reading materials, and management tools for implementation (Pzychodzin-Havis et al., 2005).

The Corrective Reading Program has an extensive research foundation that includes studies examining the use of its program. Gregory, Hackney, and Gregory (1982) performed one of the first studies of the Corrective Reading Program. Participants were students in remedial reading classes. The Corrective Reading Program was implemented for 4 hours per week, and the authors performed a pretest and posttest using the Test of Reading Experience. Over the five months of the study, the experimental group gained approximately 22 months of reading ability while a control group gained only about three months.

The existing research focuses on the use of the Corrective Reading Program in general and special education, in alternative environments, and in the way the program is delivered by paraprofessionals or volunteers. Hempenstall (2008) discussed the results from a study indicating that students in the Corrective Reading Program made statistically significant and educationally large gains in the phonologically-related processes of word attack, phonemic awareness, and spelling.

The Corrective Reading Program is designed to help students learn how to read, but researchers have not specifically addressed students with phonological awareness and memory deficits. The studies suggest it is an instructional method for students who have a difficult time learning how to read. Hempenstall (2008) offered evidence that the Corrective Reading Program made an impact on students' reading abilities, especially in the area of phonologically-related processes. Students with memory deficits were not included in the study.

Kasendorf and McQuaid (1987) implemented the Corrective Reading Program for students in elementary, middle, and high school. The program lasted between seven and eight months, and a total of 32 students participated in the study through the posttest. The Woodcock Reading Mastery Test was used to assess student improvement from the pretest to the posttest. The results from the study indicated that the students made an average 2.38 grade-equivalent improvement on word attack and .75 of a year improvement on Passage Comprehension on the Woodcock Reading Mastery Test (p. 18).

Vitale, Medland, Romance, and Weaver (1993) examined the Corrective Reading Program among 26 Title I students with low levels of reading achievement. The participants were in fourth, fifth, and sixth grades and attending school in a large urban school district. At the beginning of the study, the students scored between one and three years below grade level on the Iowa Test of Basic Skills. The results showed that following 85 days in the Corrective Reading Program, the participating students improved more on the Vocabulary and Reading tests from the Iowa Test of Basic Skills than did a similar control group. In addition, the students in the Corrective Reading

Program group performed better on the decoding and thinking errors portion of the school district's criterion reference test.

Students with phonological awareness and memory deficits may be identified with learning disabilities. Students with learning disabilities require intense instruction that is explicit, systematic, and focused. Benner, Kinder, Beaudon, and Stein (2005) focused their research on students with high-incidence disabilities. The special education population and most of the students were reading two or three years below their current grade level. Research on students with high-incidence disabilities indicates that most of these students have made little or no reading progress, especially those students beyond second grade (Lyon et al., 2001).

Failure to learn to read is the major reason for qualification for special education services (Meese, 2001) and is a primary risk factor associated with school dropout (Cornwall & Bawden, 1992; Werner, 1993). Indeed, researchers have reported that 50% of students with high-incidence disabilities do not respond to effective reading intervention (Fuchs et al., 2001). Researchers have described these students as treatment non-responders (Al Otaiba & Fuchs, 2002; Torgesen, 2000).

Treatment non-responders are those students who, despite participating in core and supplementary reading instructional programs, fail to acquire beginning reading skills within the normal range (Torgesen, 2000). Torgesen examined the effects of Corrective Reading Decoding B1 on the basic reading skills, social adjustment, and the treatment responsiveness of elementary and middle school students with high-incidence disabilities. Twenty-eight students in the Corrective Reading condition received special education services for a high-incidence disability.

The participants were in the third, fourth, fifth and eighth grades (Torgesen, 2000). The comparison group consisted of 23 students who were in the third, fourth, fifth, and sixth grades. Students in the Corrective Reading experimental group were placed in resource rooms for reading and received special education services for a high incidence disability. These students received the Corrective Reading Program from five certified special education teachers and the student teachers assigned to their respective classrooms.

Students in the comparison condition were matched to all but five students in the Corrective Reading Program condition by school, gender, and grade (Torgesen, 2000). These students were educated in general classroom environments and received a variety of reading approaches from seven general education teachers in five elementary schools. Comparison condition teachers reported that their focus was to build the comprehension skills of comparison group students rather than to improve their basic reading skills. They generally taught comprehension Journal of Direct Instruction 69 strategies and focused on vocabulary development. There was no determination of the teaching experience of these teachers.

The results support the use of scripted programs rather than teacher-developed approaches to teach complex skills (Torgesen, 2008). The data revealed the Corrective Reading Decoding B1 program produced statistically and educationally significant changes in the basic reading skills of Corrective Reading students. Students in the Corrective Reading Program condition demonstrated statistically significant mean changes on the Woodcock Johnson-III Basic Reading Skills cluster and associated subtests and the DIBELS ORF probe compared to those in the comparison condition.

Moreover, effect sizes were large in magnitude (i.e., above .80), suggesting that the Corrective Reading Decoding B1 program had educationally significant effects on the basic reading skills and oral reading fluency of students (Torgesen, 2000). An effect size of .25 is considered educationally significant, meaning that it is worth the expense and effort involved in learning to use a new instructional program or procedure (Adams & Engelmann, 1996). Second, the Corrective Reading Decoding B1 program was effective in reducing non-responsiveness from pretest to posttest.

Statistically significant differences were found in the percentages of Corrective Reading condition non-responders using the mean Woodcock Johnson-III Basic Reading Skills cluster (pretest = 50% and posttest = 25%) and DIBELS ORF (pretest = 79% and posttest = 36%) scores (Torgesen, 2000). This finding underscores the utility of the Corrective Reading Decoding B1 program in bringing the beginning reading skills of many nonresponsive third- through eighth-grade students with high-incidence disabilities into the average range. Furthermore, statistically significant drops in the prevalence of non-responsiveness were made after only 4 months of Corrective Reading instruction.

In another study, the posttest rate of non-responsiveness was notable considering previous studies of reading interventions on naturally occurring participant samples have reported a range of non-responders from 30% to 80% (Nelson, Benner, & Gonzalez, 2003). In summary, students with high incidence disabilities who experience reading difficulties require focused and intensive remedial reading instruction. Without such instruction, the reading difficulties of the vast majority of students with high-incidence disabilities will persist, hindering their vocational prospects and overall achievement.

A meta-analysis by Przychodzin-Havis et al. (2005) provided an analysis of corrective reading research. The method used for this particular study was a review of 28 published studies. The authors selected the studies using the First Search, ERIC, PsycINFO, EDUCATION Abs, and ProQuest databases. The terms the researchers used included direct instruction, explicit instruction, and Corrective Reading. Additionally, hand searches were done in peer-reviewed journals, including *ADI News* and *Effective School*.

Twenty-three studies investigated the effectiveness of the Corrective Reading Program delivered by educators in general education. Five studies examined the effects of the Corrective Reading Program as implemented by paraprofessionals or peer instructors in general education and special education settings. The key findings showed 26 of the 28 studies found positive results for students who were taught using the Corrective Reading Program. One study found positive results from peer instructors who delivered the Corrective Reading Program.

Overall, based on the reviewed research, Przychodzin-Havis et al. (2005) found the Corrective Reading Program to be effective as a core reading program for teaching and improving students' reading skills. The studies examined the Corrective Reading Program, but did not indicate whether the samples included students with phonological awareness and memory deficits. The current study included students with phonological awareness and memory deficits. The article helps support the definition of variables by presenting an analysis of corrective reading research and providing evidence that the Corrective Reading Program is an effective core reading program.

Massar (2009) performed a study to examine the effectiveness of the Corrective Reading Program on the mastery of reading skills in at-risk junior and senior high students in seventh through twelfth grades. Students were defined as at-risk if they did not achieve the proficient level on the state achievement-tests. A total of 206 students were identified as not meeting the proficient level criterion and were included in the study. The intervention program consisted of a year-long implementation of the Corrective Reading Program. The program began with the administration of the Corrective Reading Program's Decoding and Comprehension Placement to determine initial placement levels and appropriate strands.

The Information Reading Inventory was administered in order to obtain each student's reading grade level (Massar, 2009). This test was also administered one year later as a posttest assessment of reading grade level. In addition, Massar administered the 4-Sight Predictive Benchmark Assessment. This test was administered every 3 months throughout the year-long study in order to monitor student progress. Finally, the state achievement test was administered at the end of the study.

The results from Massar's (2009) study produced the following conclusions: (a) the level of reading achievement of the student participants improved following their participation in the Corrective Reading Program, and (b) the percentage of students who reached the proficient level on the state achievement test improved. The author concluded that the Corrective Reading Program was successful in improving the reading ability of at-risk students. Adams and Engelmann (1996) also examined the effectiveness of the Corrective Reading Program and concluded that it was effective in increasing students' level of reading achievement.



The Florida Center for Reading Research (2008) sought to determine the extent to which the Corrective Reading Program was aligned with current empirical research findings. In making their comparisons, the authors focused individually on the five components of reading:

1. Phonemic awareness
2. Phonics
3. Fluency
4. Vocabulary
5. Comprehension.

The Florida Center for Research concluded that these components were adequately integrated into the Corrective Reading Program. Other conclusions from the Florida Center for Research regarding the Corrective Reading Program were that:

1. Instruction in the Corrective Reading Program is both explicit and systematic.
2. The Corrective Reading Program provides consistent instructional routines including multiple practice opportunities, teacher modeling, and specific feedback that is provided immediately.
3. Lessons within the Corrective Reading Program are developed using a scaffolding approach in which new information is presented as an extension of existing knowledge and progresses from simple to complex.
4. Skills are cumulatively reviewed and monitored for mastery within the Corrective Reading Program.
5. The Corrective Reading Program is designed in a way that is consistent with current research on instructional design.

6. The content of the Corrective Reading Program is consistent with current empirical research.

Benner, Kinder, Beaudoin, and Stein (2005) examined reading achievement scores for 51 students in elementary and middle school to determine how well the Corrective Reading Program worked with students with disabilities. The participants in this study were in grades three through eight, and a quasi-experimental design was employed. Students in the Corrective Reading Program were compared to students in a control group. The students in the control group and the experimental group were matched based on gender, age, and race.

In order to assess the effects of the Corrective Reading Program in the Benner et al. (2005) study, the Oral Reading Fluency measures from the DIBELS and the Letter-Word Identification and Word Attack subtests of the Woodcock Johnson III: Tests of Achievement (Woodcock, 2001). The control group in this study received only the standard classroom instruction, and the Corrective Reading Program group received three 40 to 45 minute lessons. The intervention continued for 4 months. Benner et al. concluded the following from their study:

1. Students in the Corrective Reading Program group performed better than the control group on all three measures of reading achievement.
2. Effect sizes were large for the Word Attack test, moderate for the Letter-Word Identification test, and large for the Oral Reading Fluency test.
3. More than half of the students in the Corrective Reading Program group went from below proficient to proficient after the 4-month study.

To summarize, the research reviewed here provides strong evidence that Corrective Reading is efficacious in the improvement of literacy skills among students who are struggling to read. In particular, results are encouraging with respect to students who have not responded to core and supplemental reading programs. Quantitative studies of memory, phonological awareness deficits, and the Corrective Reading Program have been performed individually; however, insufficient studies have investigated the effectiveness of the Corrective Reading Program for students with memory deficits and the inability to acquire phonological awareness. The research conducted regarding memory and phonological deficits and the Corrective Reading Program have all been quantitative investigations that do not incorporate the voices of participants. An issue that may occur, then, is that the quantitative results are inadequate to describe and explain effectiveness of the Corrective Reading Program for students with memory deficits and the inability to acquire phonological awareness. Another limitation of the existing research is that it does not identify students who have phonological and working memory deficits. A third limitation is that this body of research does not look specifically at possible relationships between Corrective Reading and reading attitudes.

### **Elementary Reading Attitudes**

Reading attitude is crucial in the development and use of lifelong reading skills (Lazarus & Callahan, 2000). One of the key determinants of reading ability is a student's attitude toward reading. Numerous research reports have indicated that students who have more positive attitudes toward reading have higher levels of reading achievement (e.g., Kaniuka, 2010). Theoretical arguments, primarily revolving around the affective

role of reading attitude in determining reading ability, have also been offered (Kaniuka, 2010; Petscher, 2009)

McKenna and Kear (1990) developed the Elementary Reading Attitude Survey (ERAS) to measure students' attitudes toward reading to "enable teachers to estimate attitude levels efficiently and reliably" (p. 626). While studies on the effects of reading attitude on reading achievement have been conducted, none of these studies has specifically examined students with memory and phonological awareness deficits. Due to the importance of attitude toward reading in determining reading achievement and the fact that it has not been studied with such students, the ERAS was used in the current study to measure attitudes toward reading in an academic context and a recreational context.

Lazarus and Callahan (2000) conducted a study examining reading attitudes of students diagnosed with learning disabilities compared to their nondisabled peers. The researchers used the ERAS and the reading attitude scores produced by students diagnosed with learning disabilities (range = 59.6 to 54.3) closely paralleled the nondisabled students' scores (range = 61.0 to 54.1) across all grade levels (p. 278).

Kazelskis et al. (2004) examined the reliability and stability of the ERAS scores across gender, race and grade level. In an attempt to provide a broader base of reliability data for the Elementary Reading Attitudes Survey, the present study obtained estimates of alpha reliabilities, not only by grade level as provided by McKenna and Kear (1990), but by gender and race as well. Additionally, the researchers examined score stability over a more realistic time interval than that provided by Kush, Watkins, McAleer, and Edwards (1995).

A total of 718 students in grades four through six responded to the ERAS (Kush et al., 1995). The instrument was used to measure two aspects of reading attitude: recreational reading (10 items) and academic reading (10 items). McKenna and Kear examined both the internal consistency reliability (Cronbach's alpha) and test-retest reliability coefficients for the Elementary Reading Attitudes Scale. Cronbach's alpha coefficients for the Recreational Reading score, the Academic Reading score, and Total Reading Attitude scores were typically in the .80s across genders, ethnicities, and grade levels. Overall, the alpha coefficients indicated that the subscale and total scale scores of the ERAS possess adequate levels of internal consistency for the groups included in the McKenna and Kear study. Test-retest reliability coefficients were based on a 7-day testing interval and these coefficients ranged from the mid-.50s to the mid-.60s, across most gender, grade, and ethnic subgroups, with somewhat higher coefficients for the African American sample and for the sixth-grade sample than for other ethnic groups or lower grade levels. The means from the McKenna and Kear study ranged from 26.28 to 30.29 for the Recreational Reading Attitude score, from 25.65 to 29.74 for the Academic Reading Attitudes score, and from 52.50 to 59.93 for the Total Reading Attitudes score.

Seitz (2010) examined student attitudes toward reading at a summer reading clinic through an urban teaching college in upstate New York. The participants in the study were three students enrolled in the summer reading clinic. One student was in fifth grade, and the other two were in fourth grade. The ERAS was administered to the participating students at the beginning and at the end of the clinic. The survey data showed that two of the three students' ERAS scores improved during the clinic, while the third student's score decreased. The first student scored 63 on his first ERAS, 30 raw

points toward recreational reading and 33 academic reading. The first student's final ERAS score increased by 5 points to 68, with 31 points toward recreational reading and 37 for academic reading. This confirmed an increase in his positive attitude toward academic reading. The second student's score on the initial ERAS score was 45, reflecting a negative attitude toward reading and writing in academic and recreational environments. At the end of the four-week clinic, this student's new score increased by 21 points to 66, with 31 points in recreational reading and 35 in academic reading. The third participant scored a 79 on her initial ERAS, 39 raw points toward recreational reading and 40 academic reading. The final ERAS score decreased to a 51, with a recreational score of 37 and academic reading score of 15.

Reading attitude is one indicator of students' success in reading. Kush et al. (1995) conducted a study examining students' reading attitude over a two-year period. Two hundred eighty-nine participants in first through fifth grades were included in the study. The instrument used in the study was the ERAS, which the students completed in the fall semester of two consecutive school years. The completed ERAS forms were scored by the experimenters, according to standardized instructions provided by McKenna and Kear (1990). The raw scores were converted to standard scores ( $M = 100$ ,  $SD = 15$ ) by a computer program (Watkins, 1992) and used in all subsequent analysis.

The results indicated moderate 1-year stability of children's attitudes toward reading as measured by the ERAS (McKenna & Kear, 1990). The results showed that girls exhibited more positive attitudes toward reading than boys. The exception in this particular study was beginning second-grade students, where girls and boys had similar reading attitudes. It was conjectured that this difference can be attributed to a unique

interaction between personal characteristics of these students and teachers, since boys' attitudes declined again the following year, although neither specific instructional program nor method could be identified which was unique to that grade level.

Martinez, Aricak, and Jewell (2008) examined four areas: gender differences in attitudes toward reading, differences in the reading attitudes of good versus poor readers, the relation among reading attitudes and reading achievement, and the degree to which reading attitude, in addition to reading skill, predicted reading achievement 4 months later. The participants included 76 fourth-grade students. The measurement consisted of reading attitudes using the ERAS and Reading Achievement using scores on a reading curriculum-based measurement task.

The researchers administered the ERAS to the students, and the students' reading scores from the curriculum-based measurement were obtained (Martinez et al., 2008). The results for the first question indicated girls had significantly more positive attitudes toward reading compared to their male peers. The second finding in the study suggested that reading attitudes and reading ability were significantly related by the time students entered the upper elementary grades (e.g., grades four through five). The third question focused on whether poor readers differ from good readers in their attitudes toward reading. The results from this study indicated that although reading attitudes and reading achievement are related, their causal relations are unclear (Martinez et al., 2008).

Another study was conducted by Kush et al. (1995) to test the temporal interaction hypothesis. In this particular study, the path analysis supported a temporal interactive influence of reading attitude and reading achievement on reading achievement just 4 months later. Similarly, Tunnell, Calder, Justen, and Phaup (1991) examined

students' reading attitudes in relation to their reading achievement. The authors found that students who had negative attitudes toward reading also tended to have lower levels of reading achievement.

Similarly, Parker (2004) examined the relationship between reading ability and reading achievement among 29 students in fifth grade. Parker's sample included two groups of students: those who had been identified as intellectually and academically gifted, and those who had not been identified as intellectually and academically gifted. The ERAS was administered to all students. Students who were in the intellectually and academically gifted group scored higher on the reading attitudes scale than those who were not so identified.

Other studies on reading attitudes have reached similar conclusions. For example, Kush et al. (1995) concluded from their study that reading attitudes play an important role in the development of reading skills throughout the school years. According to Richek, List, and Lerner (1983), "the ultimate success of instruction is strongly affected by the reader's attitude" (p. 20). Lipson and Wixson (1992) similarly concluded that "the student's attitude toward reading is a central factor affecting reading performance" (p. 141).

McKenna and Kear (1990) posted three research questions in their study:

1. What are the attitudes toward recreational and academic reading of students diagnosed with learning disabilities?
2. What differences exist in the students' attitudes towards recreational and academic reading across grades one through five?



3. How do the attitudes of the students diagnosed with learning disabilities compare with nondisabled students' attitudes?

McKenna and Kear included 522 learning disabled and non-learning disabled students in first through fifth grade. Using the ERAS, the authors concluded that there were no significant differences in the reading attitudes of students diagnosed with learning disabilities and those of students who were not diagnosed with learning disabilities. In addition, students in grades one through three tended towards more positive attitudes toward recreational reading than students in the fourth and fifth grades. There were no differences in the students' attitudes toward academic reading based on grade level. On total reading attitudes scores, the high functioning, nondisabled students had higher scores than any other group.

The research on reading attitudes indicates the importance of reading attitude and the possible impact a positive attitude towards reading has on developing reading skills. Students who have a negative attitude towards reading may have a difficult time learning to read because they avoid reading. These students may not progress because they are not practicing the reading skills they have been taught and they opt out of reading for pleasure. These students' self-concept is often affected and the rate of dropping out of school due to their poor reading skills increases. The results from McKenna and Kear's (1990) study are somewhat inconsistent with the results of other studies that have confirmed a strong relationship between reading attitudes and reading achievement, indicating that the grouping of students according to grade level may be an important step in studies that examine this relationship. A limitation of the reading attitudes research reviewed here is that a number of reading programs and interventions were used, making

comparison across studies difficult. In addition, it does not appear that any of the reading attitudes studies specifically examined possible relationships between a Corrective Reading intervention and reading attitude.

### **Summary**

Although teacher preparation courses prepare educators to instruct students under the assumption that all students have the same ability to learn, different skills and knowledge are needed to teach reading effectively, particularly to students with differing abilities (Barone & Morrell, 2007). According to Barone and Morrell, teacher preparation programs have been largely ineffective in providing new teachers with the skills they need to teach students for whom learning to read presents great difficulty. Hoffman and Pearson (2000) also noted that despite improvements in teacher preparation programs, new teachers still do not have the training required to deal with the variety of reading problems encountered in the classroom.

The literature reviewed in this chapter indicates that the Corrective Reading Program shows great promise for increasing the reading abilities of students who have been nonresponsive to core or supplemental reading interventions. There is a large body of evidence showing the efficacy of the Corrective Reading Program with struggling readers (e.g., Marchand-Martella, Martella, & Przychodzin-Havis, 2005). Like other studies, Przychodzin-Havis et al. (2005) examined the Corrective Reading Program, but did not indicate whether the sample included students with phonological awareness and memory deficits. The research study that was conducted specifically included students with phonological awareness and memory deficits. Like other studies of working memory, Savage et al. (2007) examined the role of working memory in developmental

reading problems and the level to which working memory research has provided an explanation of reading difficulty but did not include reading instruction that could support students with working memory deficits. The current study specifically identified students with such challenges and attempt to determine if Corrective Reading improves their reading skills.

This review of the literature has shown that the inability to acquire phonological awareness is detrimental to a student's ability to read fluently. However, there is limited research on how memory deficits affect the ability to acquire phonological awareness and whether a specific reading program, such as the Corrective Reading Program, can provide students who have memory and phonological awareness deficits the with the skills necessary to learn how to read. In the current study, the efficacy with which the implementation of the Corrective Reading Program improved outcomes for students with memory and phonological deficits was studied.

With the exception of McKenna and Kear's (1990) study, the research on reading attitudes indicates there is a relationship between reading attitude and the development of reading skills. However, the reading attitudes research reviewed here made use of a number of reading programs and interventions, not all of which were identified, making it difficult to compare results across studies. Further, the reading attitudes research does not specifically examine possible relationships between a Corrective Reading intervention and reading attitude. The next chapter of this proposal describes the methods used to gather and analyze data needed to answer the research questions.

### **Chapter 3: Research Method**

The problem addressed in this study was that the differential effectiveness of the Corrective Reading Program, a direct instruction method based on the ITIP theory, for special education and non-special education students is unknown. It is important to determine whether direct instruction methods based on ITIP theory are applicable to both struggling readers who are special education students and non-special education students. The purpose of this quantitative, quasi-experimental study was to determine if a direct instructional technique based on the ITIP theory would be effective for both special education and non-special education students in terms of phonological awareness improvements and attitudes toward reading. The current chapter contains a description of the methodology employed to answer these two questions. Initially, the research method and design are presented and justified as the most appropriate choices for the current study. Then, the participants in this study and the materials are described. Each variable is operationally defined and the data collection and analysis procedures are discussed. The methodological assumptions, limitations, and delimitations of this study are presented in the next section, followed by a discussion of the ethical issues involved in conducting the current study. The chapter ends with a summary.

Two research questions were addressed in this study:

**Q1.** Is there a difference in the effectiveness of the Corrective Reading Program for special education students and non-special education students in terms of phonological awareness improvements?

**Q2.** Is there a difference in the effectiveness of the Corrective Reading Program for special education students and non-special education students in terms of reading attitude improvements?

The hypotheses corresponding to these two research questions were:

**H1<sub>o</sub>.** There is no difference in the effectiveness of the Corrective Reading Program for special education students and non-special education students in terms phonological awareness improvements.

**H1<sub>a</sub>.** There is a difference in the effectiveness of the Corrective Reading Program for special education students and non-special education students in terms phonological awareness improvements.

**H2<sub>o</sub>.** There is no difference in the effectiveness of the Corrective Reading Program for special education students and non-special education students in terms reading attitude improvements.

**H2<sub>a</sub>.** There is a difference in the effectiveness of the Corrective Reading Program for special education students and non-special education students in terms reading attitude improvements.

### **Research Methods and Design**

Quantitative research methodology was used in the current study. The rationale for the choice of the quantitative approach was that it is best suited to address the purpose of this study because it involved quantitative variables (Creswell & Clark, 2007) such as phonological awareness skill and reading attitudes. Laborvits and Hagedorn (1971) defined quantitative research studies as studies involving “specifying how and why the variables and relational statements are interrelated” (Creswell & Plano Clark, 2007). A

quasi-experimental design was used, in which students in the Corrective Reading Program were divided into two groups: special education and non-special education students. This determination was based on whether or not the student was eligible for special education services or was enrolled in the Corrective Reading Program simply due to being at-risk for reading failure.

The study was quasi-experimental because these two groups were not created experimentally by random assignment to groups by the researcher, but rather were based on preexisting characteristics. The independent variable was whether the student in the Corrective Reading Program special education and non-special education students, with the latter group enrolled in the Corrective Reading Program based on at-risk status for reading failure. Pretest assessments on the dependent variables and posttest assessments on the dependent variables were compared to determine changes following participation in the Corrective Reading Program for these two groups. Two dependent variables were examined in this study: Phonological Awareness scores from the Dynamic Indicators of Basic Literacy Skills (DIBELS; Good & Kaminski, 2002), and the Total Reading Attitude scale from the ERAS (McKenna & Kear, 1990).

The Corrective Reading Program is an intervention reading program that was originally designed to assist struggling students in the development of decoding, fluency, and comprehension skills (U.S. Department of Education, 2007). The program is applicable to students who have reached at least the third-grade level. The Corrective Reading Program examined in the current study had several defining characteristics: (a) a structured format, (b) an emphasis on the lessons occurring daily, (c) sufficient daily spaced practice to reduce the risk of forgetting, (d) immediate correction of errors to

guide the student towards mastery, and (e) on-going assessment of progress to validate the effectiveness of the teaching (Hempenstall, 2008).

### **Participants**

The population of interest in this study consisted of third- through fifth-grade students in the rural school districts in the Northwest region of the United States who were engaged with the Corrective Reading Program. The accessible population for this study attending the public school system is comprised of 15 schools and nearly 9,000 students. Geographically, it covers a 120-square-mile area on two peninsulas. The sample consisted of all students in third through fifth grade in one of these Northwest school districts who were enrolled in the Corrective Reading Program. Students in this school district who were not enrolled in the Corrective Reading Program were not included in this study. The school district had an enrollment of approximately 600 students in third through fifth grades, and 125 of these students were currently enrolled in the Corrective Reading Program. Of this number, 88 students were in the Corrective Reading Program based on at-risk status for academic failure and consequent participation in the Learning Assistance Program in the school district, and 37 had a disability, determined through eligibility for special education services.

A power analysis was performed to examine the sufficiency of this sample to produce statistically significant effects using the G\*Power computer program. The planned inferential technique for this study consisted of two independent samples *t* tests. The dependent variables were DIBELS Basic Literacy Skills pretest/posttest difference scores (Good & Kaminski, 2002) and the ERAS Reading Attitude pretest/posttest difference scores (McKenna & Kear, 1990). The independent variable was whether

students were special education students or non-special education students. Desired power of .80, two-tailed test, and an alpha level of .05 were specified in the power analysis. Cohen (1992) defined the medium effect size estimate for independent samples *t* tests as  $d = .50$ . For medium effect sizes, G\*Power indicated that 128 participants would be required to achieve power of .80. The actual sample size for this study was close to this target sample size and will be further discussed in Chapter 5.

### **Materials/Instruments**

**Dynamic Indicators of Basic Literacy Skills.** Phonological awareness was measured using the DIBELS (Good & Kaminski, 2002). According to Good and Kaminski (2002), the DIBELS measures how well a student is able to hear and manipulate spoken words. The DIBELS was developed to monitor growth in the acquisition of critical literacy skills (Good & Kaminski, 2002). The Phonological Awareness score from the DIBELS includes three tasks: Letter Naming Fluency (LNF), Phoneme Segmentation Fluency (PSF), and Nonsense Word Fluency (NWF).

There have been extensive studies of the reliability and validity of the DIBELS. According to Bakerson and Gothberg (2006), reliability coefficients for the three subscales of the DIBELS that together form the Phonological Awareness score had the following ranges across multiple reliability studies: PSF, .88 to .96; NWF, .65 to .90; and LNF, .93 to .98. Bakerson and Gothberg tested the validity of the DIBELS by comparing the scores to scores on the subtests of the Comprehensive Test of Phonological Processing (Wagner, Torgesen, & Rashotte, 1999) and the Woodcock-Johnson Psycho-Educational Battery (Woodcock, McGrew, & Mather, 2001). The validity scores for the



three subscales of the DIBELS had the following ranges: PSF .73 to .91, NWF .42 to .71, and LNF .72 to .98 (Bakerson & Gothberg, 2006).

Kaminski and Good (1996) reported that DIBELS scores correlated between .64 and .82 (across various samples) with scores on the Woodcock-Johnson Psycho-Educational Battery School Readiness scale. The average concurrent validity coefficients (correlations with other measures taken at the same time) were .80 for ORF, .58 for NWF, .44 for PSF, and .55 for ISF. The predictive validity coefficients were .47 for PSF, .53 for ISF, .66 for ORF, and .68 for NWF (there were no predictive validity data for WUF). Goffreda, Diperna, and Pederson (2009) reported that DIBELS scores were positively correlated with scores on the TerraNova California Achievement Test. Johnson et al. (2009) reported that DIBELS scores were predictive of reading test failure. Based on substantial evidence of both reliability and validity, the DIBELS assessment was selected as the measure of phonological awareness in this study. A variety of scores are available from scoring the DIBELS (e.g., grade equivalents, percentiles, and standard scores), and standard scores were used in this study.

**Elementary Reading Attitude Survey.** The ERAS (shown in Appendix B) was created by McKenna and Kear (1990). McKenna and Kear (1990) developed the ERAS to measure students' attitudes toward reading to "enable teachers to estimate attitude levels efficiently and reliably" (p. 626). The survey produces three scores: Recreational Reading Attitudes, Academic Reading Attitudes, and Total Reading Attitudes, with only the Total Reading Attitudes score used in the current study. In the standardization sample of the ERAS, internal consistency reliability coefficients were between .74 and .89 for students at various grade levels. According to McKenna and Kear (1990), the

validity for the Total Reading Attitudes score was also demonstrated by differences between students who chose to obtain a library card and those who did not with the former group having significantly higher ( $p < .001$ ) recreational scores ( $M = 30.0$ ) than the latter group ( $M = 28.9$ ). The second test compared students who currently had a library book checked out at their school library versus students who did not have a book checked out from their school library. The means of the two groups varied significantly ( $p < .001$ ) and children with books checked out scored higher ( $M = 29.2$ ) than those who did not check out a book from their school library ( $M = 27.3$ ). The next subscale compared students who reported watching an average of less than 1 hour of television per night with students who reported watching 2 hours per night. The recreational mean for the low television group (31.5) significantly exceeded ( $p < .001$ ) the mean of the heavy television watchers group (28.6). The validity of the academic subscale was tested by examining the relationship of scores to reading ability. The classroom teacher categorized norm-group students as having low, average, or high overall reading ability. The mean subscale scores of the high ability readers ( $M = 27.7$ ) significantly exceeded the mean of the low-ability readers ( $M = 27.0, p < .001$ ).

The Total Reading Attitudes scale consists of 20 items. The ERAS is a norm-referenced measure. The normative data used for comparison were collected from 18,138 students in 78 school districts in 38 states. According to McKenna and Kear (1990), the collection of normative data was guided by inclusive practices, so the measure's norms can be considered representative. Construct validity was established by comparing various student characteristics (e.g., library card ownership, TV watching time, etc.) with sample members' scores.

Kazelskis et al. (2005) performed a study to examine the psychometric properties (reliability and validity) of the ERAS across gender, race, and grade. This represented an extension of the analyses performed by McKenna and Kear (1990), who only examined psychometric aspects of the ERAS across grade levels. Kazelskis et al. used a 7-day time interval to examine test-retest reliability and computed Cronbach's alpha reliability coefficients to examine internal consistency reliability. The sample included 718 students in fourth through sixth grades. Across genders, races, and grade levels, the internal consistency reliability coefficients ranged from .76 to .91 (Kazelskis et al., 2005). Test-retest coefficients were between .59 and .80 for the ERAS Total Reading Attitudes score across races, genders, and grade levels (Kazelskis et al., 2005). Kazelskis et al. performed a construct validity analysis of the Elementary Reading Attitudes Survey. Based on results of factor analyses, using the unweighted least squares method of extraction and varimax rotation, the authors concluded that the factor analyses produced strong evidence that the two subscales (the measures of recreational and academic reading attitudes) of the ERAS reflect discrete aspects of reading attitude (Kazelskis et al., 2005).

### **Operational Definition of Variables**

**Corrective Reading Program group membership.** The independent variable in this study was Corrective Reading Program group membership, a dichotomous variable. The criterion used to select students with a disability to the Corrective Reading Program was based on a student having a documented learning disability in reading. As a result of a documented disability in reading, the student would have an Individual Education Plan that provided eligibility to receive special education services, including placement in the

Corrective Reading Program. If a student was in the Corrective Reading Program because they had a documented disability in reading, they were in the special education group (coded as 0) with all other students in the non-special education group (nondisabled but at-risk, coded as 1). All students who were in the Corrective Reading Program but did not have a documented disability in reading and the subsequent Individual Education Plan were enrolled in the Corrective Reading Program through the Learning Assistance Program. The Learning Assistance Program was designed for non-disabled students who are at risk for reading failure.

**Phonological awareness.** Phonological awareness was measured using the DIBELS (Good & Kaminski, 2002). The Phonological Awareness score from the DIBELS includes three tasks: Letter Naming Fluency (LNF), Phoneme Segmentation Fluency (PSF), and Nonsense Word Fluency (NWF). Scores on the DIBELS scales are measured on an interval scale. A variety of scores are available from scoring the DIBELS (e.g., grade equivalents, percentiles, and standard scores), and standard scores were used in this study.

**Reading attitudes.** Reading attitudes were measured using the ERAS (McKenna & Kear, 1990). Only the Total Reading Attitude score was used in this study. This scale consists of 10 items related to recreational reading and 10 items related to academic reading. The sum of the responses to these 20 items from the ERAS (McKenna & Kear, 1990) was used as the Total Reading Attitude score, and this was an interval-level variable. Students respond to the 20 items from the Total Reading Attitude scale using a four-point Likert scale ranging from 4 = *love it* to 1 = *don't like it*.

### **Data Collection, Processing, and Analysis**

**Data collection.** Prior to collecting data for this study, Institutional Review Board permission was granted. Students completed an assent form and informed consent statements were completed by the parents of all of the participating students prior to accessing DIBELS test data or distributing the Elementary Reading Attitudes Survey. At the beginning of the school year, prior to participation in the Corrective Reading Program, students were assessed using the DIBELS, and completed the pretest ERAS assessment. The researcher administered the ERAS to the whole group and read each question. The DIBELS assessment was conducted on an individual basis. The researcher administered the DIBELS assessment. The ERAS, as described above, consisted of Likert scale questions and were relatively easy to score. The researcher has extensive experience using the DIBELS and administered and scored these tests. The researcher has been administering and scoring the DIBELS for 10 years. The researcher underwent 20 hours of training by a DIBELS professional who was certified in training teachers on administering and scoring DIBELS. At the end of December, when the students in the Corrective Reading Program had completed the program all students were assessed using the DIBELS and completed the ERAS assessment. The results were recorded in the database for this study.

**Data processing.** The DIBELS results were sent to the University of Oregon where a free scoring service is available. The ERAS was scored and the results were documented on the ERAS scoring sheet (shown in Appendix C) for each student, and subsequently entered into the database for this study. The DIBELS was scored and the results were entered into the database for this study. After the data were assembled, an

SPSS spreadsheet was created, and SPSS was used for all statistical analyses. The data for group membership (i.e., special education student or non-special education student), DIBELS and ERAS scores were entered into the SPSS spreadsheet.

**Data analysis.** Data were analyzed based on the type of questions or hypotheses and the appropriate statistical tests were used to address the questions or hypothesis (Creswell & Plano Clark, 2007). Statistical analyses were performed using Version 19.0 of SPSS (SPSS, Inc., 2011). Both descriptive and inferential statistical analyses were performed. Initially, descriptive statistics were computed for all study variables including frequencies and percentages for categorical variables and ranges, means, and standard deviations for the dependent variables (Phonological Awareness and Total Reading Attitudes). In addition, internal consistency reliability coefficients were computed for the Total Reading Attitudes scores and Phonological Awareness scores. In order to test the assumption of normality required for the use of the parametric independent samples *t*-test analyses, the normality of the distributions of the Phonological Awareness and Reading Attitudes scores were examined by computing skewness and kurtosis values and performing the Kolmogorov-Smirnov test of normality on the two pretest/posttest difference scores.

Inferential analyses were then conducted to test the two null hypotheses of this study. An alpha level of .05 and two-tailed test was used. The first null hypothesis of this study was: There is no difference in the effectiveness of the Corrective Reading Program for special education students and non-special education students in terms of phonological awareness improvements. To test this null hypothesis, an independent samples *t* test was planned with DIBELS Phonological Awareness pretest/posttest

difference scores as the dependent variable and group membership (special education and non-special education) as the independent variable

The second null hypothesis was: There is no difference in the effectiveness of the Corrective Reading Program for special education students and non-special education students in terms academic reading attitude improvements. To test this null hypothesis, an independent samples *t* test was planned with ERAS Reading Attitudes pretest/posttest difference scores as the dependent variable and group membership (special education and non-special education) as the independent variable.

### **Assumptions**

The group was defined in this study as either special education or non-special education, which results in mutually exclusive grouping. However, it is possible that some students in the non-special education group would have qualified for special education under some circumstances or if tested. It is also possible that some students in the special education group would have been at-risk for reading failure even if they were not receiving special education services. That is, the grouping of the students into the two groups in this study was not perfect, and students in the two groups shared some characteristics. Nevertheless, these groupings are used throughout the United States to determine program placement and disability services, so an increased understanding of the effectiveness of the Corrective Reading Program for these two groups provides valuable information to educators and administrators.

### **Limitations**

Limitations are threats to the internal validity of a study. The students' assessments for the DIBELS were sent to the University of Oregon for scoring. The test

publishers maintain a database used for scoring the DIBELS and offers scoring service for a fee. The results of this assessment are considered valid under standard testing conditions, within the limits of the instrument(s) utilized. Test limitations may result in bias due to cultural, economic, environmental, or behavioral factors. Any deficits shown in this evaluation were not considered to be the result of such bias nor would they explain the severity of phonological delays. In addition, it is possible that the students in this sample did not respond accurately or honestly to the items on the ERAS, although past research has shown the scores to be valid indicators of students' attitudes toward (McKenna & Kear, 1990). Finally, the sample size in this study of 125 was slightly below the target sample size of 128. In addition, the target sample size of 128 was computed assuming equal sample sizes, which maximizes power. The uneven distribution of participants in the two groups and the fact that three fewer participants were included than was planned indicate that power was below the .80 target. This introduces an increased likelihood of a Type II error. However, none of the statistical significance tests for the null hypotheses of this study were non-significant but close to the .05 alpha level, indicating that a few additional participants or a more equal distribution of participants across groups is unlikely to have altered the conclusions from this study.

### **Delimitations**

Delimitations refer to threats to the external validity, or generalizability, of the findings from a study. The current study employed Phonological Awareness scores from the DIBELS (Good & Kaminski, 2002) and reading attitudes scores from the ERAS (McKenna & Kear, 1990). The results from this study, based on those measures, may not



generalize to other measures of phonological awareness or reading attitudes. This study was based on 125 students from a single school district. Therefore, the results from this study may not generalize to other school districts or to the broader population of students in the third through fifth grades who are enrolled in the Corrective Reading Program. The extent to which the results from this study generalize to the broader population depends on the extent to which the sample selected in this study is representative of this population. This sample also may not have necessarily been representative of the population in terms of race or socio-economic status. This requires replications of this study at other schools before firm conclusions regarding the use of the Corrective Reading Program.

### **Ethical Assurances**

Ethical principles in the current study the study were demonstrated by following the three basic ethical principles: beneficence, autonomy, and justice. The first ethical principle is beneficence which refers to the need for research to maximize benefits and minimize any possible harmful effects of participation (Cozby, 2007). The benefits to the participants include educational enhancement and acquisitions of new skills.

The second ethical principle of which to be cognizant is respect of persons or autonomy. Cozby (2007) stated the main feature regarding autonomy, "The participants are treated as autonomous; they are capable of making deliberate decisions about whether to participate in research" (p. 42). Informed consent was collected from the parents of the students who participated in the study, informing them of the objectives of the study, the potential dangers and benefits and their rights to refuse or terminate participation.

Justice is the last ethical principle of which to be aware. Cozby (2007) highlighted the major component of justice, “The principle of justice addresses issues of fairness in receiving the benefits of research as well as bearing the burdens of accepting risks” (p. 50). Researchers need to confront issues of equity; and decisions to include or exclude certain participants from the research study, such as age, gender or other criteria must be justified on scientific principles (Cozby, 2007).

In the current study, integrity was demonstrated by adhering to the ethics codes of research which includes the selection process of participants. The IRB approval was sought and obtained prior to any data collection, and that informed consent was obtained from the participants’ parents and assent from the student participants was also be collected prior to the study. The research process and study complied with the federal regulations and the institutional review board to ensure the quality of the study and the safety of the participants.

### **Summary**

The current study was focused on investigating the effectiveness of the Corrective Reading Program for special education students and non-special education students who were at risk for academic failure. Chapter 3 contained a description of the methodology employed to address this topic. Chapter 3 also contained the selection of participants, demographics, research materials and instruments, a definition of variables, data collection, data analysis methods, methodological assumptions, limitations, delimitations, and ethical assurances.

In the current study, quantitative methodology was used to examine the effectiveness of the Corrective Reading Program for two groups of participants: those

who were involved with the Corrective Reading Program through special education services, and those who were involved with the Corrective Reading Program because they were at risk for academic failure (i.e., the non-special education group). The quantitative data included the results from the ERAS (McKenna & Kear, 1990), and the DIBELS (Good & Kaminski, 2002). Both descriptive and inferential statistical analyses were performed using Version 19.0 of SPSS (SPSS, Inc., 2011). The findings from this study are reported in Chapter 4.

## Chapter 4: Findings

The problem addressed in this study was that the differential effectiveness of the Corrective Reading Program, a direct instruction method based on the ITIP theory, for special education and non-special education students is unknown. It is important to determine whether direct instruction methods based on ITIP theory are applicable to both struggling readers who have a disability and struggling readers who do not have a disability. The purpose of this quantitative, quasi-experimental study was to determine if a direct instructional technique based on the ITIP theory is effective for both special education and non-special education students in terms of phonological awareness improvements and attitudes toward reading. Two research questions were addressed in this study:

**Q1.** Is there a difference in the effectiveness of the Corrective Reading Program for special education students and non-special education students in terms of phonological awareness improvements?

**Q2.** Is there a difference in the effectiveness of the Corrective Reading Program for special education students and non-special education students in terms of reading attitude improvements?

In this chapter, the results of the analyses performed to answer these two research questions are presented. Initially, the results from descriptive statistical analyses are presented. Then, the results for the two research questions are presented. The findings are then evaluated in the context of theoretical framework for this study and past literature. The chapter ends with a summary.

## Results

**Descriptive statistics.** Data for a total of 125 students were available for this study. Of these, 88 (70.4%) were nondisabled but at risk while 37 (29.6%) were disabled. Descriptive statistics for the sample demographic and background characteristics are shown in Table 1. The most common grade level for the participants was fourth grade, overall (48.0%), for the special education group (43.2%), and for the non-special education group (50.0%). The majority of the sample was male (56.8%). This was also true for the non-special education group (for which 63.6% were male) but not for the special education group (for which 59.5% were female). Racially, the majorities of the total sample (95.2%), the special education group (89.2%), and the non-special education group (97.7%) were White. The average age of the combined sample was 9.54 years old ( $SD = .94$  years old). The average ages of the two groups were similar at 9.59 years old for the special education group ( $SD = .99$ ) and 9.52 for the non-special education group ( $SD = .92$ ).

Descriptive statistics for the Phonological Awareness scores from the DIBELS (Good & Kaminski, 2002) and the Reading Attitudes scores from the ERAS (McKenna & Kear, 1990) are shown in Table 2 as a function of group membership. The dependent variables in this study were the pretest/posttest difference scores based on the posttest score minus the pretest score. For the Phonological Awareness scores, for the combined sample the average increased from 237.70 to 263.40 for an average gain of 25.70 points. The gain was slightly larger for the special education group (at 29.43 points) than for the non-special education group (at 24.12 points). For the total sample, Reading Attitudes scores increased from 50.44 to 52.78 for a gain of 2.34 points. These values were similar

for the two groups with an increase of 2.14 points for the special education group and 2.43 points for the non-special education group. These differences are examined for statistical significance in the next section.

Table 1

*Descriptive Statistics for the Demographic and Background Characteristics of the Sample (N = 125)*

Variable	Special Education ( <i>n</i> = 37)		No-Special Education ( <i>n</i> = 88)		Total Sample ( <i>N</i> = 95)	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
<b>Grade</b>						
Third	12	32.4	15	17.0	27	21.6
Fourth	16	43.2	44	50.0	60	48.0
Fifth	9	24.3	29	33.0	38	30.4
<b>Gender</b>						
Female	22	59.5	32	36.4	54	43.2
Male	15	40.5	56	63.6	71	56.8
<b>Race</b>						
African American	2	5.4	0	0.0	2	1.6
Hispanic	2	5.4	2	2.3	4	3.2
White	33	89.2	86	97.7	119	95.2
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Age	9.59	.99	9.52	.92	9.54	.94

Table 2

*Descriptive Statistics for the Dependent Variables (N = 125)*

Variable	Special Education ( <i>n</i> = 37)		No-Special Education ( <i>n</i> = 88)		Total Sample ( <i>N</i> = 95)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
<b>Phonological Awareness</b>						
Pretest	200.70	23.80	253.26	28.35	237.70	36.17
Posttest	230.14	20.41	277.39	22.01	263.40	30.50
Difference	29.43	9.11	24.12	9.68	25.70	9.78
<b>Reading Attitudes</b>						
Pretest	51.43	12.87	50.02	14.71	50.44	14.15
Posttest	53.57	13.86	52.45	14.78	52.78	14.47
Difference	2.14	2.62	2.43	2.47	2.34	2.51

**Research Question 1.** The first research question of this study was: Is there a difference in the effectiveness of the Corrective Reading Program for special education students and non-special education students in terms of phonological awareness improvements? The corresponding null hypothesis was:

**H<sub>10</sub>.** There is no difference in the effectiveness of the Corrective Reading Program for special education students and non-special education students in terms of phonological awareness improvements.

In order to test the assumption of normality required for the use of the parametric independent samples *t*-test analyses, the normality of the distributions of the Phonological

Awareness scores was examined by computing skewness and kurtosis values and performing the Kolmogorov-Smirnov test of normality on the two pretest/posttest difference scores. Table 3 shows the skewness and kurtosis values as well as the results from the Kolmogorov-Smirnov test. The skewness was .96 and the kurtosis was 1.55 indicating that the distribution of pretest/posttest difference scores was positively skewed and kurtotic. Consequently, the Kolmogorov-Smirnov test statistic was .10, which was statistically significant ( $p = .005$ ). Therefore, the assumption of normality was not met for the Phonological Awareness pretest/posttest difference scores. Consequently, a Mann-Whitney nonparametric  $U$ -test was performed in place of the planned independent samples  $t$ -test analysis.

Table 3

*Examination of Normality for the Dependent Variables (N = 125)*

Variable	Skewness	Kurtosis	Kolmogorov-Smirnov Statistic	$p$
Phonological Awareness Pretest/Posttest Difference Score	.96	1.55	.10	.005
Reading Attitudes Pretest/Posttest Difference Score	.65	2.86	.09	.014

Figure 1 shows a pyramid graph of Phonological Awareness pretest/posttest difference scores as a function of group (special education versus non-special education). Distributions of the Phonological Awareness pretest/posttest difference scores were not similar, as assessed by visual inspection of the pyramid graph. The pretest/posttest difference scores tended to be higher for the special education group than for the non-



special education group. The Mann-Whitney  $U$ -test comparing the Phonological Awareness pretest/posttest difference scores between the special education group and the non-special education group was statistically significant according to the Mann-Whitney  $U$  test,  $U = 1,046.50$ ,  $p = .002$ ,  $r^2 = .08$ . Based on the statistically significant Mann-Whitney  $U$ -test, the first null hypothesis of this study was rejected, and it was concluded that there was a difference in the effectiveness of the Corrective Reading Program for special education students and non-special education students in terms phonological awareness improvements. Based on the means in Table 2, it was concluded that the gains in Phonological Awareness scores were larger for the special education group (mean rank = 78.72) than for the non-special education group (mean rank = 56.39).

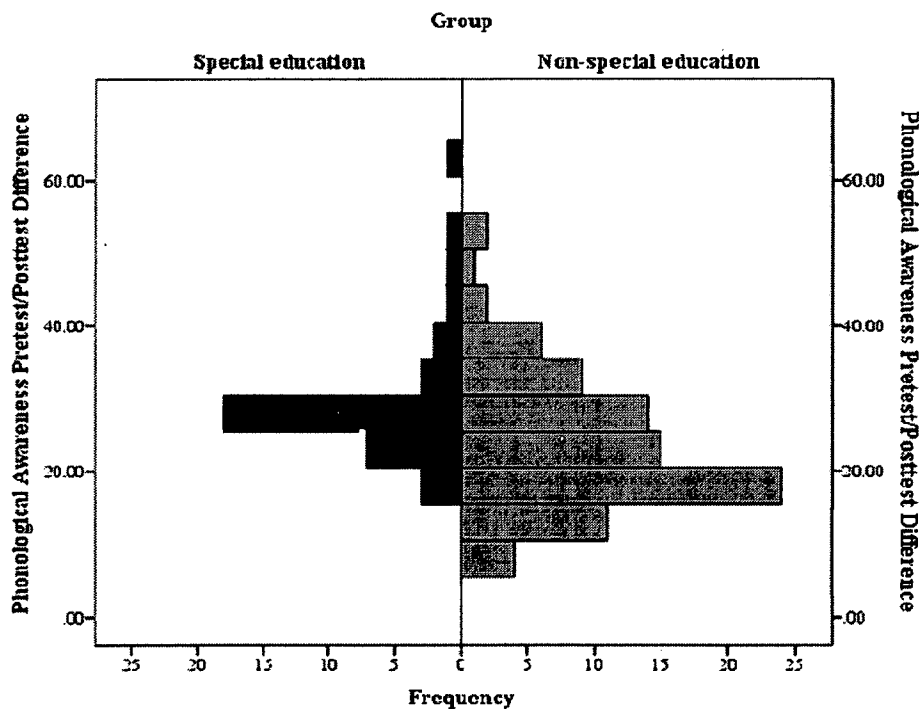


Figure 1. Pyramid graph of Phonological Awareness pretest/posttest difference scores as a function of group

**Research Question 2.** The second research question was: Is there a difference in the effectiveness of the Corrective Reading Program for special education students and non-special education students in terms of reading attitude improvements? The null hypothesis for this research question was:

**H2<sub>0</sub>.** There is no difference in the effectiveness of the Corrective Reading Program for special education students and non-special education students in terms reading attitude improvements.

For Reading Attitudes pretest/posttest difference scores, the skewness was .65 while the kurtosis was 2.86 indicating slight positive skewness and substantial kurtosis. Consequently, the Kolmogorov-Smirnov statistic was .09 ( $p = .014$ ). The statistically significant Kolmogorov-Smirnov statistic indicated that the assumption of normality was not met for the Reading Attitudes pretest/posttest difference scores. Based on the non-normality of this distribution, a nonparametric Mann-Whitney  $U$ -test was used to compare the Reading Attitudes pretest/posttest difference scores between the two groups to test the first null hypothesis of this study.

Figure 2 shows a pyramid graph of Reading Attitudes pretest/posttest difference scores as a function of group (special education versus non-special education). Distributions of the Reading Attitudes pretest/posttest difference scores were similar, as assessed by visual inspection of the pyramid graph. The Mann-Whitney  $U$ -test was not statistically significant,  $U = 1,480.00$ ,  $p = .419$ ,  $r^2 = .01$ . This indicated that the second null hypothesis of this study was not rejected. Therefore, it was concluded that there was no difference in the effectiveness of the Corrective Reading Program for special

education students (mean rank = 59.00) and non-special education students (mean rank = 64.68) in terms reading attitudes improvements.

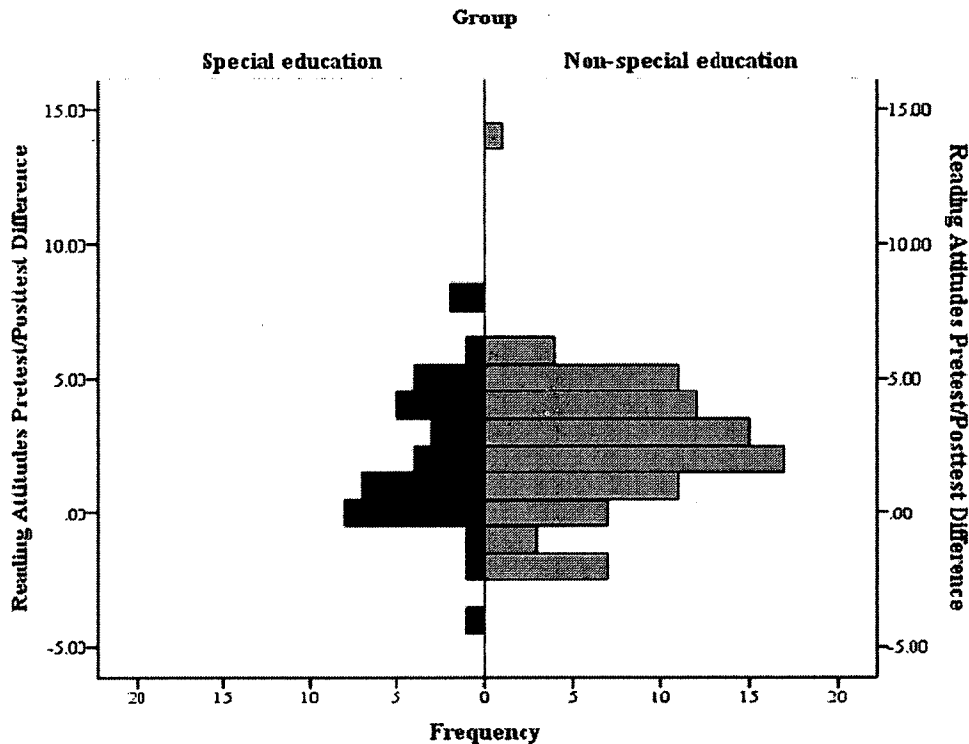


Figure 2. Pyramid graph of Reading Attitudes pretest/posttest difference scores as a function of group

### Evaluation of Findings

The first research question of this study was: Is there a difference in the effectiveness of the Corrective Reading Program for special education students and non-special education students in terms of phonological awareness improvements? It was concluded that there was a difference in the effectiveness of the Corrective Reading Program for special education students and non-special education students in terms phonological awareness improvements, with larger gains in Phonological Awareness scores for the special education group than for the non-special education group. The

effect size for this effect was  $r^2 = .08$  which is a medium effect as defined by Cohen (1992).

The second research question was: Is there a difference in the effectiveness of the Corrective Reading Program for special education students and non-special education students in terms of reading attitude improvements? The results indicated that there was no difference in the effectiveness of the Corrective Reading Program for special education students and non-special education students in terms reading attitudes improvements. In this section, these two conclusions are discussed in light of the theoretical framework for this study and in the context of past research.

**Findings in light of theory.** The theoretical framework for this study, presented in Chapter 1, was Hunter's (1993, 1994) ITIP model. This model forms the basis for the direct instruction model of education. According to ITIP theory, seven components are required for successful direct instruction: (a) well-defined and appropriate learning objectives, (b) an anticipatory set in which the students are introduced to the topic by relating the topic to prior knowledge, (c) sharing the lesson objectives with the students so that students will know what it is that they are supposed to learn, (d) presentation of the primary skills and concepts (referred to as the input), (e) checking the students' understanding, (f) providing the opportunity for guided practice, and (g) providing the opportunity for independent study. The Corrective Reading Program examined in the current study was based on the method of direct instruction.

One of the primary motivations for the current study was to test the applicability of a direct instruction method based on ITIP theory with two distinct groups of students: special education students and non-special education students. This was important

because there is some question regarding whether or not direct instruction methods are appropriate for all types of students (Cicciarelli, 2007). Thus, in addition to an applied test of the Corrective Reading Program, the current study was performed as a test of the ITIP theory in that a direct instruction method based in ITIP was examined with two different types of students (i.e., special education students and non-special education students) in order to test the generality of the ITIP theory.

The results from this study indicated that there was a statistically significant difference in the effectiveness of the Corrective Reading Program for special education students and non-special education students in terms of phonological awareness improvements. Whether this represents a meaningful difference in the comparison of the two groups is a subjective question, but a difference of more than 5 points (which is over one-half of a standard deviation of the pretest/posttest difference scores) may have practical significance. In addition, the effect size for this effect was  $r^2 = .08$  which is a medium effect according to Cohen (1992). Thus, it was concluded that there were somewhat larger gains in Phonological Awareness scores for the special education group than for the non-special education group. This finding provides relevant information to the debate between those who support direct instructional approaches such as Leno and Daugherty (2007) and Skjold et al. (2010) and those who question their generality such as Cicciarelli (2007). The results from this study indicated that there were gains for both special education students and non-special education students, and that the difference in the mean gain for the two groups was statistically significant, with the group of disabled students having a higher mean gain score. Thus, in the context of ITIP theory, it appears that direct instruction can be effective with at least two groups of students (supporting the

views of Leno and Daugherty and Skjold et al.), but is perhaps more effective with some types than others (supporting the views of Cicciarelli).

**Findings in the context of past research.** The Corrective Reading Program has been examined in past research on reading instruction. For example, Hempenstall (2008) found that the Corrective Reading Program produced larger gains among regular education elementary school students than traditional reading instruction in phonological awareness. Researchers have also found that the Corrective Reading Program can have positive effects on students' attitude toward reading (Kaniuka, 2010). In the current study, the goal was to explore differences in the ability of the Corrective Reading Program to produce gains in these two areas (phonological awareness and attitudes toward reading) between special education students and non-special education students.

The results from the current study indicated that there were differences between the two groups in terms of gains in phonological awareness but not for attitudes toward reading. For phonological awareness, the results showed that the special education students improved more than the non-special education students. No prior studies had directly compared these two groups. The results showed that the Corrective Reading Program can be effective with student groups other than those in regular education programs (i.e., the special education students in this study).

Some past researchers have supported direct instructional approaches such as Leno and Daugherty (2007) and Skjold et al. (2010). Others have noted that direct instructional approaches are not useful for all types of students (Cicciarelli, 2007). In the current study, the results indicated that there were gains for both special education students and non-special education students. However, the gains were larger for the

special education students. Based on these results, it was concluded that the direct instruction approach included in this study was effective with special education students and non-special education students, supporting the views of Leno and Daugherty (2007) and Skjold et al. (2010), but was more effective with some types than others, supporting the views of Cicciarelli (2007).

Past researchers have demonstrated that one of the key determinants of reading ability is a student's attitude toward reading (Kaniuka, 2010; Petscher, 2009). According to the results from a meta-analysis performed by Petscher (2009), these studies have demonstrated that students who have more positive attitudes toward reading have higher levels of reading achievement. Researchers examining the effects of the Corrective Reading Program have shown that the program can have positive effects on students' attitude toward reading (Kaniuka, 2010). In the current study, the results showed that there was no difference in the non-special education students and special education students in terms of attitude changes from the beginning of the study to the end. As discussed in the next chapter, it may also be the case that the relatively short time frame examined in the current study (i.e., 3 to 4 months) was not sufficient for differences in reading attitudes to emerge.

### **Summary**

The results from this study were presented in this chapter. The first research question of this study was: Is there a difference in the effectiveness of the Corrective Reading Program for special education students and non-special education students in terms of phonological awareness improvements? The results showed that the gains in Phonological Awareness scores were larger for the special education students than the

non-special education students. The second research question was: Is there a difference in the effectiveness of the Corrective Reading Program for special education students and non-special education students in terms of reading attitude improvements? The results showed that there was no difference in the effectiveness of the Corrective Reading Program for special education students and non-special education students in terms reading attitudes improvements.

The results from this study were supportive of Hunter's (1993, 1994) ITIP model because of the effectiveness of the Corrective Reading Program as a method of direct instruction. This was consistent with the findings from Leno and Daugherty (2007) and Skjold et al. (2010) who have recommended the direct instruction approach, but also supportive of Cicciarelli (2011) who questioned whether or not methods of direct instruction would work equally well with all students. The results from this study were also consistent with the findings from Hempenstall (2008) and Kaniuka (2010) who found that the Corrective Reading Program was effective in producing gains in phonological awareness and attitudes toward reading, respectively. In the next chapter, these results are further discussed and the implications of the findings are presented. In addition, recommendations for future research and educational practice are offered.



## **Chapter 5: Implications, Recommendations, and Conclusions**

The problem addressed in this study stemmed from the number of American children who experience difficulty learning to read (Cheesman et al., 2009). Improving reading skills has become a national priority, but the debate of how reading should be taught continues to be a topic on which researchers and panels of experts cannot agree (Croninger & Valli, 2009). Many American children experience difficulty learning to read (Cheesman et al., 2009; Croninger & Valli, 2009). Reading is essential for success in school and in life, and when students do not have appropriate reading skills, the effects are felt not only in school, but also within their community and society (Burke et al., 2009).

Direct instruction, based on Hunter's (1993, 1994) ITIP model, may provide a tool through which struggling readers can be helped, as direct instruction methods have been shown to be effective in promoting student learning (Leno & Daugherty, 2007; Skjold et al., 2010). However, direct instruction methods based on ITIP theory are not applicable to all types of students (Cicciarelli, 2007). Therefore, it is important to determine whether direct instruction methods based on ITIP theory are applicable to both struggling readers who have a disability (i.e., the special education students in this study) and struggling readers who do not have a disability (i.e., the non-special education students in this study). Consequently, the purpose of this quantitative, quasi-experimental study was to determine if a direct instructional technique based on the ITIP model was effective for both special education and non-special education students in terms of phonological awareness improvements and attitudes toward reading.

The limitations of the study included survey administration, researcher bias, and test bias. The first was the assumption that the administration of the survey would follow the protocol of administering the survey and the implementation of accommodations required by students with disabilities' IEPs to make certain the appropriate access to the survey. I am a certificated teacher with a Master's degree in Special Education with training background that includes extensive preparation and guidance in working individually with students with disabilities. I have spent 7 years working directly with students identified with varying disabilities, including students with specific learning disabilities. Therefore, the assumption that the survey was administered following the recommended protocol appears to have been met. Some students may not have been able to comprehend some of the survey items in part or in whole. The interpretations of the participants' responses may not be a true reflection of how the participant really felt. The second limitation was researcher bias meaning that the person administering the survey can have an influence on participants' responses. To reduce this potential problem, precautions were taken to minimize any personal beliefs and assumptions in regards to reading attitudes and any personal bias towards the participants. To minimize this concern, efforts were taken to maintain a professional environment and to stay impartial towards all the participants. Test limitations may result in bias due to cultural differences, different geographic locations, socio-economic, environmental, gender, or behavioral factors.

A potential limitation of this study was the sample size. The sample size in this study of 125 was below the required sample size dictated by the power analysis of 128. Furthermore, the target sample size of 128 is correct assuming equal sample sizes for the

two groups, which was not achieved. The uneven distribution of participants in the two groups and the fact that three fewer participants were included than was planned indicate that power was below the .80 target. It is possible that this would result in a Type II error. However, neither of the statistical significance tests for the null hypotheses of this study was non-significant but close to the .05 alpha level. Therefore, it is unlikely that a few additional participants or a more equal distribution of participants across groups would have altered the conclusions from this study.

The study was in compliance with all ethical standards for conducting research. The following procedures were put into place for the insurance of ethical consideration of all the participants in the study. In this study there was no risk to the children. The phonological assessment tool (*DIBELS*) was already being implemented at the school as a screening process to determine student's phonological deficits (see Appendix A). The completion of the ERAS was voluntary (see appendix B) and parent permission was granted prior to administering the survey. The students' responses were kept confidential and have not been and will not be submitted to the school district for review. The participants' data gathered during the study were destroyed after the study was completed and the identity or schools has not been and will not be communicated to anyone or any organizations.

In the next section of this chapter, the research questions are summarized and discussed. In addition, there is a discussion of the potential limitation that may have affected the interpretation of the results and findings that may have occurred during the research process. Prior to summarizing this chapter, recommendations for practical applications of the results and future research are presented.

## **Implications**

The findings in the study provided relevant information to the debate between those who support direct instructional approaches such as Leno and Daugherty (2007) and Skjold et al. (2010) and those who question the generality of these approaches such as Cicciarelli (2007). The results from this study indicated that there were gains for both special education students and non-special education students, but that the gains were larger for the special education students. Thus, in the context of ITIP theory, it appears that direct instruction can be effective with special education students and non-special education students, supporting the views of Leno and Daugherty (2007) and Skjold et al. (2010), but are perhaps more effective with some types than others, supporting the views of Cicciarelli (2007).

**Research Question 1.** The first research question of this study was: Is there a difference in the effectiveness of the Corrective Reading Program for special education students and non-special education students in terms of phonological awareness improvements? The corresponding null hypothesis was:

**H1<sub>0</sub>.** There is no difference in the effectiveness of the Corrective Reading Program for special education students and non-special education students in terms of phonological awareness improvements.

This specific question was addressed by using the data acquired from the DIBELS assessment tool. The result based upon the Mann-Whitney *U*-test comparing the Phonological Awareness pretest/posttest difference scores between the special education group and the non-special education group was statistically significant. Therefore, the first null hypothesis of this study was rejected and it was concluded that there was a

difference in the effectiveness of the Corrective Reading Program between special education students and non-special education students in terms phonological awareness improvements. Based on the means in Table 2, it was concluded that the gains in Phonological Awareness scores were larger for the special education students than for the non-special education students.

The effect size for this effect was  $r^2 = .08$  which is a medium effect according to Cohen (1992). For the special education group, scores on the Phonological Awareness scale increased from 200.70 to 230.14 for a mean difference of 29.43, while for the non-special education group the scores increased from 253.26 to 277.39 for a mean difference of 24.12. Thus, increase in scores from the pretest to the posttest was substantially larger for the special education group (29.43) than for the non-special education group (24.12). Whether this represents a meaningful difference in the comparison of the two groups is a subjective question, but a difference of more than 5 points (which is over one-half of a standard deviation) would appear to be important in the context of trying to improve students' Phonological Awareness scores.

The findings that are associated with this research question are supported by previous studies. The results showed that the Corrective Reading Program could be effective with student groups other than those in regular education programs (i.e., the disabled students in this study). Thus, in the context of ITIP theory, it appears that direct instruction can be effective with at least two types of students as would have been predicted by Leno and Daugherty (2008) and Skjold et al. (2010), but are more effective with some types than others as would have been predicted by Cicciarelli (2007). In this

particular case, the special education students benefited the most with the use of the Corrective Reading Program.

**Research Question 2.** The second research question was: Is there a difference in the effectiveness of the Corrective Reading Program for special education students and non-special education students in terms of reading attitude improvements? The null hypothesis for this research question was:

**H<sub>2o</sub>.** There is no difference in the effectiveness of the Corrective Reading Program for special education students and non-special education students in terms reading attitude improvements.

This research question was addressed using survey data collected from the ERAS. The Mann-Whitney *U*-test was not statistically significant. This indicated that the second null hypothesis of this study was not rejected. Therefore, it was concluded that there was no difference in the effectiveness of the Corrective Reading Program for special education students and non-special education students in terms reading attitudes improvements.

Prior research studies indicated that reading attitudes would increase through the Corrective Reading Program. Specifically, researchers have found that the Corrective Reading Program can have positive effects on students' attitude toward reading (Kaniuka, 2010). However, present findings indicated that the participants reading attitude did not show significant improvements. Overall, the results suggested that participants in this study attitude towards reading did not change from the pretest to the posttest.

**Interpretation of results in the context of the purpose of the study.** The results of this study provided evidence of improvement of participants' reading skills and

supported the purpose of this study in that it tested the applicability of a direct instruction method based on ITIP theory with two distinct groups of students (special education students and non-special education students). The results from this study provided evidence that the Corrective Reading Program is effective in teaching reading to struggling readers. The results showed that the gains in Phonological Awareness scores were larger for the special education group than for the non-special education group. However, results for the second research question did not show a difference in the participants reading attitudes. The results showed that there was no difference in the effectiveness of the Corrective Reading Program for special education students and non-special education students in terms reading attitudes improvements.

The significance of this study resulted in support of the effectiveness of the Corrective Reading Program for special education students and non-special education students in terms of phonological awareness improvements. The significance of the study is in the implications it has for implementing the Corrective Reading Program as a reading intervention to teach struggling readers. Hempenstall (2008) offered evidence that the Corrective Reading Program made an impact on students' reading abilities, especially in the area of phonologically related processes. The results from the current study supported Hempenstall's finding by indicating the Corrective Reading Program can improve students' phonological awareness skills.

However, the study's findings are not consistent with other studies conducted in regards to reading attitudes. One of the key determinants of reading ability is a student's attitude toward reading (Kaniuka, 2010; Petscher, 2009). Numerous studies have indicated that students who have more positive attitudes toward reading have higher

levels of reading achievement, as summarized in a meta-analysis performed by Petscher (2009). Theoretical arguments, primarily revolving around the affective role of reading attitude in determining reading ability, have also been offered (Kaniuka, 2010). Research has shown that the Corrective Reading Program can have positive effects on students' attitude toward reading (Kaniuka, 2010). This study does not indicate that the non-special education students and special education students attitude changes from the beginning of the study to the end. There may be other factors affecting and contributing to the reading attitudes of struggling readers that are not addressed through the Corrective Reading Program. It may also be the case that the relatively short time frame examined in the current study (i.e., 3 to 4 months) may not have been a sufficient amount of time for reading intervention to have a significant impact on reading attitudes scores.

### **Recommendations**

The purpose of this quantitative, quasi-experimental study was to determine if a direct instructional technique based on the ITIP theory is effective for both special education and non-special education students in terms of phonological awareness improvements and attitudes toward reading. In this section, recommendations for educational practice based on the results from this study are presented. In addition, recommendations for future research are presented in this following section.

**Recommendations for educational practice.** It is recommended that the Corrective Reading Program be considered as a reading intervention to use with struggling readers. The field of education has a long-standing tradition of excellence in reading research, but it is often the case that the findings from educational research are not implemented in the classroom when selecting a curriculum or models of instruction



(Przychodzin-Havis et al., 2005). There is a substantial federal focus on accountability in education involving the quality of educators, the type of instruction, the best way to develop a curriculum, and other areas. This has been accompanied by a call for the use of research-based programs that have proven effective through scientifically-conducted research, and schools are required to evaluate their implemented curriculum and models of instruction. The Corrective Reading Program is one particular model of instruction that has been peer-reviewed and researched and is a scientifically-validated program for struggling readers. The results from this study provide preliminary evidence that the Corrective Reading program could be used for struggling readers, particularly for those with disabilities, but future research will be required before this can be recommended.

No statistically significant differences were found in reading attitudes between non-special education students and special education students. Even though the findings were not conclusive regarding the possible relationship in the effectiveness of the Corrective Reading Program for special education students and non-special education students in terms of their reading attitudes improvements, the study did support the findings of McKenna and Kear (1990). McKenna and Kear included 522 learning disabled and non-learning disabled students in first through fifth grade. Using the ERAS, the authors concluded that there were no significant differences in the reading attitudes of students diagnosed with learning disabilities and those of students who were not diagnosed with learning disabilities. Despite the consistency in this finding between the current study and past research, additional research should be performed before it can be concluded that the use of the Corrective Reading Program does not affect reading attitudes as discussed in the next section.

**Recommendations for future research.** Researchers may want to focus on a specific group (e.g., students with disabilities) rather than using two subgroups (e.g., students with disabilities and students without disabilities) because it may provide a more comprehensive picture of the specific factors that influenced the effectiveness of the Corrective Reading Program with individual groups of students. For example, the special education students differed greatly from the non-special education students indicating that future researchers should consider these groups separately rather than including two groups for the purpose of comparing them. Focusing on one group may allow for more detailed conclusions to be drawn.

One of the key determinants of reading ability is a student's attitude toward reading. Numerous studies have indicated that students who have more positive attitudes toward reading have higher levels of reading achievement, as summarized in a meta-analysis performed by Petscher (2009). Although this study did not find a significant increase in the participants' reading attitude, further research could be conducted on reading attitude changes in the Corrective Reading Program. The study used the ERAS, but adding an interview component may have provided further information on why the participants responded the way they did. In addition, some of the special education participants may not have fully understood the ERAS questions and incorporating an interview component in future research may produce different results.

Further studies of reading attitudes and specific reasons of why the participants answered the way they did would be beneficial. In previous studies, researchers have supported the idea that if children had a positive reading attitude their reading skills were higher. But, in this research study, the participants reading attitudes did not change

despite the fact that there was evidence with the special education participants that their phonological skills improved. Therefore, isolating specific reasons of why the students' responded that way could also be helpful of why their reading attitudes did not change.

### **Conclusion**

The purpose of this quantitative, quasi-experimental study was to determine if a direct instructional technique based on the instructional theory into practice model was effective for both special education and non-special education students in terms of phonological awareness improvements and attitudes toward reading. Educators should be mindful of the approaches and instruction methods of teaching reading to all the diverse populations of learners. Incorporating a specific reading instruction that could address specific reading deficiencies would provide an intentional reading lesson to the struggling readers. Educators need to be attentive of the needs of both non-special education students and special education students when planning the lesson, executing the lesson, and interacting with the students to offer the most effective reading lesson.

The research study revealed that non-special education students and special education students improved in the area of phonological awareness when using the Corrective Reading Program. However, there were larger gains in Phonological Awareness scores for the special education group than for the non-special education group. This finding provides relevant information to the debate between those who support direct instructional approaches such as Leno and Daugherty (2007) and Skjold et al. (2010) and those who question their generality such as Cicciarelli (2007). The results from this study indicated that there were gains for both special education students and non-special education students, but that the gains were larger for the special education

students. Thus, in the context of ITIP theory, it appears that direct instruction can be effective with a variety of types of students (supporting the views of Leno and Daugherty and Skjold et al.), but are perhaps more effective with some types than others (supporting the views of Cicciarelli). However, pre-test to post-test differences in reading attitude were not statistical significant for either group. There may have been some contributing factors in regards to the results, such as my special education participants not understanding the questions. The recommendations are to continue researching the Effective of the Corrective Reading Program and examining reading attitudes.

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## Appendix

## Appendix A:

## Dynamic Indicator of Basic Literacy Skills

**DIBELS® Phoneme Segmentation Fluency***Short Form Directions*

Make sure you have reviewed the long form of the directions in the *DIBELS Administration and Scoring Guide* and have them available.

Say these specific directions to the student:

***I am going to say a word. After I say it, you tell me all the sounds in the word. So, if I say, “sam,” you would say /s/ /a/ /m/. Let’s try one (one-second pause). Tell me the sounds in “mop.”***

**CORRECT RESPONSE:**

If student says /m/ /o/ /p/, you say

**INCORRECT RESPONSE:**

If student gives any other response, you say

***Very good. The sounds in “mop” are /m/ /o/ /p/.***

***The sounds in “mop” are /m/ /o/ /p/. Your turn. Tell me the sounds in “mop.”***

***OK. Here is your first word.***

Give the student the first word and start your stopwatch.

## Progress Monitoring 2

## Phoneme Segmentation Fluency

dreams /d/ /r/ /ea/ /m/ /z/ year /y/ /ea/ /r/ \_\_\_/8

match /m/ /a/ /ch/ /s/ /ir/ \_\_\_/5

meet /m/ /ea/ /t/ yours /y/ /or/ /z/ \_\_\_/6

kiss /k/ /i/ /s/ stones /s/ /t/ /oa/ /n/ /z/ \_\_\_/8

lived /l/ /i/ /v/ /d/ fell /f/ /e/ /l/ \_\_\_/7

guess /g/ /e/ /s/ storm /s/ /t/ /or/ /m/ \_\_\_/7

mind /m/ /ie/ /n/ /d/ nor /n/ /or/ \_\_\_/6

known /n/ /oa/ /n/ showed /sh/ /oa/ /d/ \_\_\_/6

pushed /p/ /uu/ /sh/ /t/ say /s/ /ai/ \_\_\_/6

at /a/ /t/ bag /b/ /a/ /g/ \_\_\_/5

fish /f/ /i/ /sh/ low /l/ /oa/ \_\_\_/5

least /l/ /ea/ /s/ /t/ seem /s/ /ea/ /m/ \_\_\_/7

Total: \_\_\_

Error Pattern:

**DIBELS® Nonsense Word Fluency***Short Form Directions*

Make sure you have reviewed the long form of the directions in the *DIBELS Administration and Scoring Guide* and have them available.

Say these specific directions to the student:

**Look at this word** (point to the first word on the practice probe). **It's a make-believe word. Watch me read the word: /s/ /i/ /m/, "sim"** (point to each letter then run your finger fast beneath the whole word). **I can say the sounds of the letters, /s/ /i/ /m/** (point to each letter), **or I can read the whole word, "sim"** (run your finger fast beneath the whole word).

**Your turn to read a make-believe word. Read this word the best you can** (point to the word "lut"). **Make sure you say any sounds you know.**

**CORRECT RESPONSE:**

If the child responds "lut"  
or with some or all of the  
sounds, say

**INCORRECT OR NO RESPONSE:**

If the child does not respond within 3 seconds or  
responds incorrectly, say

**That's right. The sounds are /l/ /u/ /t/ or "lut."**

**Remember, you can say the sounds or you can say the whole word. Watch me: the sounds are /l/ /u/ /t/** (point to each letter) **or "lut"** (run your finger fast beneath the whole word). **Let's try again. Read this word the best you can** (point to the word "lut").

Place the student copy of the probe in front of the child.

**Here are some more make-believe words** (point to the student probe). **Start here** (point to the first word) **and go across the page** (point across the page). **When I say, "Begin," read the words the best you can. Point to each letter and tell me the sound or read the whole word. Read the words the best you can. Put your finger on the first word. Ready, begin.** Start your stopwatch.

**Benchmark 1****DIBELS® Nonsense Word Fluency**

vogtelutvovlac \_\_/14

zekrokenzubpez \_\_/14

ivligfafwelkoz \_\_/14

womjopdaveglaf\_\_/14

kizfomimfoskuj\_\_/14

zabyomwujsedkib\_\_/15

tamwabjuzazzul\_\_/14

vepnejyegbokbov\_\_/15

apbejyazlivpem\_\_/14

lekdunsojebmeb\_\_/14

Total correct letter sounds (CLS): \_\_\_\_\_

Total words recoded completely and correctly (WRC): \_\_\_\_\_

Error Pattern:

### **DIBELS® Letter Naming Fluency**

#### *Short Form Directions*

Make sure you have reviewed the long form of the directions in the *DIBELS Administration and Scoring Guide* and have them available.

Say these specific directions to the student:

***Here are some letters*** (point to the student probe). ***Tell me the names of as many letters as you can. When I say, "Begin," start here*** (point to first letter), ***and go across the page*** (point). ***Point to each letter and tell me the name of that letter. If you come to a letter you don't know I'll tell it to you. Put your finger on the first letter. Ready, begin.***

#### **Benchmark K.2**

#### **DIBELS® Letter Naming Fluency**

SlunsXkUxi

lDHhTcrDgt

uanrUwCMJi

nqRmtXORBF

sdlldwafEFW

XmzcjCQISb

kJBOWhqKso

UNbVvkpgpA

xMAZLuKGeV

iYYNPGTjQy

LvfISlunsX

Total: \_\_\_\_\_



Appendix B:  
Elementary Reading Attitudes Scale

**Elementary Reading Attitude Survey  
Scoring Sheet**

Test Administrator name \_\_\_\_\_

Student \_\_\_\_\_

Grade Level \_\_\_\_\_ Date of Administration \_\_\_\_\_

Scoring Guide	
4 points	Happiest face
3 points	Slightly smiling face
2 points	Mildly upset face
1 point	Very upset face

















Recreational Reading		Academic Reading	
Test Item Number	Number of Points	Test Item Number	Number of Points
1.		11.	
2.		12.	
3.		13.	
4.		14.	
5.		15.	
6.		16.	
7.		17.	
8.		18.	
9.		19.	
10.		20.	
<b>Raw Score</b>		<b>Raw Score</b>	
<b>Full Scale Raw Score (Recreational + Academic) =</b>			
<b>Percentile Ranks</b>		<b>Recreational</b>	
<b>NOTE: Divide raw score by 80 to determine percent.</b>		<b>Academic</b>	
		<b>Full Scale</b>	

















Appendix C:

Elementary Reading Attitudes Scoring Sheet

ELEMENTARY READING ATTITUDE SURVEY

Student \_\_\_\_\_ Grade \_\_\_\_\_

1. How do you feel when you read a book on a rainy Saturday?			
			
Love it!	Like it.	Ho Hum..	Don't like it!
2. How do you feel when you read a book in school during free time?			
			
Love it!	Like it.	Ho Hum..	Don't like it!
3. How do you feel about reading for fun at home?			
			
Love it!	Like it.	Ho Hum..	Don't like it!
4. How do you feel about getting a book for a present?			
			
Love it!	Like it.	Ho Hum..	Don't like it!

9. How do you feel about going to a bookstore?			
			
Love it!	Like it.	Ho Hum..	Don't like it!
10. How do you feel about reading different kinds of books?			
			
Love it!	Like it.	Ho Hum..	Don't like it!
11. How do you feel when the teacher asks you questions about what you read?			
			
Love it!	Like it.	Ho Hum..	Don't like it!
12. How do you feel about doing reading workbook pages and worksheets?			
			
Love it!	Like it.	Ho Hum..	Don't like it!

## Appendix D:

## Informed Consent Form

## Examining the Effectiveness of the Corrective Reading Program for Special Education and Non-Special Education Students

*Purpose.* Your child is invited to participate in a research study being conducted for a dissertation at Northcentral University in Prescott, Arizona. The purposes of this study are (a) to determine the effectiveness of the Corrective Reading Program on special education and non-special education students in terms of phonological awareness improvements, and (b) to determine the effectiveness of the Corrective Reading Program on special education and non-special education students in terms of attitudes toward reading.

*Participation requirements.* At the beginning of the school year, prior to participation in the Corrective Reading Program, students will be assessed using the DIBELS, and will complete the pretest ERAS assessment. The Dynamic Indicators of Basic Early Literacy Skills (DIBELS) are a set of procedures and measures for assessing the acquisition of early literacy skills from kindergarten through sixth grade. They are short assessments to regularly monitor the development of early literacy and early reading skills. The Corrective Reading Program provides intensive, sustained direct instruction to address deficiencies in decoding and comprehension using specific materials and instruction. The Elementary Reading Attitude Survey provides measures on two important aspects of children's attitudes toward reading. The researcher will be administering the ERAS to the whole group and will read each question. The DIBELS assessment will be administered individually, and the researcher will administer the DIBELS assessment.

*Research Personnel.* The following people are involved in this research project and may be contacted at any time: Catherine McCutcheon 253-530-4671. Dr. Dana Cleghorn is the Dissertation Chair and her e-mail address is dcleghorn@ncu.edu.

*Potential Risk/ Discomfort.* Although there are minimal risks in this study, you may withdraw your child at any time.

*Potential Benefit.* The potential benefit of your child participating in this research is to see how much reading growth they make over a 12 week time period and share their attitudes toward reading. No incentives are offered. The results will have scientific interest that may eventually have benefits for special education students and non special education students.

*Anonymity/ Confidentiality.* The data collected in this study are confidential. All data are coded such that your child's name is not associated with them. In addition, the coded data are available only to the researchers associated with this project.

*Right to Withdraw.* You have the right to withdraw your child from the study at any time without penalty.

I would be happy to answer any question that may arise about the study. Please direct

your questions or comments to Catherine McCutcheon

**Signatures**

I have read the above description of the study and understand the conditions of my participation. My signature indicates that I agree for my child to participate in the study.

Participant's Name : \_\_\_\_\_ Researcher's Name: \_\_\_\_\_

Participant's Signature: \_\_\_\_\_ Researcher's Signature: \_\_\_\_\_

Parents' Name: \_\_\_\_\_ Parents' Signature: \_\_\_\_\_ Date: \_\_\_\_\_

\_\_\_\_\_