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An Analysis of Reading Skills Instruction Provided To Special and General Educators In Their Pre-Service and In-Service Teacher Education

Wendie Lappin Castillo

University of Nevada, Las Vegas, casti139@unlv.nevada.edu

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AN ANALYSIS OF READING SKILLS INSTRUCTION PROVIDED TO
SPECIAL AND GENERAL EDUCATORS IN THEIR PRE-SERVICE
AND IN-SERVICE TEACHER EDUCATION

By

Wendie Lappin Castillo

Bachelor of Science in Special Education
University of Nevada, Las Vegas
May 1997

Master of Education in Special Education
University of Nevada, Las Vegas
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College of Education
The Graduate College

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Wendie Lappin Castillo

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Doctor of Philosophy in Special Education
Department of Educational and Clinical Studies

Amanda Kyle Higgins, Ph.D., Committee Chair

Tom Pierce, Ph.D., Committee Member

Susan Miller, Ph.D., Committee Member

Richard Tandy, Ph.D., Graduate College Representative

Thomas Piechota, Ph.D., Interim Vice President for Research & Dean of the Graduate College

May 2013
ABSTRACT

An Analysis of Reading Skills Instruction Provided to Special and General Educators in Pre-service and In-Service Teacher Education

by Wendie Lappin Castillo

Dr. Kyle Higgins, Examination Committee Chair
Professor of Special Education
University of Nevada Las Vegas

More than half of all school-age children in the United States read below grade level (NCES, 2012a). Seventy-five percent of all special education referrals are due to poor reading skills (NCES, 2012b). The Office of Special Education and Rehabilitation Services reports that 50% or more of students with disabilities score at or below the 20th percentile on reading assessments (U.S. Department of Education, 2010). Once children fall behind in the acquisition of reading skills, intense intervention is needed to reach an adequate level of reading accuracy (Torgesen, 2008). Unfortunately, struggling readers lose practice time for each month and year they are behind, thus making it extremely difficult to improve their reading. (Torgesen, 2008). Parents, educators, and politicians continue to examine current reading instruction in schools.

In 1997, the National Institute of Child Health and Human Development formed the National Reading Panel (National Reading Panel, 2000). The panel consisted of professors, educators, and parents who reviewed over 100,000 research-based articles and reports. The purpose of the review was to identify the basic components necessary to teach reading (NRP, 2000). In 2000, the results of this study were published in the

National Reading Panel Teaching Children to Read: An Evidence-Based Assessment of the Scientific Research on Reading and Its Implications for Reading Instruction, Reports
of the Subgroups. From this assessment, the five big ideas of reading instruction were identified: (a) phonemic awareness, (b) phonics, (c) vocabulary, (d) fluency, and (e) comprehension (NRP, 2000).

The purpose of this study was to investigate the level of knowledge and type of reading instruction training received by general and special educators in their teacher education and in-service programs. Teachers currently enrolled in master level courses at 13 universities completed a questionnaire via a web link. The universities that participated were: University of Nevada Las Vegas, California State University Monterey Bay, California State University Fullerton, San Diego State University, Arizona State University, University of North Carolina Greensborough, University of Georgia, University of Massachusetts Amherst, Southern Connecticut State University, St. Cloud University, Emporia State University, Eastern Illinois University, and Wichita State University. Convenience sampling was used in the design of the study through the selection of universities. However, the teacher participants were representative of educators from rural, town, suburban, or city settings.

Results from the study indicated that special education teachers receive more reading skills instruction overall compared to general education teachers in their pre-service programs. Conversely, the data indicated similar outcomes for special and general education teachers during their in-service trainings. A need for improvement in reading skills instruction for special and general education teachers during their in-service trainings is needed.
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Mom with every ounce of my heart! We are going to conquer this cancer, there is no other alternative!

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Dedicated to my mom, my angel, my hero,

Dorothy Lappin Hall
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CHAPTER ONE

INTRODUCTION

More than half of school-age children in the United States read below grade level and 75% of all special education referrals are for poor reading skills (U.S. Department of Education, 2010). The Office of Special Education and Rehabilitation Services reports that 50% or more of students with disabilities score at or below the 20th percentile on reading assessments (U.S. Department of Education, 2010). Once children fall behind in the acquisition of reading skills, intense intervention is needed for them to reach an adequate level of reading accuracy (Torgesen, 2008). Unfortunately, readers who have difficulty with reading lose practice time for each month and year they are behind, making it extremely difficult to improve their reading skills (Denton & Vaughn, 2008). When a child does not achieve reading proficiency by third grade, the research indicates that remediation will be difficult (Roberts, Torgesen, Boardman, & Scammacca, 2008). Thus, reinforcing the belief that reading is not a naturally developing skill, but one that must be taught directly (Kame’enui, 1993).

The skill of reading has been studied in general and special education for decades (Hempenstall, 1997; Weiderholt, 1974). The debate between phonics-based and whole language instruction continues (Hempenstall, 1997). In many universities, future general educators learn to teach reading through a whole language approach, while future special educators are taught the phonics-based approach as well as direct, explicit systematic instruction (Beers, 2002). The National Reading Panel (NRP) (2000) determined the major components necessary to structure a successful reading program (e.g., phonemic
awareness, phonics, vocabulary, fluency, and comprehension). These findings represent the most current reading framework to emerge.

**The Great Debate in Reading**

The definition of reading has been debated over the span of time. With each decade, the reading pendulum swings back and forth between the phonics and whole language approach (Weiderholt, 1974). Hinshelwood (1900) was the first to label reading difficulties as word-blindness and develop a three-stage instructional model to teach reading. The instruction involved (a) teaching the individual letters of the alphabet, (b) reading words by spelling aloud, and (c) storing words visually into memory (Hinshelwood, 1912). Hinshelwood (1912) considered his method a whole word approach to remediate word-blindness. Fernald and Keller (1921) developed the *Visual Auditory Kinesthetic Tactile* approach for reading remediation. They believed in the use of the whole-word approach to reading and designed their method to involve children learning and recognizing whole words through use of multiple senses. By 1934, McKee entered the discussion with the contention that phonics instruction was controversial and grounded in professional disputes. Soon after, Orton (1939) rejected Hinshelwood’s (1912) teaching stages and maintained that phonetic equivalents of letters and blending sequences were the best way to teach reading, rather than whole-word or sight-word methods.

In 1955, Flesch called for a phonetic approach to teaching reading in the public schools, leading to a political interest in reading. This resulted in the *Unified Phonics Method* (Spalding & Spalding, 1962). This method included the recognition of 70 common phonograms that represented 45 basic sounds (Spalding & Spalding, 1962).
Spalding believed that phonograms must be taught first so the reader could recognize a series of sounds in words, not just letters. This evolved into the alphabetic principle (Chall, 1967). Chall (1967) concluded that phonics was necessary for children to develop reading skills and word identification through direct, systematic instruction. His work initiated the term *The Great Debate*.

The concept of teaching reading through a constructivist or whole language approach was codified by Goodman (1986, 1989). The idea behind the constructivist perspective involves using both knowledge-driven and text-driven processes (Spivey, 1987). Readers use previous knowledge to build connections. Whole language involves using knowledge of symbols, connected together to form a word and recalling the word when presented. The construct behind whole language is that words become familiar to the reader with exposure, allowing for fluent reading of particular passages containing the words learned (Goodman, 1986). Goodman (1986, 1989, 1992, & 1993) emphasized whole language in his research, but more on the side of policy as opposed to teacher education emphasis.

As researchers entered the political arena concerning reading instruction, the federal report, *A Nation at Risk*, maintained that approximately 13% of all 17-year-olds in the United States were functionally illiterate (Gardner, 1983). These data inflamed the debate concerning the best method to teach reading and inspired a call to investigate new methods to improve reading instruction for all students (Anderson, Hiebert, Scott, & Wilkinson, 1985). In 1985, the report *Becoming a Nation of Readers*, explored the teaching of reading, reading problems, and remediation and concluded that reading should be taught through explicit phonics instruction (Anderson, Hiebert, Scott, & Wilkinson, 1985).
The International Reading Association (IRA) (1998) acknowledged the tension between phonics and whole language instruction. Members of this organization discussed the debate among educators, parents, politicians, researchers, and the general public. The association made a statement supporting phonics within a whole-language program. However, the debate among researchers continued (Adams, 1990; Goodman, 1986; Goodman, 1992; Reyhner, 2008; Smith, 1994; Spiegel, 1992; Stanovich, 1994).

The Center for Education Reform (CER) investigated the change in reading abilities of children in American schools since the publication of the Nation at Risk report (Forgione, 1998). They discovered that the literacy level of young adults ages 15-21 years had dropped more than 11 points from 1984 to 1992. Twenty-five percent of 12th graders scored below the basic reading level on the 1994 National Assessment of Educational Progress (Forgione, 1998). The CER concluded that very little had changed over the years in the United States educational system in the area of reading performance or instruction (Forgione, 1998).

In order to address the continuing low literacy levels in the United States, the NRP conducted an extensive review of the literature (NRP, 2000). The panel identified the five big ideas of reading. These were phonemic awareness, phonics, vocabulary, fluency, and comprehension. These five big ideas are considered a bottom up approach to reading that teaches the decoding and understanding of text (NRP, 2000; Reyhner, 2008). During this same time period, the No Child Left Behind Act (NCLB) (2001) was passed by Congress followed by the Reading First Initiative (2002). Reading First (2002) calls for all students to be able to read at or above grade level by the third grade and allocates funds
for the development of teacher education programs to provide direct, systematic, explicit teaching of reading skills (NCLB, 2001).

The NRP (2000) conducted the most comprehensive study on reading instruction in the past 15 years. With political involvement, researchers continue to investigate the effects of phonics and/or whole language in an attempt to determine the most effective approach to reading instruction.

**The Components of Reading**

As a response to the need for effective reading instruction Congress established the National Reading Panel (NRP) to examine the research on the teaching of reading (NICHD, 2000). This panel conducted a screening of more than 100,000 reading research studies from 1966 to 1997. From this, the NRP (2000) identified five major components of reading instruction: (a) phonemic awareness, (b) phonics, (c) fluency, (d) vocabulary, and (e) text comprehension. The panel defined reading as a set of components that allow the reader to derive meaning from written content. The work of this panel is the gold standard by which to evaluate reading instruction and teacher education concerning literacy education.

**Phonemic Awareness**

Phonemic awareness is defined as the ability to notice, think about, and work with the individual sounds in spoken words (National Institute for Literacy, 2006). Children begin to develop phonemic awareness by recognizing *phonemes*, the smallest parts of sound identified in a spoken word (Hoing, Diamond, & Gutlohn, 2008). Children who have acquired phonemic skills are more successful readers and spellers (National Institute
for Literacy, 2006). It is important to recognize phonemic awareness as a separate skill from phonics (NRP, 2000).

**Phonics**

Phonics is the relationships between letters and sounds they represent, known as sound-symbol correspondence (NRP, 2000). Common terms associated with phonics are (a) graphophonemic relationship, (b) letter-sound association, (c) letter-sound correspondence, (d) sound-symbol correspondence, and (e) sound spelling (National Institute for Literacy, 2006). The alphabetic principle involves understanding the systematic and predictable relationships between written letters and spoken sounds and is the basis for phonics (National Institute for Literacy, 2006). Current research indicates that phonics should be taught systematically and explicitly (NICHD, 2000; NRP, 2000).

**Fluency**

Fluency is defined as the ability to read a text accurately, quickly, and with expression (National Institute for Literacy, 2006). When a child reads fluently, he or she recognizes words quickly and reads at a conversational rate (Hudson, Lane, & Pullen, 2005). Fluency is considered the link between word recognition and text comprehension and is considered the most neglected reading skill (NRP, 2000). With the movement between strict phonics-based instruction and constructivism, educators assumed that simple word recognition impacted fluency, however recent researchers found that 44% of students in the fourth grade were considered disfluent (U. S. Department of Education, 2009). Thus, the inclusion of fluency in reading instruction is a necessary component (NRP, 2000).
Vocabulary

Vocabulary is the knowledge of words and meanings. It is comprised of oral vocabulary (e.g., words used when speaking) and reading vocabulary (e.g., words used when reading) (National Institute for Literacy, 2006). Oral vocabulary is useful when beginning readers attempt to articulate what they read. Reading vocabulary is important as it helps the reader understand what they have read. Vocabulary must be developed directly through explicit teaching (Beers, 2002). Indirect vocabulary development occurs when a person engages in conversation, listens, or watches a variety of media (National Institute for Literacy, 2006; Moats, 1994).

Comprehension

Comprehension is the purpose for reading (Moats, 2009; NRP, 2000). It involves understanding and interpreting what is read as well as restating what has been read with accuracy and understanding (National Institute for Literacy, 2006). Comprehension is considered an active process of reading. Two goals exist in comprehension: (a) the reader understands what they are reading, and (b) the reader recognizes when they do not understand what they are reading. The goal of comprehension is competent, self-regulated reading (NRP, 2000).

The Impact of Reading Problems

Approximately 14% of adults in the United States cannot read (NCES, 2012a). According to the U.S. Department of Education (2009), a significant amount of young readers also struggle with reading.
**General Education Students**

Typical reading instruction in a general education classroom involves multiple methods. Using literature across the curriculum and conducting literature study groups are methods that have been used for the past 20 years (Peterson & Eeds, 1990; Serafini, 2001; Sloan, 2002). The use of authentic children’s literature is of great importance to many general education teachers (Serafini, 2011). Daily read-alouds and classroom discussions are also common practice in general education classrooms (Serafini, 2011; Serafini & Georgis, 2003). More recently, general education teachers try to balance their reading instruction. This includes phonics instruction, use of children’s literature, basal readers, writing instruction, and literary discussions (Serafini, 2011).

The NAEP reports that 31% of fourth graders perform at or above proficiency in reading and 33% perform below (U.S. Department of Education, 2009). Typical learners begin showing signs of reading difficulty as early as their first year in school (Lose, 2007; Suarez, 2011). Children who experience difficulty with reading are likely to experience school failure, over-identification for special education services, and delinquency (Cicchetti & Nurcombe, 1993). Research shows a significant correlation between difficulty in reading ability and drop out rates (Snow, Burns, & Griffin, 1998).

**Special Education Students**

Highly intensive systematic instruction can increase reading achievement for students at risk (Kamps, Abbott, Greenwood, Wills, Veerkamp, & Kaufman, 2008). Students who require remediation must learn from organized instruction and reading interventions should begin as early as possible (kindergarten or first grade) to positively impact a child’s learning experience (Houtveen & van de Grift, 2007; Wanzek &
Direct explicit phonics-based instruction is the most common approach to reading instruction in the special education classroom (Roberts, Torgesen, Boardman, & Scammacca, 2008; Sturtz, 2009; Vaughn, Wanzek, Murray, Scammacca, Linan-Thompson, & Woodruff, 2009).

When observing students with reading disabilities, the need for support continues. Current statistics show that 33% of fourth graders and 24% of eighth graders in America perform below the basic level of reading (NCES, 2012b). Some students may have difficulty with the early stages of reading, such as phonemic awareness and phonics (Cunningham & Stanovich, 1990). Often adolescents with learning disabilities experience difficulty with fluency and comprehension (Cunningham & Stanovich, 1990). With reading instruction, it is important to detect the need for remediation in the early grades so the proper support is put in place to help the child build his or her reading skills (Lose, 2007; Wanzek & Vaughn, 2007). The poorer reader uses more cognitive ability decoding a passage, leaving little ability to comprehend what has been read (Stanovich, 1994).

Many students placed in special education classrooms spend the majority of their effort decoding passages, allowing for very little comprehension. If this is not recognized and remediated early in school, reading becomes a lifetime struggle (Roberts, Torgesen, Boardman, & Scammacca, 2008; Torgesen, 2008).

**Reading Instruction in Teacher Education**

Various authors maintain that pre-service teacher education has not adequately prepared teachers in the area of direct, explicit instruction in reading (Cheek, 1982; Moats, 2009; Scott & Teale, 2010). The research also indicates both undergraduate and graduate teacher training programs do not require the understanding of language
development milestones needed to teach reading explicitly (Cheek, 1982; Moats, 2009; Scott & Teale, 2010). However, good classroom-based reading instruction depends solely on the training of the teacher and is the key component of any reading program, as it is the teacher who guides students to become more proficient readers (Barnyak & Paquette, 2010; Cheek, 1982; Scott & Teale, 2010; Suarez, 2011). In order for a reading program to be successful, with any population of students, the teacher must use appropriate, systematic, explicit training in the teaching of reading skills (Beers, 2002). This instruction should incorporate a variety of meaningful instructional practices and learning activities (Suarez, 2011). Specifically, teachers need the knowledge of both phonological and orthographic aspects of the structure of language (Sturtz, 2009).

Current research indicates the importance of multiple component interventions and teacher knowledge on reading outcomes (Berninger & Richards, 2002; Moats, 2009; Washburn, Joshi & Cantrell, 2011). The components defined in the literature include phonology, phoneme-grapheme correspondence, morphology, semantic organization, syntax, discourse, and pragmatics (Berninger & Richards, 2002; Moats, 2009; Washburn, Joshi, & Cantrell, 2011).

**Pre-service Teacher Education Programs**

The focus of pre-service teacher education is to change the teacher’s behavior in how he or she teaches a skill (Suarez, 2011). Pre-service course work is the foundation upon which teacher effectiveness is initially built (Suarez, 2011). The ultimate goal of pre-service teacher education should be to embed the knowledge or skill into the future teacher, thus allowing for the use of the skill in the classroom (Wickstrom, Patterson & Zeek, 2006).
Roehrig, et al. (2008) found that while pre-service general education teachers indicated that their literacy coursework was understandable, they did not apply the content while teaching. The teachers, upon graduation, did not generalize skills learned in their pre-service training (Roehrig et al., 2008). This research raises the concern of how teachers were taught this content. If teachers are not generalizing the skills learned, the question arises regarding whether the skills were ever taught.

**In-service Teacher Education Training**

In-service training conducted on a school campus has a higher probability of transference to classroom practice and is more effective than training outside the school setting (Dole & Donaldson, 2006). Even though pre-service study programs are the initial foundation for effective teaching, in-service training often is the building block upon which teachers improve their knowledge concerning specific skills (Suarez, 2011).

Historically, teachers indicate that they want more knowledge about reading when they begin teaching (Moats, 1994). Suarez (2011) reports that general education teachers believe professional development is a worthy use of their time. However, Suarez (2011) also found no direct relationship between teacher participation in professional development and an increase in student standardized reading scores. This corroborates the work of Moats and Foorman (2003) who found even very literate and experienced teachers did not understand the structure of written language and experience difficulty teaching reading through the use of direct, explicit instruction. Because in-service training is key to forming and improving reading instruction in the classroom (Cobb, 2005), it is important that teachers perceive it as a necessary element to improve their
effectiveness in the classroom and that they are taught the appropriate skills to improve student reading (Avalos et al., 2010).

Statement of the Problem

Even experienced teachers display a lack of understanding in the area of written and spoken language structure (Hughes, Cash, Klinger & Ahwee, 2001; Moats, 1994; Moats & Foorman, 2003; Snow, Burns, & Griffin, 1998). This lack of knowledge leads to insufficient or inappropriate instruction in the area of reading skills (Hughes et al., 2001; Moats & Foorman, 2003). Current research indicates that special and general education teachers often lack the skills necessary to explicitly teach reading and spelling (Hughes et al., 2001; Moats, 1994; Snow, Burns & Griffin, 1998). The NRP (2000) maintains that good teaching practice in reading includes (a) a sophisticated understanding of how students learn to read, (b) the knowledge of the difficulties experienced by students and how to provide support, and (c) the ability to implement a variety of multilevel instructional practices.

This study evaluated the type and level of training received by general and special education teachers in their pre-service and in-service training. Data were collected from 13 universities across the United States. A questionnaire was created using the components of reading identified by the National Reading Panel (2000). The data were compared across and within general and special educators, across and within pre-service and in-service programs, and across components of reading skills instruction provided in pre-service and in-service programs. Specifically, the following research questions were addressed:
Research Question 1: Do special education teachers receive more training in the five big ideas of reading compared to general education teachers in their pre-service education programs?

Research Question 2: Do special education teachers receive more training in the five big ideas of reading compared to general education teachers in their in-service training?

Research Question 3: Do special education teachers receive more training in the components of reading compared to general education teachers in their pre-service education programs?

Research Question 4: Do special education teachers receive more training in the components of reading compared to general education teachers in their in-service training?

Research Question 5: Do special education teachers receive more training in reading strategies compared to general education teachers in their pre-service education programs?

Research Question 6: Do special education teachers receive more training in reading strategies compared to general education teachers in their in-service training?

Significance of the Study

People who struggle with reading have difficulty processing the phonological components of language efficiently and accurately (Denton & Vaughn, 2008; Moats, 1994). These readers also have difficulty with the units of print that represent phonological components (Moats, 1994). Low achieving readers will grow into adults
who struggle with or cannot read (Kame’enui, 1993). Illiteracy often leads to underemployment or unemployment, usually a result of dropping out of school (Kame’enui, 1993). Due to the significant increase in unemployment as a result of economic times, employers are hiring literate employees as opposed to people who are not literate (NCES, 2012a).

Reading has emerged as a major educational and political concern in the United States (NICHD, 2000). Factors contributing to this interest include changes in educational policy, an increase in reading failure, accountability requirements for teachers, and the use of response-to-intervention in school districts (Moats, 2009). However, little research focuses on the educators who teach reading and language arts skills, specifically their knowledge of the components, concepts, and practices of reading instruction (Moats & Foorman, 2003). The extent of the knowledge and ability that separates an adequate teacher from an inadequate teacher or the specialist from the general educator has not been identified through empirical research (Moats & Foorman, 2003). There is no research that compares the effect of theory-driven or research-based practices to pre-service or in-service education programs for teachers in the area of reading (Moats & Foorman, 2003). Thus, research is needed to determine the effects of pre-service and in-service training to ascertain the knowledge base of general and special educators in reading (Sturtz, 2009; Suarez, 2011; Wold, Grisham, Farnan & Lenski, 2008). This study involved the collection of data on the type of knowledge and level of understanding of training received by general and special education teachers in their pre-service and in-service programs. Without the necessary training, educators will continue to have inadequate reading programs without adherence to a hierarchy of skills (Moats,
2009; Moats & Foorman, 2003; Sturtz, 2009; Suarez, 2011). Such programs are detrimental to all learners, whether the learner is in the general education or special education learning environment (Moats, 1994).

**Definitions**

These definitions were used in this study. It is important that these definitions are understood to enable accurate interpretation of the study.

**Affix.** A general term that refers to prefixes and suffixes (NRP, 2000).

**Alliteration.** The repetition of the initial phoneme of each word in connected text (Carnine, Silbert, Kameenui, & Tarver 2010).

**Alphabetic principle.** The concept that letters and letter combinations represent individual phonemes in written words (Carnine, Silbert, Kameenui, & Tarver, 2010).

**Antonym.** A word opposite in meaning to another word (Graves, Juel, Graves, & Dewitz, 2011).

**Automaticity.** Reading without conscious effort or attention to decoding (Carnine, Silbert, Kameenui, & Tarver 2010).

**Background knowledge.** The forming of connections between the text and the information or experiences of the reader (Carnine, Silbert, Kameenui, & Tarver 2010).

**Base word.** A unit of meaning that can stand alone as a whole word. Also referred to as a free morpheme (NRP, 2000).

**Blending.** The task of combining sounds rapidly to accurately represent the word (Carnine, Silbert, Kameenui, & Tarver 2010).

**Comprehension.** Understanding what is read. Comprehension is considered the ultimate goal of all reading activities (NRP, 2000).
**Consonant blend.** Two or more consecutive consonants that retain their individual sounds (Carnine, Silbert, Kameenui, & Tarver 2010).

**Consonant digraph.** Two consecutive consonants that represent one phoneme or sound (NRP, 2000).

**Context clue.** Using words or sentences around an unfamiliar word to clarify its meaning (Carnine, Silbert, Kameenui, & Tarver, 2010).

**Decoding.** The ability to translate a word from print to speech, usually by employing knowledge of sound-symbol correspondence. Decoding is also known as the act of deciphering a new word by sounding it out (Graves, Juel, Graves, & Dewitz, 2011).

**Digraphs.** A group of two consecutive letters whose phonetic value is a single sound (Carnine, Silbert, Kameenui, & Tarver, 2010).

**Direct instruction.** The teacher defines and teaches a concept, guides students through its application, and arranges for extended guided practice until mastery is achieved (Carnine, Silbert, Kameenui, & Tarver, 2010).

**Explicit instruction.** Concise, specific language related to the objective. Very clear direction as to what the students are to do and learn. (Carnine, Silbert, Kameenui, & Tarver, 2010).

**Fluency.** The ability to read text quickly, accurately, and with proper expression. Fluency provides a bridge between word recognition and comprehension (National Institute for Literacy, 2001).

**General education.** An integrated learning experience using the general education curriculum, across content areas, with a general education teacher highly qualified in their specific content area (IDEA, 2004a).
Grapheme. A letter or letter combination that spells a phoneme and can be one, two, three, or four letters in English (e.g., e, ei, igh, eigh) (Carnine, Silbert, Kameenui, & Tarver, 2010).

Graphic organizers. A visual framework or structure for capturing the main points of what is being read (e.g., concepts, ideas, events, vocabulary, or generalizations) (Harris & Hodges, 1995).

Graphophonemic. The relationship between letters and phonemes (NRP, 2000).

Homophone. Words that may or may not be spelled alike but are pronounced the same. These words are of different origins and have different meanings (e.g., ate and eight) (NRP, 2000).

Incidental instruction. Indirect, unplanned, informal learning (Harris & Hodges, 1995).

In-service training. Employee education that takes place after formal education is complete and employment has begun (IDEA, 2004b).

Morpheme. The smallest meaningful unit of language (Carnine, Silbert, Kameenui, & Tarver 2010).

Narrative text. A story about fictional or real events (Jewell & Abate, 2005).


Onset and rime. In a syllable, the onset is the initial consonant or consonants and the rime is the vowel and any consonants that follow (e.g., the word sat, the onset is ‘s’ and the rime is ‘at’) (Carnine, Silbert, Kameenui, & Tarver 2010).
**Orthographic units.** The representation of the sounds of a language by written or printed symbols (Harris & Hodges, 1995).

**Orthography.** A writing system for representing language (Harris & Hodges, 1995).

**Phonemes.** The smallest unit of sound within the English language system. A phoneme combines with other phonemes to make words (NRP, 2000).

**Phoneme isolation.** The act of recognizing individual sounds in a word (Carnine, Silbert, Kameenui, & Tarver 2010).

**Phoneme manipulation.** The act of adding, deleting, and substituting sounds in words (Carnine, Silbert, Kameenui, & Tarver 2010).

**Phonemic awareness.** The ability to notice, think about, or manipulate the individual phonemes (sounds) in words. Phonemic awareness is the ability to understand that sounds in spoken language work together to make words. This term is used to refer to the highest level of phonological awareness, awareness of individual phonemes in words (NRP, 2000).

**Phonics.** The study of the relationships between letters and the sounds they represent, also referred to as sound-symbol correspondences (NRP, 2000).

**Phonogram.** A succession of letters that represent the same phonological unit in different words (e.g., ‘igh’ in flight) (Carnine, Silbert, Kameenui, & Tarver 2010).

**Phonological awareness.** The explicit awareness of the phonological structure of words in English. Phonological awareness encompasses awareness of individual words in sentences, syllables, and onset-rime segments as well as awareness of individual phonemes (NRP, 2000).
Prefix. A morpheme that precedes a root and that contributes to or modifies the meaning of a word (e.g., re in reprint) (NRP, 2000).

Pre-service training. A four year university program with a course of study that results in a degree and licensure in education (general or special) (NRP, 2000).

Resource room. A classroom managed by a special education teacher who works with a small group of students, using strategies and methods to aid students with disabilities (IDEA, 2004c).

Root. A bound morpheme that cannot stand alone, but is used to form a family of words with related meanings (Graves, Juel, Graves, & Dewitz, 2011).

Segmenting. The act of separating the individual phonemes or sounds of a word into discrete units (Carnine, Silbert, Kameenui, & Tarver 2010).

Self-contained classroom. A class composed of students with disabilities who benefit from a more structured classroom providing individual grouping (IDEA, 2004b).

Special education. Instruction specially designed to meet unique needs of a child with a disability by using individually developed education goals (IDEA, 2004c).

Suffix. An affix attached to the end of a base, root, or stem that changes the meaning or grammatical function of the word (e.g., en in oxen (NRP, 2000).

Syllable. A segment of a word that contains one vowel sound. The vowel may or may not be preceded and/or followed by a consonant (Carnine, Silbert, Kameenui, & Tarver, 2010).

Synonym. Words that have similar meanings (e.g., silence and quiet) (Carnine, Silbert, Kameenui, & Tarver, 2010).
**Vocabulary.** Vocabulary encompasses all words in a language. Vocabulary development refers to stored information about the meanings and pronunciations of words necessary for communication. Four types of vocabulary include listening, speaking, reading and writing (Beck, Mckeown, & Kucon, 2002).

**Vowel digraph or vowel pair.** Two vowels together that represent one phoneme or sound (Graves, Juel, Graves, & Dewitz, 2011).

**Word family.** A group of words that share a rime (e.g., grime, time, slime) (Carnine, Silbert, Kameenui, & Tarver, 2010)

**Limitations**

The limitations of this study were:

1. This study involved the collection of data via a web link to an online questionnaire. The number of participants who accessed the online questionnaire could be low because no face-to-face contact occurred with the participants.

2. The online questionnaire required educators to respond with their personal perceptions, therefore responses may be skewed as they attempted to reflect themselves positively.

3. Having to type in the URL address to access the questionnaire, rather than the opportunity to click on the link, may have reduced the number of participants.

4. To increase participation, the questionnaire did not ask participants to reveal identifying information that could link their answers back to them (e.g., state, university, school district). Thus, data were not analyzed regionally.
Summary

Currently, there is little research that addresses the training received by general and special educators in the area of reading. In this study, the level and type of reading instruction provided to teachers in their pre-service and in-service training was explored through the use of an online questionnaire that encompassed reading components identified by the National Reading Panel (2000). The level and type of the reading skills instruction was determined based upon the level of instruction received (e.g., none, direct, or incidental) as well as the type of instruction (e.g., teacher education program or in-service training). The questionnaire was distributed nationally.
CHAPTER TWO
REVIEW OF RELATED LITERATURE

Reading is one of the crucial life skills taught in early education (Lyon, 1996; Stanovich, 1986). Approximately 17% of children experience some type of reading difficulty within the first three years of their school experience, making instruction in reading a priority in public schools (Cheek, 1982; NCES, 2000a, NCES, 2000b). The literature discusses the reading process and the application of evidence-based strategies in reading (NICHD, 2000). Thus, the training of teachers in their pre-service and in-service programs continues to be a concern of the field, particularly in the area of reading (Barnyak & Paquette, 2010; Mather, Bos, & Babur, 2001).

The most recent data indicate that 36% of fourth graders and 27% of eighth graders score below the basic proficiency level in reading (NCES, 2000b). The National Joint Committee on Learning Disabilities (2008) found that 20% of secondary students with learning disabilities performed at least five or more grade levels below their peers without disabilities in reading. Because it is difficult for a student to catch up once they fall behind in reading, the educational community continues to reevaluate the teaching of basic and higher order reading skills (Therrien, 2006; Torgesen, 2008).

The significant number of general and special education students who experience difficulty in reading has led researchers to question the effectiveness of teacher preparation programs in the area of reading (Mather, Bos, & Babus, 2001; McCutchen et al., 2002). Darling-Hammond (2000) and McCutchen et al. (2002) reported a positive correlation between literacy instruction, teacher training, and student reading achievement. They also found that if pre-service and in-service training programs
implemented follow-up training for kindergarten and elementary teachers early learners achieved higher scores in reading (Darling-Hammond, 2000; McCutchen et al., 2002). This research indicates a marked improvement in the increase of teacher knowledge of literacy instruction when training is provided in pre-service and in-service programs (McCutchen et al., 2002). Unfortunately, the research indicates a problem when transferring the knowledge into classroom implementation (NRP, 2000).

Teacher knowledge and their implementation of evidence-based instruction are critical to student reading achievement (Dingle, Brownell, Leko, Boardman & Haager, 2011). The provision of explicit reading instruction results in students, both with and without disabilities, who exhibit strong gains in fluency and word identification (Seo, Brownell, Bishop, & Dingle, 2008).

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Effective reading is facilitated by the use of explicitly taught strategies (NRP, 2000). This requires the use of small teaching steps that guide students through initial practice, multiple opportunities for reinforced practice, practice with reinforcement, modeling, and corrective feedback with reinforcement (NRP, 2000). Programs based on explicit instruction result in positive reading outcomes for students, particularly in comprehension (NICHD, 2000).

**General Education**

The inability to read can be destructive, impacting learners well beyond the boundaries of school (MacDonald, 2010). Teachers must facilitate literacy development for all learners, making reading achievement possible (MacDonald, 2010). Educators have the responsibility to use strategies proven to support success in reading.
**Phonemic awareness.** Phonemic awareness is the foundation of reading acquisition. Basic knowledge, concepts, and skills associated with phonemic awareness provide a pathway to reading success (Abbott, Walton & Greenwood, 2002). If a teacher has not been specifically trained to teach these explicit skills, they often do not remember the specific skills taught to them in their early years (Moats, 1994).

Koutsofas, Harmon, and Gray (2009) studied the effects of a Tier 2 intervention designed to increase the phonemic awareness of preschool-age learners. The purpose of the study was to assess the effectiveness of an intervention to improve phonemic skills in preschool-age children enrolled in *Early Reading First* (NCLB, 2000) classrooms. Thirty-four preschoolers participated in this study. All children were eligible to participate based on the results of the *Trophies Pre-K Beginning Sound Awareness* (Harcourt School Publishers, 2002) assessment. A multiple baseline across subjects design was used for this study.

The intervention consisted of scripts created by Koutsofas, Harmon, and Gray (2009). Each lesson script had eight components: (a) teaching objective, (b) anticipatory set, (c) purpose, (d) input, (e) modeling, (f) checking for understanding, (g) guided practice, and (h) closure. Objectives for the lessons followed the order for teaching the concept of initial sound identification. The first sessions involved listening for sounds in the environment and letter sounds. The next set of lessons were used to teach the concept of *first/beginning*, through the use of manipulatives, letters, and letter sounds. The final sessions combined the concept of sound and the concept of *first/beginning* and applied the concepts to the context of CVC words. Words used during these lessons were developed from phonemes previously taught in class.
All children entered the baseline condition at the same time. Half of the group began intervention one week before the other half of the group. The intervention was conducted twice a week for six weeks. Each session lasted approximately 20 to 25 minutes and was held in small groups of no more than four children per group.

Data were analyzed by graphing the mean scores during baseline, intervention, and post-intervention. Individual effect sizes were calculated for each child to assess the effect of the intervention. Results from the intervention showed positive gains in phonemic awareness for 71% of participants. Koutsoftas, Harmon, and Gray (2009) concluded that the intervention was successful in teaching phonemic awareness to the participants. They maintained that the intervention narrowed the gap in beginning sound awareness difficulties for preschool-age children. They believe that the intervention has potential as a Tier 2 intervention and will facilitate the reading achievement of preschool children considered at risk for future reading difficulties. They recommend that the study be replicated with other populations considered at risk for reading difficulties.

Kim, Foorman, Petscher, and Zhou (2010) conducted a study to ascertain the knowledge of letter-name concepts, phonological awareness, letter characteristics, and interactions among the skills leading to letter-sound acquisition. The participants were 653 kindergarteners across three school districts. The children were assessed in the areas of phoneme blending, onset-rime skills, letter-name knowledge, and letter-sound knowledge.

The intervention involved administering onset-rime and phoneme blending items to the students individually, this was labeled the PA task and occurred at the beginning of the school year. Letter-name and letter-sound tasks were then administered during the
same session as the PA task in three random orders of the 26 letters of the alphabet. Participants were asked to name the letter and then give the sound of the letter. Uppercase and lowercase letters were presented together. If a consonant letter was shown that represented more than one sound value, any correct sound response was scored as correct. Only short vowel sounds were counted as correct.

A cross-classification multilevel model (CCMLM) was used for comparison. Results from the measures confirmed that letter names do provide verbal labels as a reference to the letter and provide clues as to the sound(s) each letter makes. Kim et al. (2010) concluded that students use this skill to their benefit when using letter-sound knowledge to decode. The probability of knowing letter sounds increased from 4% to 63% when comparing students who did not know letter names to the students who did know letter names. Kim et al. (2010) concluded that phonological awareness does facilitate the recognition of letter sounds from letter names. They concluded that this study shows that letter features play an important role in the acquisition of letter sounds. Also, that the levels of phonological awareness and letter-name knowledge predict the probability of knowing letter sounds. Kim et al. (2010) recommend future investigations include a well-designed experimental study to ascertain if instruction in letter names results in improvement of letter recognition as well as phonemic awareness, as well as whether instruction in phonemic awareness results in improvement of phonemic awareness and letter-name knowledge.

Ukrainetz, Nuspl, Wilkerson, and Beddes (2011) compared phonemic awareness lessons involving syllable awareness versus lessons without syllable awareness instruction. The purpose of the study was to investigate the effects of the teaching of
advanced skills in phoneme blending and segmenting both with and without the use of the larger speech unit of the syllable. Thirty-nine preschoolers served as the participants for the study.

The children were pretested using the Test of Early Language Development (TELD) (Hresko, Reid, & Hammill, 1999), Clay Letter Name Recognition Screening (Clay, 1979), and the Phonological Awareness Test (Robertson & Salter, 1997). During the intervention, the preschoolers participated in one of four conditions. The conditions included (a) syllable instruction, (b) syllable-phoneme transition, (c) multiple phoneme instruction, and (d) first phoneme instruction. During syllable instruction, the children were taught syllable blending and segmenting. They practiced counting syllables in words by moving blocks to syllables, clapping out syllables, and guessing words when given syllable segments. During syllable-phoneme transition, the students were explicitly taught the difference between syllables and phonemes. Activities included drawing attention to little sounds (phonemes) rather than big sounds (syllables), immediate correction when eliciting syllable or phoneme responses, and using different hand signals to represent phonemes and syllables. Multiple phoneme instruction involved phoneme isolation, blending, and segmenting. Activities included matching games, word guessing, and sound counting using picture cards and objects. First phoneme instruction included generating, isolating, and matching first phoneme sounds. Activities included phoneme isolation, matching pairs, phoneme generation, and phoneme matching from a list of multiple words. All conditions involved explicit attention to skills, repeated opportunities for learning and practice, and support in systematic learning. Scaffolding of instruction
included modeling, stressing particular sounds, repeating items, and simplifying the onset-rime segments for blending purposes.

Three conditions were used to test the effects of syllable and advanced phoneme awareness instruction: (a) syllable plus multiple phoneme tasks, (b) multiple phoneme tasks, and (c) first phoneme tasks. The outcomes measured included phoneme blending, phoneme segmenting, syllable phoneme confusions, and phoneme isolating. Cohen’s $d$ was used to calculate effect sizes and eta-squared was used for multiple comparisons.

The results indicated that preschoolers could make gains in advanced phoneme tasks in a limited amount of time. The children performed well when blending phonemes with a large effect size. Ninety-three percent of the students blended two or more words correctly during post-testing. The preschoolers who were taught phoneme segmenting and blending showed significant mean gains on the post-test as compared to the pre-test. Results from the study indicated that typically developing preschoolers can benefit from phoneme blending and segmenting instruction, even if only for a brief period of time. Ukrainetz et al. (2011) maintained that this instruction would not negatively affect first phoneme isolation acquisition. They recommend that children who are not typically developing in language be given more time and be provided more scaffolding cues to show achievement in phoneme blending and segmenting. Future research recommendations include following the preschool-age students into kindergarten to assess if early exposure to advanced phoneme tasks produce long-term benefits. Another recommendation included using direct instruction, rather than an indirect approach, with students at risk for reading difficulties.
**Phonics.** Explicit code-emphasized instruction shows significant benefits for children at risk for reading difficulties (NICHD, 2000; Vadasy & Sanders, 2010). The literature provides a framework for practitioners to build effective practices in their classroom instruction and supplemental programs (Savage & Carless, 2005; Torgesen et al., 1999). Researchers who support phonics-based reading programs emphasize that explicit systematic phonics lessons are necessary to learn to read and write (Adams, 1990; Beck & Juel, 2002; Chall, 1967). Critics of phonics-based lessons debate the effect of predetermined sequences of phonics instruction separate from active reading and writing. They maintain that skills are non-transferable from drill and practice to application (Weaver, 1990).

Cunningham and Stanovich (1990) conducted a study investigating the effects of orthographic processing on word recognition skill (with phonological processing variance being partialed out). The purpose of the study was to investigate the effects of orthographic processing on word recognition to examine if variance in print exposure was linked to variance in orthographic processing not explained by phonological processing differences. Fifty-one third graders and 47 fourth graders participated in the study.

Raw scores from the *Woodcock-Johnson Reading Mastery Tests* (Woodcock, 1987) and the *Raven Stanford Progressive Matrices* (Psychological Corporation, 1978) were used to analyze the following: (a) a phoneme deletion task, in which students listened to the initial sound of the words pronounced and remove the initial sound to say the word; (b) a phonological choice task, in which students viewed pairs of pseudowords and indicated which pseudoword sounded like a real word; (c) an orthographic choice task, in which the students viewed paired strings of letters that sounded similar and
selected the correctly spelled strand; and (d) a homophone choice task, in which a question was asked and the student selected the correctly spelled homophone. The paired-associate memory task was assessed by students recalling a strand of 20 symbols presented on individual cards. Print exposure measures also were analyzed through the Title Recognition Test (Stanovich & West, 1989). The paired-associate memory task and print-exposure task were administered as a group. All other measures were individual tasks.

Correlations among all variables were analyzed. Hierarchical regressions were used for analysis. Results indicated no significant difference between orthographic processing that is linked to word recognition versus orthographic processing independent of phonological processing. Also, the link between orthographic processing ability with word recognition is not a result of links between orthographic processing with phonological abilities nor nonspecific cognitive abilities. Results indicated that orthographic processing ability does account for word recognition skill separate from phonological processing skills. Orthographic processing differences, independent of phonological ability, can also be linked to print exposure differences. Cunningham and Stanovich (1990) concluded that the varying amounts of print exposure that takes place in the home correlates with the varying reading abilities that occur in the classroom. They recommend increased reading practice in the home to lead to further academic achievement for the student.

Morgan (1995) conducted a study designed to evaluate a direct skills instructional program. The purpose of the study was to examine the effects of a phonics-based program on the reading achievement of second grade students. The students had been
taught in a whole language classroom through the first grade and were reading significantly below grade level. The students involved in this study were in second grade.

A creative phonics approach using systematic, structured, multi-sensory instruction was developed as the instructional intervention. Seven of the children considered to be the poorest readers also worked with a special education teacher in collaboration with the general education teacher. These students received instruction for the entire school year due to their significantly low performance in reading.

Each lesson of the intervention lasted an average of 45 minutes and included (a) phonics instruction, (b) phoneme flash cards, (c) exceptional words flash cards, (d) sentence reading, (e) phrase cards, (f) homework, and (g) homework review. Children working with the special education teacher received supplemental instruction for 75 minutes a day that included reading practice with phonetic readers, skills lessons using reading comprehension strategies, and spelling drills.

The Diagnostic Assessment of Reading (DAR) (Chall & Roswell, 1992) and the Woodcock Johnson Psycho-Educational Battery-Revised (WJPB-R) (Woodcock & Johnson, 1989) were used for pre- and posttest measures of reading achievement. Comparison of pre- and posttest measures were used to analyze effectiveness of the intervention. Posttest measures showed that the students classified as nonreaders, who received supplemental instruction, progressed one year in reading achievement on the WJPB-R (Woodcock & Johnson, 1989) and by one and a half years on the DAR (Chall & Roswell, 1992). The students who received instruction only in the general education classroom increased in reading achievement by an average of two or more years.
Morgan (1995) concluded that whole language is not adequate for at-risk beginning readers, as it does not provide the critical skills needed to achieve in reading. Because at-risk young readers are vulnerable to long-term reading difficulties, Morgan (1995) concluded that it is crucial to teach reading directly to help these students to become competent readers. Morgan (1995) recommended a skills approach to reading in the general education classroom.

Dahl, Scharer, Lawson, and Grogan (1999) analyzed phonics-based instruction and learning in eight whole-language first-grade classrooms. The purpose of the study was to provide information to teachers, parents, and other researchers concerning the nature of phonics and the effectiveness of phonics-based teaching as a component of the whole language classroom. The participants were recruited from eight schools and included 178 students. Four instruments were used to conduct pre- and post-testing. Four quantitative measures were used to analyze whether phonics learning occurred in context or isolation, on encoding or decoding, and the combination of the two variables. Clay’s Hearing and Recording Sounds in Words (Clay, 1993) was used to assess phonemic awareness and knowledge of 37 letter-sound relationships. The Text Reading Level (Clay, 1993) was used to assess student attempts at reading leveled texts. The Developmental Spelling Analysis (Ganske, 1993) was used to measure encoding knowledge focused on four levels of spelling: (a) letter name, (b) within-word patterns, (c) syllable juncture, and (d) derivational constancy. The Qualitative Reading Inventory-II Word List (Leslie & Caldwell, 1995) was used to assess decoding in isolation.

Phonics instruction was documented at each school site using classroom observations and field notes focused on a description of the whole-language program and
the integration of phonics instruction into the classrooms. The notes were coded into areas: (a) patterns of phonics instruction, (b) skill and concept analysis, (c) strategy analysis, and (d) instructional analysis.

The qualitative findings showed that foundation concepts of phonological awareness, phonemic awareness, and phonemic segmentation made up close to 30% of instruction; consonant and vowel patterns were addressed in context; and phonics skills and phonics strategies were taught together. Further qualitative findings showed that phonics instruction was dispersed across multiple standard whole-language activities, phonics knowledge was developed during writing experiences, and phonics knowledge was used when teachers and students engaged in reading and writing activities. Also that teachers used student progress to inform their instruction, instruction was tailored to the needs of students, and differentiated instruction supported individual learning within whole-group reading and writing activities.

The pre-test and posttest measures indicated that there was a wide-range of abilities on all measures in the eight classrooms. All learners made substantial gains in encoding and decoding in-and-out of context. The majority of the students decoded words in-and-out of context at the first-grade level or higher. Phonics knowledge was achieved by the end of the school year. The data analysis reflected phonics instruction was not limited to skills, but equally emphasized with strategies in the flexible use of phonics while reading or writing. Dahl et al. (1999) believed this study contributed to a deeper, inclusive definition of effective phonics instruction. They maintained that the achievement outcomes supported the type of phonics instruction implemented in these
whole language classrooms, but recommend further research in this area to support the findings.

Connelly, Johnston, and Thompson (2001) compared a phonics approach and a non-phonics approach (book experience) on reading comprehension. The purpose of the study was to investigate differences in reading comprehension levels and word recognition between two groups of beginning readers taught to read by phonics or by book experience. The participants were two groups of six-year-olds from four elementary schools. Two schools taught reading instruction through an intensive phonics-based program. This program contained explicit systematic instruction in the teaching of letter-sound correspondence. It was an intense program of formal phonics lessons supported by a phonics-based reading program designed to rapidly build phonics knowledge. Whole class lessons were taught once or twice per day with worksheets distributed to the students after the lessons. The two other schools taught beginning reading using a non-phonics based program described as a book experience approach (learning words in context while reading). The teaching focused on the story and the book rather than on words encountered during reading. This program included activities such as text reading, shared reading, guided reading, and independent reading.

Multiple tests were administered to analyze reading ability. The Neale Analysis of Reading Ability – Revised (NARA) (Neale, 1989) was used to assess the ability to read continuous text. Phonological awareness was assessed with the Yopp Singer Phoneme Segmentation Test (Yopp, 1988). A list derived from Holligan and Johnston (1991) was used to assess the reading of words with both regular sounds and unusual letter-sound
correspondence. Timed reactions of familiarity with words on a list were recorded for both groups of children as well.

Normative reading ages were extracted from the *NARA* (Neale, 1989) and raw scores were analyzed. A one-way ANOVA was used to analyze the word accuracy data for reading continuous text. No significant difference was found between the two groups. After accuracy and vocabulary measures had been reviewed, a significant difference in comprehension existed in favor of the phonics group. Reading rate measures indicated the non-phonics group to be faster readers. Results from the *Yopp Singer Phoneme Segmentation Test* (Yopp, 1988) indicated higher scores for the phonics group, which correlated with results from the *NARA* (Neale, 1989) and the reading rate measures. Results from the timed reading list showed no significant difference between the two groups. Post-hoc analyses found that the non-phonics group was stronger in reading the unusual words lists and the phonics group performed better in decoding regular-sound words.

Overall, Connelly, Johnston, and Thompson (2001) concluded that students taught phonics performed better in reading comprehension. The phonics group significantly outperformed the non-phonics group in both non-word reading and phonemic awareness tasks. Even though reading rates were slower for the phonics taught students, the group significantly outperformed the non-phonics group in answering comprehension questions. The authors concluded that the reason for this significant difference in performance of comprehension recall was due to more rehearsal of the content being read when decoding the reading passage. Connelly, Johnston, and Thompson (2001) maintain that a slow rate of reading does not always disrupt the use of context clues and recommend further
research be conducted concerning the application of these results to the effects of phonics instruction with beginning readers of easy text.

Manning and Kamii (2009) examined whole language versus isolated phonics instruction. The purpose of the study was to examine the effects of two forms of phonics instruction on kindergarten students, phonics in context and phonics in isolation. Participants for the study were 38 kindergartners from two classrooms. The teacher of one class defined herself as a whole-language reading teacher. The other teacher considered herself to be a phonics-based reading teacher.

Students in each class were interviewed individually five times throughout the school year. The interviews consisted of asking the children to write words and read words. The writing task involved the children writing four pairs of words (e.g., ham and hamster). This process was conducted to ascertain if the children recognized that one word had a similar morpheme in it compared to the second word and if the symbols the children used to write the words were the same symbols used to represent the morpheme in each word. The reading task involved the writing of a phrase and having the child observe. The phrase was then read aloud. The child was asked a series of questions to analyze receptive understanding of what was written.

The interview recordings were analyzed through use of an established criteria: (a) Level 1 – the student believes that only content words (e.g. nouns or verbs) are written; (b) Level 2 – the student says that all the words in the spoken sentence are written, but cannot locate them in the written sentence; and (c) Level 3 – the student is able to identify written words as they correspond with spoken words. Percentages of the number of students who regressed or stayed at the same level were compared across months.
The data indicated that the whole language group produced more occurrences of invented spelling by mid-year compared to the beginning of the year. Seventy-three percent of the whole language group achieved high levels in writing. Twenty percent of the phonics group regressed back a level in the writing tasks. When comparing the September and May levels, 42% of the phonics group had regressed or stayed at the same level. Results from the reading tasks indicated that the whole language group contained more students behind in reading, however the phonics group had more students at levels three and four. Toward the end of the school year, the whole language group had more students at levels three and four than the phonics group. Manning and Kamii (2009) concluded that the children in the phonics group made less growth and became more confused during their kindergarten year as compared to the whole language group. They recommend future research replicating this study and following the children beyond kindergarten.

**Fluency.** Fluency is the most neglected and least understood component in comprehensive literacy programs (NRP, 2000). Fluent readers are able to decode text with little cognitive effort, allowing them to comprehend and make meaning of the text read (Rasinski, Blachowicz, & Lems, 2006). Non-fluent readers use cognitive effort to decode sounds and symbols, leaving little cognitive ability to comprehend the text (Trelease, 2006).

Ardoin, Eckert, and Cole (2008) examined the effects of Repeated Readings (RR) and Multiple Exemplars (ME) on the oral reading fluency rates of elementary-age children. The purpose of the study was to examine Repeated Readings with Multiple Exemplars (e.g., reading three different passages with similar content) and the immediate
generalization effects of each on oral reading fluency containing word overlap. Forty-two elementary school students, in either 2nd-grade or 4th-grade, participated in the study. All students were taught in general education classrooms and required no supports from the remedial or special education teachers.

Each participant was exposed to both interventions (RR and ME) every other session. Half of the students started the intervention cycle with RR and the other half started with ME. Each session lasted 12 to 20 minutes, the length of the session depended on the fluency rate of the student. Both interventions were implemented within one school week (five consecutive days), with only one intervention per participant each day. Adult modeling of the reading passage occurred during the first reading of the passage for both intervention conditions.

A within-subjects group design was used to investigate the effects of the experimental interventions on the oral reading fluency of the students. Dependent t-tests were used to evaluate initial oral reading fluency of the first reading passage administered during each experimental condition. A one-way analysis of variance (ANOVA) was used to assess the effects of the two interventions on gains in oral reading fluency. A two-way within-subjects ANOVA was used to analyze the impact of the experimental conditions on the two generalization passages. Results from the analyses showed an increase in the oral reading fluency of the children during the RR condition. No increase in oral reading fluency was demonstrated during the ME condition. When students participated in the RR condition, a greater increase in the words read correctly occurred across the three passages compared to the ME condition. A small increase was noted in reading fluency during the ME condition on the high word overlap passage. Results from the paired-
samples $t$-tests indicated that oral reading fluency rates between the two conditions, during the medium word overlap passages, was statistically significant. Higher mean oral reading fluency rates were noted during the ME condition.

Ardoin et al. (2008) concluded that the RR intervention significantly improved oral reading fluency for children on intervention passages compared to the ME intervention. He recommended brief use of repeated readings on material students will be asked to read during class to assist students in reading the practiced material aloud.

Ardoin, McCall, and Klubnik (2007) conducted a study focusing on the generalization of oral reading fluency in the same and different contexts (multiple exemplars). The purpose of the study was to extend previous research by providing students with multiple opportunities to read words in the same and different contexts. Six general education students, not receiving special education, were selected randomly to participate in this study. All participants were enrolled in the 3rd-grade and attended elementary school.

Materials from the Nuclear Reading Intervention (NRI) (Witt, 2002) were used for the study. All students received 3rd-grade level material from the NRI during intervention. Two conditions existed for this study: (a) the repeated reading (RR) condition, in which the same passage was used for intervention, and (b) the multiple exemplars (ME) condition, in which two passages were used during intervention. A passage separate from the two passages was used for both conditions as generalization analysis. The RR condition was implemented on the odd numbered lessons for a total of six sessions. The ME condition was implemented on the even lessons for a total of six
sessions. The students received identical phrase error correction and token rewards as reinforcement during both interventions.

An alternating treatments design was used to evaluate the effects of the RR condition and the ME condition on 12 generalization passages. Progress was measured through words read correct per minute. The data indicated that the children benefited greatly from the modeling of reading the passages. Their oral reading fluency increased significantly when engaged in repeated readings. In the ME condition, the fluency rates of the children on the generalization passage exceeded their first readings. Data analyses indicated fluency was transferring over to similar passages.

Ardoin, McCall, and Klubnik (2007) concluded that the RR intervention showed a greater effect on fluency for three of the children, while the data for three of the children were inconclusive. They maintained that providing students with a model of reading by a fluent reader and practice of the beginning passages of a story did improve fluency through the remainder of the story. Ardoin et al. (2007) recommend that reading instruction first be provided to support accuracy, then fluency, and then generalization. They also recommend promoting fluency and generalization by using repeated reading with reinforcement and opportunities to respond.

Huang, Nelson, and Nelson (2008) conducted a study focused on the increase of reading fluency through student-directed repeated readings with feedback. The purpose of the study was to combine multiple effective practices into a systematic reading fluency instructional program. A framework designed by Welsch (2007) was used as the intervention. Repeated oral reading with feedback was the main component of the instructional reading fluency program.
This study included two students enrolled in a K-12 charter school and was conducted for a 10-week period. Initial reading levels of the two students were established using the *Flynt-Cooter Reading Inventory* (Flynt & Cooter, 1995) as well as the most common 100 high frequency word lists for each grade level. The students demonstrated proficiency in phonemic awareness and decoding skills, but had difficulty with fluency skills.

The repeated reading treatment was taught to volunteer high school reading tutors, parents, and the older siblings of the participants. All trained tutors were taught modeling, feedback, rehearsal, comprehension checks, and communication. Treatment integrity was measured by having all tutors work with the students, check-in periodically with the trainer, and provide corrective feedback at least twice during the period of the study.

Books relating to student interests and at the current reading level of the students were used. Each student was paired with a volunteer tutor who read three to five pages of a passage with appropriate fluency. The participant then read the same passage with support from the tutor. The tutor wrote down any missed or incorrectly decoded words for review with the tutee after the initial reading of the passage. If 10 or more words were read incorrectly, a lower level passage was chosen for the next reading. If less than 10 words were read incorrectly, the student was drilled on the missed words. The reading and correction process was repeated. The tutor then asked five comprehension questions they had written down during the repeated readings. If the student was not able to answer three or more comprehension questions, a lower level reading book was chosen. After the session at school, the process was repeated at home with a parent or older sibling trained in the process.
Results of the intervention were measured through pre- and post criterion measures on the *Flynt-Cooter Reading Inventory* (Flynt & Cooter, 1995). Significant increases in sight word vocabulary, reading fluency, and comprehension occurred over the 10-week period. Overall, the student-directed intervention was successful. Huang et al. (2008) concluded that the intervention did improve sight word vocabulary, reading fluency, and comprehension. Huang et al. (2008) recommend further investigation of the intervention with other students at different grade levels. A large scale, after-school program implementation also was recommended.

MacDonald (2010) examined the effects of a paired reading program on reading achievement. The purpose of the study was to measure the effects of a look-say approach combined with phonics. The participants included ten middle school students all diagnosed as struggling readers. The study was conducted for three years.

During the first year, a 16-week program was conducted using the paired-reading approach. Students read together three times per week for 18-minutes each session. A phonics program was implemented the second year for the students. During the third year, the paired-reading program continued, but only in the home setting. At school, students practiced chunking text.

Standardized reading tests were used to assess the outcomes. Students were tested at the beginning of the program, six months into the program, and one year later. The areas assessed included word recognition, comprehension, and reading rate. Measures used for comparison included reading-age accuracy, reading-age comprehension, and reading-age rate. For all students reading accuracy improved. Comprehension improved by as much as four years or more. Reading rate did not improve significantly and
decreased for some participants. Mechanical reading ages improved by as much as two years. All participants felt more confident about their reading and felt they were reading faster and more fluently. They also felt it was much easier to read content area text material. MacDonald (2010) concluded that students had a positive experience and mechanical reading, reading accuracy, and comprehension improved for participants. MacDonald (2010) recommended a larger study to investigate this technique as part of a comprehensive literacy support program.

Hudson, Isakson, Richman, Lane, and Arriaza-Allan (2011) compared the effects of two methods used to improve decoding and fluency. The purpose of this study was to examine if practice in low-level skills, without text practice, would transfer to mid-level and upper-level skills (e.g., decoding, fluency, and comprehension). Fifty-eight, 2nd-grade students from seven schools participated in the study.

The students were pretested with the Dynamic Indicators of Basic Early Literacy Skills (DIBELS) Oral Reading Fluency subtest (Good & Kaminski, 2002) and the Woodcock-Johnson Test of Academic Achievement-III Picture Vocabulary subtest (Woodcock, McGrew, & Mather, 2001). The students were assigned randomly to one of two interventions: (a) an accuracy intervention, or (b) an automaticity intervention. The students were placed in small groups and participated in the intervention for 28 minutes two-to-four times per week. During the automaticity intervention, letter sounds and decodable words were organized into word families and students were instructed to read the word families as quickly and accurately as possible. In the accuracy intervention, students were instructed to read correctly regardless of speed.
Descriptive data were collected for each variable of the entire sample and each of the intervention conditions. Multilevel hierarchical linear modeling was used to analyze the effects of the two interventions. The students showed no significant difference in decoding accuracy. No significant effect related to intervention interaction was found. Out of 16 possible pages in the curriculum, the accuracy group reached page 15 and the automaticity group reached page 13. Out of 40 pages possible, students in the accuracy group reached page 17 and students in the automaticity group reached page eight. Students in the accuracy group achieved double the amount of the automaticity group. No differences were shown between groups in decoding accuracy, reading comprehension, or reading fluency at the conclusion of the study. Hudson et al. (2011) concluded that more research was needed in this area to ascertain the role of practicing automaticity plays in increasing reading fluency.

**Vocabulary.** Vocabulary is a key reading component linked to comprehension. At all grade levels, vocabulary is essential to understanding what is being read (NRP, 2000). Students who start school with limited vocabulary will most likely have difficulty learning new words in the classroom (David, 2010). Unfortunately, most teachers do not focus on explicit vocabulary instruction (David, 2010). Vocabulary involves explicit repeated instruction from the teacher with multiple opportunities to use the word in context, illustrate its meaning, create a semantic map, or play word games (Baumann, Kame’enui, & Ash, 2003; Blachowicz & Fisher, 2000; David, 2010).

A study conducted by Baumann, Ware, and Edwards (2007) investigated the impact of a comprehensive vocabulary instructional program on word knowledge. The purpose of the study was to examine the effect of a yearlong instructional vocabulary
program that incorporated the four components of vocabulary development as defined by Graves (2006) (e.g., wide or extensive independent reading to expand word knowledge, instruction in specific words to enhance comprehension of texts containing those words, instruction in independent word-learning strategies, word consciousness, and word-play activities to motivate and enhance learning). The study was conducted in a fifth-grade general education classroom with 20 randomly selected students. Because this was a formative study, no control group was used.

The students were pretested using the Expressive Vocabulary Test (Williams, 1997) and Peabody Picture Vocabulary Test, Three (PPVT-III) (Dunn & Dunn, 1997). During September through April of the school year, vocabulary lessons and activities were added to reading and language arts, social studies, and other instructional times throughout the school day. This included providing students experience with vocabulary of interest to them, reading aloud to the class, designating time for self-selected independent reading, facilitating literature discussion groups, and writing activities that focused on word choice and word usage. Posttests were conducted in May with the same instruments used during pretesting. Pre- and posttest scores were compared to analyze the outcomes of the intervention. Other data collected included results from reading and vocabulary tests, student writing samples, student and parent questionnaires, student interviews, lesson plans, student work samples, student logs, and journals. Both quantitative and qualitative data were collected during this study.

No specific quantitative analyses were indicated other than comparison of pre- and posttest results. Scores compared from the pre- and posttest results indicated that expressive vocabulary grew much more than expected during the intervention.
Comparison of pre- and posttest scores on the *PPVT-III* (Dunn & Dunn, 1997) suggested that students, initially below average in vocabulary, benefited from the instructional program more than students initially above average in vocabulary. Results from the writing samples determined that students involved in the study used 36% more words in their writing toward the end of the intervention compared to writing samples from the beginning of the intervention. The number of low-frequency words used in the writing samples also improved by 42%. Qualitative findings indicated that: (a) students used more sophisticated and challenging words, (b) student interest and attitudes toward learning vocabulary increased, and (c) the students demonstrated use of word-learning tools and strategies independently and engaged in word play.

Baumann, Ware, and Edwards (2007) concluded that providing a vocabulary-rich environment in the classroom and providing instructional strategies for learning word meanings assisted in the development of a greater understanding and application of vocabulary knowledge. Baumann, Ware, and Edwards (2007) maintained that this research was the beginning of an attempt to provide answers concerning effective, classroom-based vocabulary instructional practices. They recommend immersing students in a vocabulary-rich environment including instruction in words and word-learning strategies to develop a greater depth of vocabulary knowledge.

Loftus, Coyne, McCoach, Zipoli, and Pullen (2010) conducted a study involving supplemental interventions targeting early language skills. The purpose of the study was to examine the effects of a vocabulary intervention to supplement vocabulary instruction and ascertain its impact on word learning. The target population in the study was students at risk for language and literacy problems, specifically with low levels in receptive
vocabulary knowledge. The learning rate of vocabulary taught through classroom instruction to target vocabulary taught through classroom instruction with a supplemental intervention were compared. Participants in the study were 43 kindergarten students, from three separate classrooms. Data were collected using the *Peabody Picture Vocabulary Test, Third Edition* (PPVT-III) (Dunn & Dunn, 1997), a word recognition measure consisting of word lists containing target words and nonsense words, a target word picture vocabulary measure consisting of pictures representative of target vocabulary words, a measure consisting of questions containing target vocabulary words, and an expressive definitions measure. The four experimenter-designed measures were developed around a theoretical framework of vocabulary learning constructed through review of work from Nagy and Scott (2000) and Stahl and Nagy (2006).

The *PPVT-III* (Dunn & Dunn, 1997) and the expressive definitions measure were administered to all students before the intervention began. The students were split into two groups, the first group was comprised of 20 students with the lowest scores (treatment group) and the second group consisted of 23 students (control group). Both groups received classroom vocabulary instruction. The control group received vocabulary instruction using a program designed by Coyne, McCoach, and Kapp (2007) titled *Project VI-TAL: Vocabulary Intervention Targeting At-Risk Learners*. Each lesson involved whole-class instruction that lasted 30 minutes. During two weeks of instruction, the students listened to storybooks, read two times. Each storybook contained four target vocabulary words, resulting in eight words that were the focus of vocabulary instruction.

The treatment group received the same vocabulary instruction as the control group plus a supplemental intervention provided in small groups of three-to-four
students. The instruction occurred following classroom-based instruction and lasted approximately 30 minutes. During the intervention, the students worked with two words from each of the books read in class. The remaining words taught in class received no further attention. The control group received a total of two hours of vocabulary instruction and the treatment group received a total of four hours of vocabulary instruction, within a two-week timeframe. Posttest data were collected using a word recognition measure, a target word picture vocabulary measure, an expressive definitions measure, and a context questions measure. A delayed posttest was administered seven weeks after the initial posttest using the same four measures. Testing during the study was administered individually.

Analyses of variance (ANOVAs) were conducted on each of the four measures of target-word knowledge to ascertain whether participants with the lowest level of vocabulary experienced greater growth in their learning of vocabulary words taught both in class and in supplemental small-group instruction compared to just in-class instruction. Each repeated measures ANOVA contained two within-subjects factors including condition and time. Descriptive statistics with effect sizes were used to compare the learning outcomes of the control group and the treatment group.

Results from the word recognition measure indicated that the treatment group scored significantly higher than the control group. Results from the target word picture vocabulary measure reported no significant effect for either intervention. On the context questions measure, the treatment group scored significantly higher on words taught during the intervention than on words taught during whole-group class instruction only. Results from the expressive definitions measure indicated that students in the treatment
group scored significantly higher with the interventions. Students in the control group had higher mean scores on all measures of target word knowledge compared to the treatment group at posttest. When no intervention was implemented, effect sizes were large between the treatment and control groups. When interventions were implemented, effect sizes decreased between the two groups. Results from the delayed posttest replicated results from posttest. Positive effects of the intervention were found on the word recognition measure, context questions measure, and expressive definitions measure. Students in the treatment group scored higher on words that were included in the intervention.

Loftus et al. (2010) concluded that primary-grade teachers could better support the learning of vocabulary by providing direct instruction of vocabulary content in the classroom supplemented with small-group instruction. Loftus et al. (2010) maintained that an important research focus includes understanding the needs of at-risk students and addressing those needs to allow academic growth similar to their peers in general education. They recommend that future studies carefully examine direct vocabulary instruction in the classroom as well as direct instruction with supplemental small-group instruction.

A study conducted by O’Leary, Cockburn, Powell, and Diamond (2010) investigated the beliefs of Head Start teachers concerning effective strategies when implementing phonological awareness and vocabulary knowledge instruction. The purpose of the study was to identify the use of effective strategies in the areas of phonological awareness and vocabulary knowledge. Group interviews of lead and
assistant Head Start teachers were conducted. The teachers who participated collectively managed 83 preschool classrooms.

Each group interview lasted approximately 90 minutes. A total of 14 interviews were conducted, all interviews were audio recorded.

The responses were coded according to themes. Each audio-recorded interview was transcribed and analyzed according to Hatch (2002) who recommended the use of inductive and interpretive methods with transcribed data. Individual responses and themes were identified by reading the transcripts. Reliability was established when a consensus was reached concerning the identified themes.

In the area of phonological awareness instruction, the teachers reported using: (a) explicit instruction, (b) flash cards, (c) foam letter manipulation, (d) emphasis of letter sounds during book readings, (e) emphasis of tongue and lip placement, and (f) letter identification prior to phonological instruction. Many of the teachers were not sure if they should teach letter sounds or letter identification first. The teachers also provided instruction on other elements of phonological awareness including awareness of initial and final sounds as well as clapping out syllables.

In vocabulary knowledge instruction, the teachers reported teaching new words spontaneously as they appeared in stories and discussing unfamiliar words with the students. Unfortunately, planning of instruction was a less common practice. The planned approaches discussed included embedding instruction of selected words in content areas during shared book reading or in letter-of-the week instruction. Many teachers evaluated understanding of vocabulary words by listening to the children talk during playtime or
mealtime. Most teachers used whole group instruction to implement phonological awareness and vocabulary instruction.

O’Leary et al. (2010) concluded that their data supported findings from previous research that indicated phonological awareness is emphasized more than vocabulary knowledge instruction for this age group. O’Leary et al. (2010) maintained that teachers must be taught to view vocabulary knowledge and phonological awareness instruction as equally important. They recommended that a professional development program be implemented to improve teacher awareness of phonological instruction and vocabulary knowledge.

Pullen, Tuckwiller, Konold, Maynard, and Coyne (2010) conducted a study concerning tiered instruction for young students at risk for a reading disability. The purpose of the study was to examine explicit vocabulary instruction provided in a tiered format. The participants were 224 first grade students.

The *Peabody Picture Vocabulary Test, Fourth Edition (PPVT-4)* (Dunn & Dunn, 2007) was used to collect vocabulary measures prior to the intervention. The areas assessed included expressive word knowledge, contextual word knowledge, and receptive word knowledge.

A partial randomized design was used to compare three hierarchically ordered measures of vocabulary. Tier 1 and Tier 2 lessons were constructed to include two first-grade level storybooks. Four words were selected from each book. Tier 1 instruction involved class-wide storybook reading, direct vocabulary instruction for the target words, child-friendly definition activities, exposure to target words in multiple contexts, and opportunities for word engagement and word interaction. Tier 2 instruction supplemented
Tier 1 instruction with small group instruction that provided more exposure to target words in a variety of contexts and additional opportunities to engage and interact with the words. Posttest measures were gathered through hierarchical measures of word knowledge.

A MANOVA was used to evaluate differences between groups with the combination of possible outcomes. Means and standard deviations were calculated for each dependent variable. The results indicated that children involved in the Tier 2 group scored significantly higher on their posttests in the areas of receptive and contextual word knowledge. Pullen et al. (2010) concluded that students who receive strictly Tier 1 instruction may lack sufficient instruction in target vocabulary. Posttest results conducted four weeks after intervention showed that both groups experienced significant losses in receptive and contextual word knowledge. Pullen et al. (2010) concluded that class-wide instruction may not be enough to promote achievement in vocabulary knowledge. They recommended further research in the areas of frequency, intensity, and duration of vocabulary instruction as well as the exploration of tiered instruction in vocabulary instruction programs.

Tuckwiller, Pullen, and Coyne (2010) conducted a study involving vocabulary instruction in a tiered intervention model. The purpose of the study was to investigate whether kindergarten students who participated in Tier 1 and Tier 2 vocabulary instruction would experience a significant improvement in vocabulary outcomes from receiving Tier 1 instruction only. Ninety-two kindergarten students from six classrooms participated in the study.
A Regression Discontinuity Design (RDD) was used for this study. A Regression Discontinuity Design is a quasi-experimental, pretest-posttest comparison group design. This design allowed for the identification of participants who needed the intervention to receive the intervention. Students were assigned to either the treatment group or a comparison group, depending on their scores from the Peabody Picture Vocabulary Test, Fourth Edition (PPVT-4) (Dunn & Dunn, 2007). Students who scored below the 25th percentile were placed in the treatment group. Students who scored at the 25th percentile or higher were placed in the comparison group. Participants in the treatment group received Tier 1 instruction in the classroom and Tier 2 instruction via small-group direct instruction with visual and manipulative material supports. Participants in the comparison group received Tier 1 instruction in the classroom only. Tier 1 instruction involved a group-shared storybook and vocabulary-building intervention.

Tier 1 instruction included two vocabulary lessons provided on two different days and was conducted by the classroom teacher. Tier 2 instruction involved small-group instruction in which a scripted lesson with explicit procedures for in-depth teaching of the target vocabulary words was used. Verbal-visual and verbal-manipulative methods were used during Tier 2 instruction. Each Tier 2 lesson was approximately 20-minutes in length. Tier 2 instruction occurred on Tuesday and Thursday of each week.

Posttest measures used were a model designed by Coyne and Pullen for this study. This framework measures contextual, expressive, and receptive levels of word knowledge. Due to the nature of the design, all of the coefficients in the model were considered statistically non-significant. Use of a paired samples t-test to compare differences in immediate posttest and delayed posttest results indicated no significant
differences in scores for either group. Visual inspection of the distribution of outcomes showed that data were linear in nature. Visual analysis of the results of the study showed that a Tier 2 intervention, used to support a Tier 1, showed an effect. An effect occurred when Tier 2 interventions were used.

Tuckwiller et al. (2010) concluded that Regression Discontinuity Design was a weak design for the size of the sample in the study. They recommended that future research should consider the effects of an extended, comprehensive vocabulary program of tiered instruction involving vocabulary acquisition of young at-risk students. Tuckwiller et al. (2010) maintain that Tier 2 instructional interventions must be explored and designed around an intense, efficient, and effective framework.

Comprehension. Many educators assume that once a child has mastered the skills of decoding and fluency, comprehension automatically follows (Williams, 2002). Researchers have discovered that many students have poor comprehension skills despite their achievement with decoding (Caccamis & Snyder, 2005; Duke, Pressley, & Hilden, 2004; Underwood & Pearson, 2004).

A study by Cudderback and Ceprano (2002) was conducted to investigate comprehension achievement based on the use of a computer-based reading program. The purpose of the study was to determine if the use of Accelerated Reader (Advantage Learning Systems, Inc., 1999) (ALS, Inc.) was beneficial in supporting comprehension for young readers. Accelerated Reader (ALS, Inc., 1999) is a computer system designed to support student knowledge and comprehension of text.
Participants for the study were 12 students who did not meet benchmarks to be promoted to 2nd-grade after completion of the 1st-grade. The students were assigned randomly to one of three summer school classes.

The summer school courses included the use of Accelerated Reader (ALS, Inc., 1999) as part of the curriculum. They attended school 4 hours a day, 4 days per week. Each participant used Accelerated Reader (ALS, Inc., 1999) for 30 to 40 minutes for three of the school days and wrote about their favorite AR book using a grammar guide for the last day of instruction each week.

For the first two weeks of the study, the students read books at their reading level and took a minimum of one Accelerated Reader (ALS, Inc., 1999) test daily. During the second two weeks of the study, the students selected their own books, at the 1.0 to 2.9 reading levels. A positive reinforcement system was used to reward students. When the participants were not working on Accelerated Reader (ALS, Inc., 1999) curriculum, the teacher provided direct instruction in phonics, sight words, context clues, and math. Students had constant access to the digital books and scaffolding was provided for students having difficulties with vocabulary during reading tests.

Comparative analyses of scores were used for each student on a percentage scale, with 100% being the maximum percentage that could be scored. Ten of the 12 participants maintained or improved their literal understanding of stories. The mean score for the group increased from 81% to 84% from week one to week two. From week three to week four, the group mean increased from 74% to 76%.

Cuddeback and Ceprano (2002) concluded that the use of Accelerated Reader (ALS, Inc., 1999) did contribute to reading comprehension improvement when taught
with other materials and teaching strategies, rather than when it was used in isolation. They also maintained that it was beneficial only if teachers were trained properly to use the program as well as supplement the program. Cuddeback and Ceprano (2002) recommended replicating this study using a heterogeneous group of first graders halfway through the school year and allowing a choice of books from a wider range of reading levels.

A study conducted by Guthrie et al. (2004) investigated reading comprehension based on concept-oriented reading instruction. The purpose of the study was to examine the effects of an instructional framework that combined motivational support and strategy instruction on reading outcomes for third graders. Four schools were recruited to participate in the study. One hundred forty-eight students participated in the study. The students were placed randomly into two interventions: (a) the concept-oriented reading instruction model, or (b) the strategy instruction group. The interventions were designed specifically for this study. A pretest-posttest design was used for this study. Pre- and posttest assessments included (a) eliciting background knowledge, (b) student questioning, (c) searching for information, (d) multiple text reading, (e) the Motivation for Reading Questionnaire (MRQ) (Wigfield & Guthrie, 1997), and (f) passage comprehension.

Concept-oriented reading instruction (CORI) was used with the experimental group for reading development. This reading intervention focused on cognitive comprehension strategies and motivational processes. Comprehension was taught through motivational, cognitive, conceptual, and social processes in the classroom. The study was conducted using life sciences content material.
The strategy instruction (SI) group was the control group and was taught with explicit strategy instruction. The implementation of strategy instruction was structured to be similar to multiple strategy instructional techniques. The teachers taught the same objectives as the experimental group and used the same observations and activities as well as used content specific texts for science and social studies. No explicit support for student motivation was outlined for the control group.

Pre- and posttest scores were analyzed to examine the reading outcomes for each group. A one-way ANCOVA was used with the type of instruction acting as the independent variable, multiple text comprehension serving as the dependent variable, and quality of implementation as the covariate. No significant differences were found on any of the pretest measures. On the posttest of multiple text comprehension, the CORI group showed significantly greater gains over the SI group. The CORI group also made significantly greater gains in passage comprehension. Results indicated that CORI had a greater instructional advantage over the SI. Guthrie et al. (2004) concluded that motivation can effect knowledge acquisition and strategy development as well as personal dispositions and behaviors. They recommend that further research include the use of (a) a larger population, (b) different groups, (c) a variety of motivational measures, (d) other content areas, and (e) different combinations of motivational support with strategy-instructional practices.

O’Connor, White, and Swanson (2007) conducted a study involving repeated readings, continuous reading, and the influence of the two interventions on reading fluency and comprehension. The purpose of the study was to investigate if an improvement in reading rate would cause a generalized improvement in reading
comprehension. They believed that the use of repeated readings would improve reading rate and word recognition, impacting the understanding of word meaning and comprehension.

Participants were selected from 2nd-grade and 4th-grade classrooms. Twenty-four students from each grade level participated, making a total of 48 participants. Two average readers from each class were monitored for growth in reading achievement and used as the control group.

The students were grouped into triads according to their fluency scores on a standardized test and were assigned randomly to either repeated reading, continuous reading, or to a control group. All participants were monitored for reading rate growth.

The students in the two intervention groups received 15 minutes of reading-aloud practice with a trained adult listener three times per week. The repeated reading intervention involved the students reading each page of the text three times for 15 minutes. In the continuous reading group, the students read pages from the same book for 15 minutes, but not repeating any pages. The students in the control group received the same instruction as they did typically.

Reading rate, word attack, word identification, and comprehension achievement data were collected using the Peabody Picture Vocabulary Test, 3rd Edition (PPVT-III) (Dunn & Dunn, 1997), the Woodcock Reading Mastery Tests-NU (WRMT-NU) (Woodcock, 1998), and the Gray Oral Reading Tests, 4th Edition (Weiderholt & Bryant, 2001). A mixed-model design with repeated measures was used to determine any significant differences in level and growth between conditions.
Both visual and statistical analyses indicated significant increases in fluency and comprehension for all participants. Results from the data analyses indicated that the rate of growth for both the repeated reading and the continuous reading interventions were significantly faster than the rate for students in the control group. No differences were found between repeated reading and continuous reading.

O’Connor et al. (2007) concluded that the interventions (repeated reading and continuous reading) were effective. They recommend that teachers should include oral reading practice (repeated reading or continuous reading) into their daily instruction time for poor readers in their classroom.

Hagaman and Reid (2008) conducted a study to investigate the use of the RAP (paraphrasing) strategy (Schumaker, Denton, & Deshler, 1984) taught through the self-regulated strategy development (SRSD) model in the general education classroom. Goal setting and self-monitoring were used as the self-regulation strategies. The goals of the study were to (a) provide a replication of previous studies, (b) use self-regulated strategy development (SRSD) to implement the RAP Strategy, (c) use expository text to assess comprehension, and (d) use retells and short-answer questions for assessment.

Three sixth-grade girls participated in the study. Each participant scored below grade level on the Gates-MacGinitie Reading Test-4 (MacGinitie & MacGinitie, 2002), were identified as struggling with reading comprehension, and scored below the 25th percentile on the Gray Oral Reading Test-4 (Weiderholt & Bryant, 2001) comprehension test, and above the 50th percentile in fluency for the same assessment.

The study was conducted in an elementary school. Instruction for the strategies occurred during a reading enrichment period. The reading enrichment class was co-taught.
by a general education and special education instructor. A multiple-baseline across participants design was used for this study. Before instruction, each participant was assessed several times to establish baseline for reading comprehension achievement.

Baseline comprehension probes were given to each of the students before the start of the intervention until baseline was stable, a minimum of three probes were given to each participant. Once baseline was established, the first participant was instructed in the use of the RAP strategy until they were able to read a passage and use the RAP strategy without assistance from the instructor. The following two students entered the intervention phase once the student before them had reached criterion. When the intervention phase was completed by each student, four probes were administered to each student with no assistance provided by the instructor to test for independent performance. Maintenance probes were given two weeks after independent performance, again no assistance was provided by the instructor.

Each probe was scored as a percentage of the number of correct responses to oral questions asked by the instructor. Short answer questions, explicit and implicit, were created for each passage.

All students showed improvement. During baseline, the percentage of text recalled was as follows: Betty, 10%; Helen, 25%; and Katie, 10%. Performance increased after the intervention with percentages increasing to 60% for Betty, 48% for Helen, and 85% for Katie. Percentages of recall during the maintenance phase for Betty, Helen, and Katie were 42%, 41%, and 59%, respectively. All girls showed improvement after the study compared to baseline.
Hagaman and Reid (2008) concluded that the use of strategy instruction within the SRSD model is effective in increasing the achievement of expository text recall and comprehension. They recommend teachers use research-based interventions and suggest the RAP strategy is a useful tool for reading comprehension as a Tier 2 RtI intervention.

Zipke, Ehri, and Cairns (2009) conducted a study focusing on the enhancement of student awareness of semantic ambiguities and its effect on comprehension monitoring and reading comprehension. The purpose of the study was to examine the effects of student awareness enhancement through metalinguistic awareness on comprehension monitoring and reading comprehension achievement. Participants were 46 3rd-graders who were placed in either the experiment group or control group. All students were pre- and post-tested in: (a) homonym definition, (b) ambiguous-sentence detection, (c) riddle resolution, (d) heteronym pronunciation, (e) miscue self-correction, and (f) anomaly detection. The Woodcock Reading Mastery Test, Revised (WRMT-R) (Woodcock, 1987) (reading comprehension subtest) and the GMRT4 (Gates-MacGinitie Reading Test, 4th Edition, 2002) were used for pre- and post-testing.

The students in the experimental were taught the concept of words and sentences that have multiple meanings. The students were introduced to lexical riddles prior to text reading. The control group received no special instruction or training, but did participate in storybook reading and discussion.

Analyses of variance (ANOVAs) were used to assess the effectiveness of the intervention. The independent variables included treatment (ambiguity training vs. control) and the time of the test (pre- and posttest). Significant main effects were found for time of test and treatment for two metalinguistic awareness tests (homonym definition
and ambiguous-sentence detection). Results indicated that students who received the metalinguistic awareness training improved more from pre- to posttest compared to the control group. Students in the experimental group identified more meanings of homonyms as well as more meanings of ambiguous sentences compared to the control group. Two-way ANOVAs were used to assess the effect of metalinguistic awareness on comprehension monitoring. No significant main effects were detected in heteronym pronunciation and miscue self-correction. The use of self-correction was not significant between groups during passage reading.

The data indicated that metalinguistic awareness training with ambiguity detection could be taught to 3rd-grade students. The experimental group made significant gains in providing multiple definitions of ambiguous words as well as explaining double meanings of ambiguous sentences compared to the control group. The skills learned during the metalinguistic awareness training were transferred to indirectly taught skills (e.g., comprehension monitoring and reading comprehension). Zipki et al. (2009) concluded that metalinguistic awareness training directly impacts reading comprehension. They recommend the methods used in the study, or adapting them for whole-class instruction.

Research concerning the *Five Big Ideas in Reading Instruction* (NRP, 2000) in general education support the use of strategies in all areas. When explicit instruction is used, greater gains occur for students. Researchers support and encourage teachers to use explicit instruction (Hagaman & Reid, 2008; Loftus, Coyne, McCoach, Zipoli, and Pullen, 2010; O’Connor, White, and Swanson, 2007; O’Leary, Cockburn, Powell, and
Diamond, 2010; Tuckwiller, Pullen, and Coyne, 2010; Zipke, Ehri, and Cairns, 2009). This supports explicit reading instruction as an effective practice in general education.

**Special Education**

High quality, research-based reading instruction in special education is imperative for the success of students with disabilities (Osipova, Prichard, Boardman, Kiely, & Carroll, 2011). However, the quality of this instruction, along with the intensity and amount of time focused on the instruction, remains inadequate relative to the needs of students with disabilities (Brownell, Adams, Sindelar, Waldron, & Vanhover, 2006). Direct, explicit reading instruction must continue to be the focus in the special education classroom (NRP, 2000).

**Phonemic awareness.** Historically, the most recognized cause of reading disabilities is a deficit in phonemic awareness (Calfee, Lindamood & Lindamood, 1973; Fox & Routh, 1980; Morais, Cluytens & Alegria, 1984). The importance of phonemic awareness has been supported through research comparing strong readers to poor readers (Bradley & Bryant, 1978; Snowling, 1980). The research indicates that children who struggle to read experience difficulty identifying the phonemic components of a word (Beech & Harding, 1984).

Cole and Mengler (1994) investigated the phonemic processing of children with learning disabilities. The purpose of the study was to examine the performance of children with learning disabilities (LD), children of comparative chronological age (CA), and children at the same reading level (RA) in phonemic awareness, particularly phonemic processing. Forty-five children between the ages of eight and nine participated in the study. Students in the target group were diagnosed with LD and attended special
education classes to support their language deficits. The majority of these students were approximately 12 months behind in reading achievement. Participants in the CA group exhibited average reading achievement. The students in the RA group attended mainstream second-grade classrooms and exhibited average reading achievement. The *Peabody Picture Vocabulary Test-Revised* (Dunn & Dunn, 1981) was used to measure vocabulary achievement and the *St. Lucia Graded Word Reading Test* (Andrews, 1973) was used for overall reading (e.g., phoneme deletion, phoneme segmentation, and rhyme and alliteration).

The students were administered tests involving detection of rhyme and alliteration, phoneme segmentation, and phoneme deletion to investigate their performance in phonemic processing. Onset and rime, simple phonemic awareness, and compound phonemic awareness were the skills measured. Each test was given orally and administered one-on-one. Student responses were recorded and responses were considered incorrect if students asked that a word be repeated.

Comparisons were analyzed between the LD and CA groups and the LD and RA groups. Stepdown analyses were performed for both sets of comparisons with dependent variables in order of the most complex phonemic processing to the simplest level of processing. In the LD and RA comparisons, the data indicated that (a) the phoneme deletion task did not independently discriminate between the groups, (b) the phoneme segmentation task did not independently discriminate between the groups, and (c) a significant difference did exist on the detection of rhyme and alliteration between the groups. The LD and CA comparisons indicated that significant deficiencies existed for children with LD for all tasks.
Cole and Mengler (1994) concluded that the detection of rhyme and alliteration should be targeted to reduce reading deficiencies for students with LD. They recommended future research use sensitive assessments and explicit remediation to meet the needs of children with LD.

Conners, Atwell, Rosenquist, and Sligh (2001) conducted a study investigating the abilities of children with intellectual disabilities (ID) to decode. The purpose of the study was to compare the phonological processing abilities of two groups of children with ID. Sixty-five children participated in the study. The students were between the ages of eight and 12-years-old.

Two types of phonological processing abilities were measured in the study: (a) phonemic awareness, and (b) phonological working memory. Both groups of children were poor decoders, but the children in one group had stronger decoding abilities. Conners et al. (2001) hypothesized that if poor phonological processing ability was the cause of reading difficulties for children with ID, then the two groups should have different outcomes on the phonological processing measures.

The students were divided into two groups (high decoding skills and low decoding skills). Both groups performed significantly lower in decoding and phonemic awareness skills than children without disabilities. Assessments in the study included (a) decoding non-words, (b) decoding sight-words, (c) intelligence estimate, (d) general language ability, (e) phonemic awareness, (f) phonological working memory rehearsal process, and (g) phonological working memory phonological store.

The *Lindamood Auditory Conceptualization Test* (LACT) (Lindamood & Lindamood, 1979) was used to measure phonemic awareness abilities. Baddeley’s (1986)
model of working memory was the framework used to test phonological working memory. Phonological reading skill training was used as the intervention. Language ability and IQ scores were used to compare the two groups. Analyses were conducted through $t$-tests.

Both groups performed significantly better on the decoding of short-strand words over long-strand words as well as recalling rhyming words better than non-rhyming words. The comparison of the two groups indicated that the better decoders were older than the poorer decoders. The better decoders scored higher in the areas of language composite, phonemic awareness, and the rehearsal process composite as well as had a greater ability to refresh phonological codes in working memory.

Conners et al. (2001) concluded that there may be an important connection between rehearsal process functioning and decoding in children with ID. They maintain that the data suggest that children with ID who are better at decoding are not necessarily better at analyzing phonemic sequences. Conners et al. (2001) recommend that future research focus in phonemic awareness to facilitate the acquisition of decoding skills for students with ID.

Loeb, Gillam, Hoffma, Brandel, and Marquis (2009) conducted a study investigating the effect of a computer program on phonemic awareness. The purpose of the study was to examine the effect of the *Fast ForWord* Language Program (Tallal et al., 1996) on the phonemic awareness skills and reading skills of children with poor reading skills and language impairments. A subgroup of 103 children with language impairments and poor reading skills were selected to participate in this study. The participants ranged in age from six to nine-years-old.
Each participant was assigned to one of four conditions. The first condition, which was the intervention for the study, was the *Fast ForWord* Program (Tallal et al., 1996), (e.g., seven computer games that target sound discrimination of phonemes, syllables, and words). The second condition was a computer-assisted language intervention (CALI) (e.g., *Earobics Step 1 and Step 2* software (Cognitivie Concepts, 2000a, 2000b) and *Laureate Learning Software (Following Directions)*, Semel, 2000 and *Micro-LADS*, Wilson & Fox, 1997). Children assigned to the third condition were part of the individualized language intervention (ILI) group (language facilitation techniques consisting of approaches such as scaffolding). The fourth condition was the control group, in which no specific phonological or phoneme instruction was provided.

This longitudinal study was conducted over three summers with three different groups of children. The study was conducted for six weeks each summer and included 30 sessions.

Raw scores from the *WRMT-R* (Woodcock, 1987) subtests were collected as data for outcome measures. The subtests used included (a) word identification, (b) word attack, and (c) passage comprehension. A generalized linear model, repeated measures analysis was used to determine the effects on phonemic awareness and reading across all treatment conditions. Results indicated that one phonemic awareness skill (blending sounds in words) improved for children in the *Fast ForWord* (Tallal, 1996) group, while reading skills did not improve. Long-term improvement was not significant at any level for any intervention.

Loeb et al. (2009) concluded that acoustically modified speech is not necessary to improve phonemic awareness. They recommend that future studies use the newest
version of *Fast ForWord* as it improves, along with student training in phonemic awareness, sight word reading, and decoding skills.

Isakson, Marchand-Martella, and Martella (2011) conducted a study on phonemic awareness and the effects of a published curriculum. The purpose of the study was to evaluate the effects of the *McGraw Hill Phonemic Awareness* (Eisele, 2008) program on the phonemic awareness skills of preschool children with developmental delays. Participants of the study included five preschool students diagnosed with developmental delays. All participants were enrolled in a special education half-day preschool program four days a week.

Components of the *Dynamic Indicators of Basic Early Literacy Skills* (DIBELS) (Good & Kaminski, 2002) were used for the pretest, posttest, and progress monitoring performance of the students. The *Initial Sound Fluency* and *Phoneme Segmentation Fluency* subtests were used to measure outcomes. The *McGraw Hill Phonemic Awareness* (Eisele, 2008) program was used as the intervention in the study. Each lesson consisted of two-to-seven exercises (e.g., separating words in a sentence). Students were asked to identify syllables and phonemes. During each lesson, the skill was modeled, practiced, and used independently. The program was implemented three-to-four days per week for five months.

A single group, pre/posttest experimental design was used for this study. Results from analyses indicated that all five students improved in the area of phonemic awareness skills. All children scored in the deficit range during the pretest. While the posttest data showed them scoring in the emerging or established categories. Each student gained a minimum of six initial sounds per minute on the Initial Sound Fluency subtest. On the
phoneme segmentation assessment, each student gained a minimum of 20 phonemes per minute. Isakson et al. (2011) concluded that use of the *McGraw Hill Phonemic Awareness* (Eisele, 2008) may be a strong intervention to increase phonemic awareness in young children with developmental delays. Isakson et al. (2011) recommend future studies use the program over a long period of time.

**Phonics.** Advocates of phonics-centered reading instruction emphasize that explicit systematic phonics instruction is crucial for teaching children to read and write (Beck & Juel, 1995; Chall, 1967; Ehri, 2005). A phonics-centered approach requires teachers to use scripted, whole-class or small group lessons, and specific phonics embedded in each lesson (Stahl, 1998). The goal is for a child to master phonics skills as a framework for word attack (NRP, 2000).

Hooks and Peach (1993) conducted a study to evaluate the effectiveness of phonics instruction for students with LD. The purpose of the study was to examine the effectiveness of the *Char-L Intensive Phonics Program (Char-L)* (Lockhart, 1989) for adolescents with LD. Eight students with LD enrolled in the 8th-grade participated in the study.

The students received one hour of instruction a day using the *Char-L* (Lockhart, 1989) for twelve weeks. The lessons consisted of listening strategies, word attack skills, decoding, spelling, vocabulary, oral reading, and writing skills. The *Char-L* (Lockhart, 1989) pre- and posttest and the *Brigance Diagnostic Inventory of Basic Skills* (Brigance, 1977) word recognition tests were used as assessments in the study. Scores were compared to assess achievement.
All students showed marked improvement for all measures. An average gain of one month for each student was shown after the twelve-week program was completed, with percentage gains ranging between 10-27%. Hooks and Peach (1993) concluded that the Char-L (Lockhart, 1989) supports reading achievement for adolescents with LD and recommended further research involving its use with adolescents with LD.

Torgesen et al. (1999) conducted a study to examine the effects of three instructional approaches to teach phonological skills to young children with reading disabilities. Two intense phonemic decoding programs were compared to each other and both were compared to general classroom instruction. The first approach attempted to create the maximum possible instruction in phonemic decoding. The second approach emphasized active coordination of less-developed phonemic reading skills with context clues provided to help construct meaning of text and accurately read words. One hundred eighty kindergarten students with low scores from the Stanford-Binet Intelligence Test-4th Edition (Thorndike, Hagen, & Satler, 1986) in the areas of letter naming, phoneme elision, and verbal intelligence participated in the study.

The children were assigned to one of the three treatment groups or the control group: (a) no-treatment/control group (NTC), (b) regular classroom support group (RCS), (c) embedded phonics group (EP), or (d) phonological awareness plus synthetic phonics group (PASP). The children assigned to the three treatment groups received four, individual 20-minute lessons per week. Two sessions were taught by teachers and two sessions were taught by paraeducators who followed written instructions provided by the teacher. The teachers in the PASP group spent 80% of instructional time on word-level tasks and 20% on text activities. The teachers in the EP group spent 43% of instructional
time on word-level lessons and 57% on text activities. Teachers in the RCS group administered individual tutoring with activities and skills taught in their general classroom reading programs.

Comparisons of group outcome measures were analyzed using a MANOVA. Measures similar in construct were combined and analyzed. Individual differences were analyzed using hierarchical linear modeling by calculating individual growth curves for measures of word-level reading skills. Phonetic decoding, real word identification, and reading comprehension measures all showed significant growth across measurement points. Instructional outcome measures showed that the PASP group acquired significantly stronger skills in phonological awareness, phonemic decoding, and untimed context-free word reading than did the students in the EP group. Students in the PASP group also outperformed students in all other groups in the area of word-level reading skills. No significant differences were found between groups in reading comprehension. Growth in word-level skills among the treatment groups was not significantly different from those of the control group, nor did a significant difference exist in the ability to construct the meaning of written text. Torgesen et al. (1999) concluded that phonemic awareness instruction with synthetic phonics is an effective approach to improving beginning reading skills. Torgesen et al. (1999) recommend further research investigating the use of tutoring within the general education classroom that includes a balance between word-level and comprehension skills.

Olinghouse, Lambert, and Compton (2006) compared the use of oral reading fluency assessments with an aligned word list as determinants of reading growth in decoding, word identification, text reading accuracy, fluency, and comprehension. The
The purpose of the study was to investigate the effects of the *Phonological and Strategy Training Program* (PHAST) (Lovett, Lacarenza, & Borden, 2000) on the learning of phonological and word recognition skills. The *Phonological and Strategy Training Program* (PHAST) (Lovett, Lacarenza, & Borden, 2000) is a systematic sequential reading program designed to provide phonologically-based remediation instruction. Forty students identified as having LD participated in the study. All students participated in small group instruction using the *PHAST* (Lovett, Lacarenza, & Borden, 2000) for 70 hours.

Multiple assessments were used to collect pre- and post-intervention data for each participant. These included (a) the *Gray Oral Reading Test-3* (Wiederholt & Bryant, 1992), (b) the *Test of Word Reading Efficiency* (Torgesen et al., 1997), and (c) the *Woodcock Reading Mastery Test-R/NU* (Woodcock, 1987) word identification and word attack subtests. Progress monitoring (e.g., oral reading fluency and word list measures) was done six times during the study.

Hierarchical linear modeling was used to chart initial status and slope parameters for each child. A model was run for each of the outcome measures for the word list measures and oral reading fluency. Results from the word list measures accounted for unique variance on the timed and untimed reading measures, decoding, and timed-passage accuracy. Results from the oral reading fluency accounted for unique variance of passage-reading fluency measures.

Measure outcomes indicated that the PHAST improved reading achievement for all students. Gains in reading achievement were shown through the use of progress monitoring. Olinghouse et al. (2006) concluded that the word list measures were an
effective progress monitoring tool if the student goal is to improve word reading ability and the oral reading fluency measures were an effective instrument if the student goal is to generalize decoding and word reading skills to passage reading fluency. Olinghouse et al. (2006) recommend further research concerning the use of progress monitoring and the design of appropriate tools to measure teacher practice.

Vadasy, Sanders, and Tudor (2007) conducted a study involving the use of a paraeducator to supplement individualized instruction. The purpose of the study was to investigate the effectiveness of a paraeducator-administered supplemental reading program focused on decoding skills. Forty-six students were assigned randomly to either the early treatment (ET) group or the late treatment (LT) group.

The ET group received intervention from October to March while the LT group served as the non-treatment group during that time period. The LT group received the intervention from March to May. Eleven paraeducators implemented the intervention.

The intervention involved the paraeducators following a set of scripted lessons. Each lesson involved 15-minutes of phonics instruction and 15-minutes of oral passage reading. The sequence of content scaffolding included (a) letter-sound correspondences, (b) decoding, (c) sight word reading, (d) spelling, and (e) additional phonics generalization. Mastery tests were administered every tenth lesson to monitor acquisition of content and skills. The lessons were supplemented with reviews if a student did not meet mastery.

During Phase One of the study, a randomized treatment-control design was implemented. The ET group received treatment while the LT group served as the control group. During Phase Two, a treatment-only repeated-measures design was used. The LT
group received treatment after the first group had completed treatment. During both phases, each student in the group participated in individual tutoring for 30-minutes per day, four days per week. During Phase One, the ET group received 15 weeks of treatment. During Phase Two, the LT group received 12 weeks of treatment.

Multiple measures were used to collect pre- and posttest data. Receptive language was measured during the pretest only. Classroom behavior was measured in February of the school year. Reading accuracy, passage fluency, and spelling were measured at pretest, midpoint, and posttest. During Phase One, pretests and intercorrelations among the pretests were conducted. A series of 2 x 2 ANOVAs were used for each measure during the pretest and no significant differences were found between the two groups. Correlations among the posttests were conducted and proved moderate. Separate 2 x 2 ANCOVAs were conducted on each posttest. During Phase Two, follow-up test correlations were conducted. No single pretest correlated with a respective posttest. A series of 2 x 2 mixed ANOVAs were used with grade level included as a between-subjects factor. The follow-up results for the ET group suggested that the students maintained their level of performance from posttest to follow-up. Students in the ET group significantly outperformed the control group at posttest. The ET group maintained their posttest performance levels to the the follow-up test three months later. Students in the ET group had higher rates of gain in reading accuracy, passage fluency, and words spelled correctly compared to the LT group. However, the ET students still remained far below grade level in reading rate at the end of the school year despite the intervention. No significant differences were found between groups in spelling and fluency remained below average.
Vadasy et al. (2007) concluded that the study provided data to support the use of reading instruction provided by paraeducators. Because more and more paraeducators are used in education, Vadasy et al. (2007) recommend more research focused on the efficient use of paraeducators in the classroom.

**Fluency.** A characteristic of students with a reading disability is the struggle to read fluently (Strong, Wehby, Falk, & Lane, 2004). The NRP (2000) maintains that fluency should be a major component in the national effort to improve reading achievement. Struggling readers and students with reading disabilities often use the majority of their cognitive energy on decoding words, leaving little opportunity to focus on the meaning of the text (NRP, 2000). Research maintains that reading comprehension depends on accurate word recognition and reading fluency (Laberge & Samuels, 1974; Logan, 1985; Stanovich, 1980; and Schreiber, 1987).

In 1996, Gilbert, Williams, and McLaughlin investigated the use of assisted reading to improve reading fluency rates. The purpose of the study was to measure the effects of assisted reading on the oral reading rates and error rates of elementary school students with LD. Three elementary students diagnosed with LD participated in the study. The study was conducted in a combined general education classroom containing both 1st-grade and 2nd-grade students.

A multiple baseline across subjects design was used to determine the effects of assisted reading. The *Nelson Reading Series* (Brown, Fishco, & Hanna, 1993) was used to collect baseline data. During baseline, the teacher introduced and talked about vocabulary in a story. The teacher also discussed phonetic rules with the students. The students then read the passage silently one time and then read orally into an audio
recorder for four minutes. No feedback was given to the students after the audio recording.

During the intervention phase, the teacher gave headphones to the students to listen to a prerecorded passage from the *Nelson Reading Series* (Brown, Fishco, & Hanna, 1993). The students listened to the recording and followed along by tracking the text with their finger. They then read the passage aloud three times while still listening to the audio recording. The students received positive feedback as they read. The next day each child read the passage independently into an audio recorder for four minutes. Reading rates were collected from the independent recorded readings.

Upon implementation of the intervention, an immediate increase in reading rate occurred for all three participants: (a) student one increased from 28 words per minute to 60 words per minute, (b) student 2 increased from 58 words per minute to 84 words per minute, and (c) student three increased from 38 words per minute to 68 words per minute. Error rates also decreased for each participant: (a) student one went from four to two errors, (b) student two went from six to two errors, and (c) student three went from four to two errors.

Gilbert et al. (1996) concluded that assisted reading was an effective intervention to increase reading rate and decrease reading errors. They recommend that future studies focus on determining the differential effects of specific components of assisted reading and the effect of assisted reading on comprehension.

Mercer, Campbell, Miller, Mercer, and Lane (2000) examined the effects of a reading fluency intervention for 49 middle school students with LD. The purpose of the
study was to develop and evaluate a tutoring-based reading fluency intervention that could be administered by paraprofessionals.

The students were pretested on their reading fluency and reading grade level prior to beginning the intervention. The intervention used was the Great Leaps Reading Program (Campbell, 1995). For the first year of the study, the special educators implemented the program. For the second and third years, paraprofessionals implemented the program. Tutoring sessions consisted of phonics, sight phrase, and oral reading instruction. The intervention sessions were daily five days a week. The students read a phonics page aloud, a sight word passage, and a story page. Each lesson was determined by the previous performance of the student.

An experimental, pre-/posttest three-group design was used to measure changes over time (e.g., reading rate per minute on oral passages). Curriculum based assessments (CBAs) were used to collect pre- and posttest scores. Dependent t-tests were used to analyze fluency scores. Overall, the data indicated that all participants made significant gains in reading and that the intervention proved effective.

Mercer et al. (2000) concluded that the study indicates that explicit fluency-based reading instruction implemented by paraeducators including phonics, sight words, and oral readings are appropriate for students with LD. Mercer et al. (2000) recommend: (a) the use of paraprofessionals to supplement reading instruction, (b) one-on-one reading instruction, (c) oral reading fluency instruction, and (d) fluency instruction for older students with LD.

Fuchs et al. (2001) conducted a study investigating the reading fluency of children with and without disabilities in the first-grade throughout the United States. The purpose
of the study was to examine the use of Peer Assisted Learning Strategy+Fluency (PALS+Fluency) (Fuchs et al., 2000) and its influence on reading, particularly fluency. Thirty-three, first-grade teachers and their classes were assigned randomly to three different groups: (a) PALS+Fluency (Fuchs et al., 2000), (b) PALS (Fuchs et al., 2000), and (c) a control group. The PALS+Fluency (Fuchs et al., 2000) group worked with peers and also participated in repeated readings with their peer mediator. The PALS (Fuchs et al., 2000) group participated in the PALS (Fuchs et al., 2000) program. The control group received reading instruction typically used in the classroom. Reading measures were conducted on all participants in the areas of phonological awareness, phonics, fluency, and comprehension.

The intervention lasted 22 weeks. For the first 11 weeks, the students participated in the intervention for a total of 50 minutes. During the second 11 weeks, the students participated in the intervention for a total of 100 minutes. Student progress was compared across the three groups. Compared reading measures included phonological awareness (letter-sound correspondence, segmenting, and blending), alphabetties (word attack, word identification, and spelling), fluency (words read correct per minute in connected text), and comprehension (retelling of the story). The PALS+Fluency (Fuchs et al., 2000) group improved significantly in the fluency and comprehension measures over the control group. This suggested that peer-mediated repeated reading impacts both reading fluency and reading comprehension. Fuchs et al. (2001) concluded that allowing students to engage in peer-mediated repeated readings helped improve reading achievement. They recommend use of peer-mediated, repeated reading to increase reading fluency and comprehension for students with LD.
A study by Strong, Wehby, Falk, and Lane (2004) investigated reading skills instruction for middle school students with emotional behavioral disorders (EBD). The purpose of the study was to analyze the effect of Corrective Reading (Becker & Carnine, 1980) and repeated reading as interventions for these students. Participants in the study were six male students, two enrolled in the 7th-grade and four enrolled in the 8th-grade. The participants were all taught in the same self-contained classroom.

The Woodcock Reading Mastery Tests-Revised (WRMT-R) (Woodcock, 1998) and the Gray Oral Reading Test-3rd Edition (GORT-3) (Weiderhold & Bryant, 1992) were used for the reading standardized measures. The Social Skills Rating System (SSRT) (Gresham & Elliott, 1990) was used as the behavioral measure.

During baseline, the students completed two curriculum-based assessments to measure their reading fluency and comprehension. The passages chosen for the first probes were equivalent to a 3rd-grade reading level. Passages chosen for the second probe were from a 7th-grade literature book to measure their current reading levels for the 7th-grade core curriculum.

The Corrective Reading Placement Test (Becker & Carnine, 1980) was given to all participants to establish a starting point for intervention. The teacher then implemented the Corrective Reading (Becker & Carnine, 1980) curriculum in 30-40 minute segments, four days per week.

The next phase of the study involved repeated reading. After the daily Corrective Reading (Becker & Carnine, 1980) instruction, a repeated reading intervention was added to analyze any added effects on reading fluency and comprehension. The students would read a passage four times and then moved to a new passage at.
A multiple baseline design across student groups was used to analyze the effects of the combined interventions. Descriptive measures indicated that all students were functioning below grade level in reading prior to baseline. Once the intervention was implemented, the students showed moderate growth in oral reading fluency and comprehension during implementation of the *Corrective Reading* program (Becker & Carnine, 1980) with repeated reading. The results also indicated moderate growth in oral reading fluency.

Strong et al. (2004) concluded that results support previous research concerning reading fluency for middle and high school students with EBD who read below grade level. They recommend future research focus on the most effective ways to improve the reading rate and comprehension of students with EBD.

Begeny, Daly, and Valleley (2006) conducted a study to compare two oral fluency interventions to improve fluency rate for elementary students with LD. The two interventions were repeated reading (RR) and phrase drill (PD). An eight-year old male in 3rd-grade participated in the study. He was diagnosed with academic and behavioral disabilities.

Six passages were used to record oral reading fluency rate. The passages consisted of two examples from the 1st-, 2nd-, and 3rd-grade reading levels. Probes at the 2nd-, 3rd-, and 4th-grade levels from the *DIBELS-6* (Good & Kaminski, 2002) were used to monitor progress. Words correct per minute (WCPM) and words incorrect per minute (WIPM) were used to record oral reading fluency rates.

Before beginning the intervention, fluency rates of the student were assessed to determine the highest instructional reading level. In baseline, the student read the selected
passages and fluency rate was assessed. An alternating treatments design was then implemented. During intervention, a different reading passage was used for each session. The baseline condition, repeated readings condition, phrase-drill with error correction condition, and reward condition were all evaluated. The repeated reading consisted of the student reading a passage two times before being assessed. Phrase-drill consisted of the student reading a passage and then practicing each missed word using phrase strips three times for each missed word. For the reward condition, the student received a tangible incentive each time he read at a faster rate.

Graphs of the data revealed that both the instructional treatments (RR and PD) had an equal effect on increasing reading rate compared to baseline and the reward condition. The phrase-drill condition had the lowest amount of error among all conditions. Begeny et al. (2006) concluded that PD had a greater effect than RR on reading rate, they maintained that PD offered more opportunities for modeling. Begeny et al. (2006) recommend further research concerning the use of PD.

**Vocabulary.** Vocabulary is a critical element in the process of becoming a good reader (Beck & McKeown, 2007; NICHD, 2000). Knowledge of vocabulary plays a vital role in learning to read and reading to learn (NRP, 2000). Even in the early learning years, a child depends on their oral vocabulary as a cognitive link to their decoding skills (NICHD, 2000). Unfortunately, vocabulary instruction rarely occurs in early childhood education (Coyne et al., 2010; NICHD, 2000). This is disturbing in that reading research indicates that grade level comprehension relies on a reader being familiar with 90 to 95 percent of the vocabulary words in the text (Hirsch, 2003).
Johnson, Gersten, and Carnine (1987) conducted a study to compare two computer-assisted instruction (CAI) programs designed to teach vocabulary to adolescents with learning disabilities. Participants were 38 high school students with LD. Each student scored three years below grade level on the reading subtest of the Woodcock-Johnson (Woodcock & Johnson, 1977).

The students were assigned randomly to one of two treatment groups: (a) the small teaching set program, or (b) the large teaching set program. The small teaching set consisted of individualized CAI lessons that pretested students on word knowledge and then composed teaching sets of words the students did not know. The large teaching set consisted of teaching vocabulary in sets of 25, with nine levels of 75 words for grades four through twelve. The same 50 words were used in both teaching sets for the purpose of the study.

The students received CAI time during a 20-minute session four days a week. Pretest, posttest, and maintenance test data were collected through the use of a 50-item multiple-choice vocabulary test. A 10-item vocabulary test with open-ended questions was used to measure student recall of word definitions already taught. A 2 x 2 ANOVA was used for the posttest and maintenance. Between-subjects (type of instruction) and within-subjects (time of testing) were the factors. Results from these analyses indicated no effect for type of instruction.

A t-test was used to analyze results of the open-ended test. Results from the t-test indicated no significant differences between groups. In comparison to children with no disabilities, mean posttest scores were similar. Students with LD were able to learn word meanings and perform on a similar achievement level to that of their general education
peers. Students in the small teaching set reached mastery significantly quicker and required less time to meet mastery than in the large teaching set. Both treatment groups scored similar in growth of word knowledge during posttest and maintenance.

Johnson et al. (1987) concluded that CAI vocabulary instruction could serve as a useful, efficient tool for teaching vocabulary. They recommend future studies in this area as well as investigating the integration of CAI and direct instruction by teachers.

Simmons and Kameenui (1990) examined the effect of task alternatives on vocabulary knowledge. The purpose of the study was to investigate the vocabulary knowledge of students with and without LD. Vocabulary knowledge was examined in multiple dimensions to assess if a participant knew the vocabulary word and could demonstrate knowledge of the word. Forty-eight children participated in the study, ten-year-olds who were normally achieving (NA), ten-year-olds with LD, twelve-year-olds who were NA, and twelve-year-olds with LD. Reading comprehension and total reading standard scores from the Stanford Achievement Test (Thorndike, Hagen, & Satler, 1986) were measures of achievement for all participants.

Each student was shown 45 vocabulary words and oral responses were audio recorded. Two interventions were then implemented (a) unprompted production response (UPR) and (b) prompted choice response (PCR). During the unprompted production response, each student defined a word orally. If the word was defined correctly, the student was given another term. If the word was defined incorrectly, the student moved on to the prompted choice response intervention. During PCR, the students were shown a template of drawings and instructed to point to the drawing that represented the meaning of the given word. Only one trial was permitted per word. Three levels of knowledge
were used for scoring UPR responses. For PCR, the students selected one choice as their response.

A quasi-experimental, one-factor between-group design with learner classification was used to analyze the data. Overall, students with LD demonstrated significantly poorer vocabulary knowledge than the comparison groups. Unprompted production responses proved very difficult for students with LD. Simmons and Kameenui (1990) concluded that the study supported previous research indicating that students with LD did not lack vocabulary knowledge, but simply were unable to demonstrate knowledge of vocabulary through verbal response. Simmons and Kameenui (1990) recommend that replications of this study be conducted to investigate the scaffolding of vocabulary words by level of difficulty of students with LD.

Fore, Boon, and Lowrie (2007) conducted a study to compare the effectiveness of two vocabulary instructional models on the learning of content-area vocabulary. The two models included definition instruction (use of the dictionary) and concept model instruction. The participants included six, 7th-grade students with LD. A single-subject, multiple-baseline design across subjects was used to evaluate outcome measures for each of the instructional models.

Baseline data were collected on student performance regarding vocabulary definitions and sentences written using the words. Intervention data were collected when students participated in the concept model intervention. The concept model instruction consisted of teaching the students to use a concept diagram to learn and discuss vocabulary words. The students were taught five vocabulary words each week. Each word was taught using explicit steps and the teacher and student completed the diagram
together. The teacher and students then discussed examples and non-examples of the vocabulary word. The students completed a diagram using the teacher diagram as a model. Progress monitoring data were collected at the end of each week using ten objective questions focused on the weekly vocabulary words.

Analysis of the data indicated an increase in both mean and median scores for all participants from baseline to intervention. Posttest scores increased from an average of 58% during baseline to 82% post intervention. Fore et al. (2007) concluded that the findings support previous research involving the use of the concept instructional model to increase vocabulary achievement for students with LD. They recommend that future research investigate the use of the concept instructional model on vocabulary knowledge of secondary-level students with LD across multiple instructional settings.

Pullen, Tuckwiller, Konold, Maynard and Coyne (2010) conducted a study focusing on explicit vocabulary instruction provided in a 2-Tier format for students at-risk for failure in reading. Two hundred twenty-four 1st-grade students participated in the study. Ninety-eight of the participants were in the treatment group, 126 of the participants were in the control group.

A partially randomized design was used, in which the students were placed in the at-risk treatment (ART) group, at-risk control (ARC) group, or not at-risk (NAR) group depending on their pretest scores on the Peabody Picture Vocabulary Test-4th Edition (PPVT-4) (Dunn & Dunn, 2007). Students who scored below the 39th percentile were placed in either the ART or ARC group. Participants who scored above the 39th percentile were placed in the NAR group.
The ARC and NAR groups received Tier 1 instruction from the general education teacher that used word-rich stories from selected storybooks and direct vocabulary instruction for specific words chosen from the books. Tier 1 instruction also provided activities using age-friendly definitions, repeated exposure to target words in multiple contexts, engaged students in deep word processing activities, and provided many opportunities for students to engage with the target words. Each story in the Tier 1 instruction was read aloud by the teacher on days one and three of instruction.

Participants in the ART group received Tier 1 instruction along with Tier 2 small-group lessons. The groups were three-to-five students in size. The Tier 2 instruction included a review of the age-friendly definitions, more exposure to the target vocabulary words in varied contexts, and additional opportunities for the students to interact with the target words.

The posttests consisted of a study-developed measure that assessed student acquisition of target vocabulary words (e.g., receptive, contextual, expressive) taught during the intervention periods. The first posttest was given immediately following the intervention. The second posttest was given four-weeks post intervention.

A multivariate analysis of variance (MANOVA) was used to evaluate differences on the combination of possible outcome variables. Roy-Bargman step-down analyses and planned contrasts also were used. A MANOVA was used to compare children in each of the three groups (e.g., ART, ARC, NAR) on the combined dependent variables during posttest and delayed posttest. The results considered statistically significant were then evaluated through step-down analyses on prioritized dependent variables to control for overlapping variance among the three different measures of depth of word knowledge. If
statistical significance was indicated through step-down analyses, then contrasts between the ART and ARC groups were evaluated as well as contrasts between the ART and NAR groups.

Posttest results indicated a statistically significant difference between groups on the combined posttest reading variables. The step-down analyses showed between group differences on the receptive level and the contextual level of word knowledge. Planned group contrasts for the step-down analyses indicated that the ART group performed better than the ARC group on both the receptive and contextual levels and the NAR group performed better than the ART group on receptive and contextual levels. Delayed posttest results indicated similar outcomes with one difference, the planned group contrasts for significant step-down analyses revealed no significant differences between the ART and ARC group on either receptive or contextual word knowledge.

Pullen et al. (2010) concluded that students with low baseline vocabulary scores did not retain vocabulary knowledge solely from a Tier 1 instruction. The data indicated that Tier 2 supplemental intervention for vocabulary instruction was needed to improve outcomes for children at-risk for poor vocabulary acquisition. They also maintain that students at the primary elementary level benefit from instruction in expressive vocabulary word knowledge and recommend further studies focusing on the frequency, intensity, and duration of Tier 1 and Tier 2 vocabulary instruction.

Fishley, Konrad, Hessler, and Keesey (2012) conducted a study on morpheme awareness of high school students with high-incidence disabilities. The purpose of the study was to determine the effects of a multiple-element intervention on morphemic knowledge and vocabulary development. Three female high school students participated
in the study. The intervention used a researcher-developed package that included graphic organizers, flashcards, self-graphing, and review of errors; along with direct teaching, repeated practice, and emphasis on morphemic analysis.

A multiple probe across morpheme tasks was used. Three card decks of morphemes were taught. Each deck contained 15 morphemes, with each morpheme in the deck three times, totaling 45 cards per deck. Pre-baseline data consisted of the collection of current morpheme knowledge through a test of 100 morphemes. During baseline, the students attended their English class and participated in the classroom instruction. Students were timed for 30 seconds with a deck of 45 morphemes with no feedback given. During the first intervention phase, direct teaching took place using graphic organizers to teach the meaning of the morphemes. Five new morphemes were introduced for the first three sessions. Students were then timed twice for 30-seconds with one deck of flashcards and then self-recorded their best performance on a graph. If mastery was not obtained by the fourth session, sprint training occurred (15-second timings with 15 flashcards). The intervention phase used the three decks of cards to mastery. Pre- and posttests were used to collect data on knowledge of the morphemes and spelling of dictated words. The maintenance phase mimicked the baseline phase.

The first student was able to state one correct morpheme definition among the three decks during baseline. She showed an immediate increase in all decks once intervention was introduced and did not require sprint training. The second student could not recognize any morphemes among the three decks during baseline. However, she met her goal within four days of intervention and did not require sprint training. The third student could not recognize any morphemes during baseline and required one-sprint
training to meet her goal. A trend in acceleration of mean scores for each participant
continued during the maintenance phase. All participants showed improvement in word
definition analysis, but no significant improvement in spelling.

Fishley et al. (2012) maintained that the intervention provided an explicit method
of teaching vocabulary with mastery being reached in a minimal number of sessions.
They recommend that there is a need for more research concerning effective instructional
vocabulary strategies for high school students with disabilities.

**Comprehension.** Reading comprehension is the ultimate goal in reading
achievement (NICHD, 2000). Competent readers focus their cognitive energy on
extracting meaning from text. Elements of instruction that improve reading
comprehension include (a) direct instruction, (b) student practice with teacher feedback,
and (c) frequent instruction with multiple assessment activities (Babyak, Koorland, &
Mathes, 2000). Use of effective comprehension strategies can support achievement in
reading.

Babyak, Koorland, and Mathes (2000) conducted a study investigating the use of
story mapping to improve the reading comprehension of students with emotional
behavior disorders (EBD). The purpose of the study was to increase reading
comprehension through the use of a strategy to teach narrative text structure.

Four students with EBD participated in the study. The participants were either in
fourth or fifth grade. They qualified for the study because they read at a 1st-grade level
within the range of 87% to 97% accuracy and with comprehension scores between 43%
to 79% accuracy.
Story mapping was taught to each student. The procedures for story mapping were adapted from the *Cooperative Story Mapping* procedures used in *PALS* (Fuchs, Mathes, & Fuchs, 1994). Scripted lessons for three instructional sessions per day were used to teach students story elements. During the first session, the importance of learning story mapping, defined story elements, and modeled mapping procedures for a story were discussed. During the second session, the importance of story mapping was reviewed and the students defined the story elements. During the third session, the students defined and identified story elements for another story with teacher assistance. Daily guided-practice sessions were implemented next. These consisted of a review of story element definitions, with students reading a story and mapping the story elements. Students then moved into independent-practice that involved reading a story and answering comprehension questions without the use of a story map.

Once the six-week program ended, the intervention continued in settings approved by the parents of the students (e.g., in the home). The intervention consisted of 30-minute individual lessons for each student per day for the duration of the summer in the home.

A repeated-measures, multiple-baseline across subjects design was used for the study. Baseline data were collected through read-alouds, with miscues corrected as needed. Data were collected on three reading comprehension measures: (a) story telling, (b) comprehension questions, and (c) main idea probes. Data were graphed with slope-trend used for visual analysis. The percentages of correct responses were also calculated for analysis. Median percentages for the four participants during baseline were 55%, 50%, 50%, and 60% respectively. Mean percentages during instruction were 80%, 60%,
70%, and 60% respectively. During guided practice, mean percentages were 80%, 80%, 70%, and 90%. For the independent practice phase, the last student no longer participated in the study, as parent permission for an alternative setting was not obtained. Mean percentages for the remaining three participants during independent practice were 90%, 80%, and 100%. The percentage of correct responses increased for the three participants involved in the entire study compared to the baseline and instruction phases.

Babyak et al. (2000) concluded that story mapping instruction improved the reading comprehension of all participants. They recommended additional research examining student reading preferences and using group instruction to teach reading comprehension to students with EBD.

Freeland, Skinner, Jackson, McDaniel, and Smith (2000) conducted a study to examine the use of repeated reading as an intervention to increase silent reading comprehension. Three male secondary-level students, with a specific learning disability, participated in this study.

Student instructional levels were determined through the use of curriculum-based measures. The *Timed Readings in Literature Level 1* (Spargo, 1989) was used to provide reading passages and comprehension questions for the study. Measures collected for analysis included (a) the number of fact questions answered correctly, (b) the number of inference questions answered correctly, (c) the total number of questions answered correctly, and (d) silent reading comprehension rates for fact questions, inference questions, and the total questions. The students were first timed on silent reading passages, and did not receive any form of instruction. The timings were used as the control condition for future analysis. During intervention, the participants were asked to
read the passage aloud two times with systematic error correction provided. Students were given the same passage the following day and timed on their responses to the comprehension questions.

A multi-element design was used to compare repeated readings to the control condition. The mean number of questions answered correctly was higher for all students on the repeated readings passages. All three participants also answered more fact questions correctly on the repeated reading passages. No significant difference was found between the correct questions answered for inference questions on repeated readings versus the control passages. Two of the participants demonstrated higher rates of total reading comprehension on repeated reading passages. The same two participants showed an accelerating trend of higher response rates of factual comprehension on repeated reading passages. None of the participants displayed any significant difference in rates of inferential comprehension passages compared to the control condition.

Freeland et al. (2000) concluded that the study supports repeated reading as an intervention to improve silent reading comprehension rates, mainly in the area of factual comprehension. They maintained that repeated readings may not result in improved silent reading rates, however multiple-exposure to facts in a passage support recall of factual information in text. No recommendations for further research were provided.

Taylor, Alber, and Walker (2002) conducted a study to analyze the effects of self-questioning and story mapping on the reading comprehension of elementary students with LD. Five participants from 3rd-grade through 6th-grade participated in the study. The students all had severe reading deficits, specifically in reading comprehension.
The study took place in the special education resource room. The students were taught how to use story mapping and self-questioning as they read. Daily data were collected and a comprehension test administered. The students participated in each condition one time per week in random sequence. The students were assigned randomly to one of the conditions: (a) story mapping, (b) self-questioning, or (c) no intervention.

An alternating treatments design was used to compare the effects of story mapping, self-questioning, and no intervention for each student’s reading comprehension achievement. Data were collected three times per week. No baseline data were collected. Response accuracy was high for all participants in both treatment conditions, with self-questioning having a slightly higher response rate. The Mann Whitney U was used to analyze the differences between each condition to determine any significant differences between conditions. No significant differences between self-questioning and story mapping for the participants was found. Significant differences were found between self-questioning and no intervention as well as between story mapping and no intervention. Self-questioning was the favored instruction.

Taylor et al. (2002) concluded that through systematic and direct training elementary students with LD can learn self-questioning and story mapping with high levels of accuracy. Taylor et al. (2002) recommended that instruction be tailored to the needs of the individual student and that teachers frequently assess for effectiveness of teaching methods to inform future instruction.

Antoniou and Souvignier (2007) conducted a study involving strategy instruction in reading comprehension for students with LD. The purpose of the study was to examine the effects of an instructional program involving explicit teaching of reading that
included the use of self-regulation strategies. Participants included 73 students with LD from special and integrative schools who were in the 5th- to 8th-grades. A control group was created with similar achieving peers.

Teachers who implemented the intervention received a handbook and the students received a workbook and notebook. The lessons focused on explicitly teaching cognitive and metacognitive reading strategies and self-regulation strategies. Four concrete reading strategies were used in the program: (a) thinking about the headline, (b) clarification of text, (c) summarization of narrative texts, and (d) summarization of expository texts. A checklist was used to help the students use self-regulation. Students were pretested once and took a posttest twice. The control group received traditional reading instruction.

Students in the experimental group were assessed in the areas of (a) intelligence, (b) vocabulary knowledge, (c) decoding speed, (d) reading comprehension, (e) reading, (f) strategy knowledge, and (g) reading self-efficacy. T-tests were used to assess the effectiveness of the intervention in a pre-, post-, and follow-up design. Reading comprehension, reading strategy knowledge, and reading self-efficacy were used as the dependent variables. Means and standard deviations were calculated.

Analysis of the data indicated a positive trend for the experimental group with greater gains than the control group in reading comprehension. The data showed that the LD students in the experimental group retained and maintained the use of the reading comprehension strategies they were taught. Significant improvement in strategy knowledge also was exhibited by the students in the experimental group and maintained over time. When analyzing reading self-efficacy measures, no significant difference was found between pre- and posttest scores for either the experimental or control groups.
Overall, results showed a positive trend in favor of the experimental group with long-term results demonstrating reading comprehension gains significantly greater than those in the control group. Antoniou and Souvignier (2007) concluded that reading comprehension competence can be enhanced through the use of reading and self-regulation strategies by students with LD and that the skills can be generalized to other academic settings. They recommend future studies incorporate peer tutoring as part of an explicit teaching program as well as use a cooperative learning approach.

Hedin, Mason, and Gaffney (2011) conducted a study involving comprehension strategies to examine the effect of self-regulated strategy development (SRSD) instruction combined with the Think Before Reading, Think While Reading, Think After Reading (TWA) reading comprehension strategy for one 4th-grade and one 5th-grade student with ADHD. An AB design was used for this study, with baseline data collected on the comprehension achievement of each student. Post-instructional probes were collected from each participant.

The intervention consisted of three reading phases: (a) before reading (students learned to activate prior knowledge), (b) during reading (self-monitoring of understanding of the passage and rereading if no meaning was acquired), and (c) after reading (identifying main ideas in each paragraph by highlighting key information in text). Self-monitoring and personal goal setting also was part of the intervention. The two students participated in ten individual lessons focused on strategy use after three baseline probes. After each lesson, they completed a probe that consisted of oral retelling of the passage read. Probes were collected from each student: (a) post-instruction, (b) five-days after post-instruction, (c) with a five-day delay generalization, tester unknown to
participants, and (d) maintenance post-instruction (at four weeks and eight weeks post-instruction).

Results from the first student during baseline were very low, with one recall from the passage. During intervention, the participant was able to identify two-to-four main ideas. At the post-instruction probe, five days after the intervention ended, the participant identified four main ideas at the four-week post probe and two main ideas at the eight-week post probe. The maintenance probes taken four-and-eight weeks post-instruction indicated levels significantly below intervention and immediate post-intervention performance. The second student was not able to recall any ideas of passages read during baseline. During intervention, he was able to recall three or more main ideas of passages read. Five days after intervention, the student was able to identify one main idea. After four weeks, the student’s level of recall returned to baseline level. Participant two was not able to maintain his reading comprehension performance on short-term, generalization, or delayed readings.

Hedin, Mason and Gaffney (2011) concluded that systematic, explicit instruction used by readers with self-monitoring may be recommended as an evidence-based practice for readers with disabilities. The intervention in this study proved effective in managing the use of the strategy and self-monitoring to improve comprehension of content area text in an instructional setting even though it was not maintained over time. Hedin, Mason, and Gaffney (2011) recommended that ongoing use of the strategy was needed to be beneficial for students with ADHD.

Review of literature regarding the Five Big Ideas of Reading Instruction (NRP, 2000) in the field of special education corroborates the findings of the National Institute
of Child Health and Human Development (2000). Tier 1 and Tier 2 reading instruction incorporating direct explicit reading instruction is the most effective form of practice for students in need of support in reading (Hedin, Mason, & Gaffney, 2011; Taylor, Alber, & Walker, 2002). Studies investigating such methods have shown gains in reading achievement across grade levels and types of disabilities (Babyak et al., 2000; Freeland, Skinner, Jackson, McDaniel, & Smith, 2000). Historically, research indicates that direct instruction provides gains in all areas of reading instruction for students with disabilities (NRP, 2000).

**Reading Instruction in Teacher Education**

It is common for teachers to teach the way they were taught during their elementary years (Barnyak & Paquette, 2010). The challenge for teachers is to implement the research-based methods taught during their pre-service coursework or in-service training, even if they do not use the specific methods when they read (Mayor, 2005). Much research on teacher education focuses on the relationship between teacher beliefs and teacher practices (Fang, 1996). With the teacher being the most significant element in the learning process, particularly in reading instruction, it is imperative to measure the gap between what a teacher is taught and what they believe to be true (Artley, 1972; Bond & Dykstra, 1967; Cheek, 1982; Cutts, 1975; Fry, 1966; Singer, 1977).

While cognitive-linguistic processes, including phonological awareness, have been identified as critical elements in early reading and spelling development, they have yet to impact teacher education (Mather, Bos, & Babur, 2001). Many teachers still have a poor understanding of spoken and written language structure and simply are not prepared
to teach reading instruction explicitly to children (Mather, Bos, & Babur, 2001; Moats, 1994).

**General Education**

Literacy instruction is an essential component of elementary pre-service teacher education programs (Barnyak & Paquette, 2010). Higher education instructors who teach coursework in reading instruction must not only teach validated practices, but also eliminate misunderstandings of these practices (Barnyak & Paquette, 2010). The three main models of literacy acquisition in a typical general education program include bottom-up, top-down, and the interactive model. In order for teacher education programs to be effective, components of instruction are needed that include phonics, phonemic awareness, oral language, word identification, vocabulary, comprehension, fluency, assessment, and management of literacy across grade levels (Feilding-Barnsley & Purdie, 2005). Teachers not only need to learn these practices, but implement and experience these practices to allow for confidence in use of these models (Moats, 1994).

**Pre-service teacher education.** It is not uncommon for pre-service teachers to revert back to what they learned during their own elementary school experience in regard to reading (Rath, 2001). Often, teachers dismiss the evidence-based reading instructional practices they learn during their pre-service program and use the familiar practices they were taught in grade school (Rath, 2001; Yoo, 2005).

In 1982, Cheek conducted a study to determine teacher perceptions of reading courses in their pre-service undergraduate programs. Cheek (1982) wanted to determine the quality of undergraduate coursework in reading as perceived by the graduates of teacher education programs throughout the United States.
Participants for the study were recruited from 37 universities located in the United States and one university in Canada. Survey forms were mailed to 851 selected participants and 404 were returned. The survey used a self-report format requesting demographic information as well as questions concerning their undergraduate program and perceptions of teacher preparation. Data analysis consisted of use of frequencies, $t$-tests, means, an analysis of variance (ANOVA), Duncan’s Multiple Range Test, and orthogonal contrasts as detailed in the *Statistical Analysis System Users Guide* (Blair, 1979).

Results of the analyses indicated no significant difference among persons who obtained undergraduate degrees between 1970 and 1980, and those who graduated before 1970 in terms of number of reading courses taken in pre-service training. However, a significant difference was found in the prediction that participants with undergraduate degrees in elementary education, early childhood education, or special education and participants with degrees in other areas, with those holding degrees in non-education areas indicating no reading coursework. The respondents indicated that the most useful topics provided during their pre-service reading instruction were (a) how to teach word recognition skills, (b) how to teach comprehension, and (c) how to plan a reading lesson.

Cheek (1982) concluded that more research is needed to determine the needs of pre-service teachers. From this study, Cheek (1982) maintained that two reading courses are not adequate in preparing a teacher to teach reading. Further study was also recommended using a larger sample size of participants who obtained their undergraduate degree prior to 1970.
Barnyak and Paquette (2010) explored pre-service teacher beliefs about reading instruction. The purpose of the study was to describe the beliefs of elementary pre-service teachers concerning reading instruction and the possible modified beliefs upon completion of their pre-service coursework. The study focused on (a) elementary education pre-service teacher attitudes and beliefs about reading instruction, (b) the alignment of their attitudes and beliefs about reading with the theoretical orientations of bottom-up, top-down, or interactive, and (c) the impact of literacy methods coursework on elementary education pre-service teacher attitudes and beliefs about reading instruction.

The participants included pre-service students enrolled in two teacher preparation programs. All were enrolled in undergraduate elementary education programs. A survey created by Knudson & Anderson (2000) was used and included 24 items with a Likert 5-point scale ranging from Strongly Agree to Strongly Disagree. The survey was completed online and included questions on reading skills, reading comprehension, and meaningful learning experiences during instruction. Data were collected during spring 2006 and fall 2006 to measure changes in beliefs of the pre-service teachers after they completed their coursework.

Analysis of the data included the mean, standard deviation, a two-tailed t-test, and Chi-square for pre- and posttest responses. Data for each university were combined and analyzed and the survey items were separated into nine categories: (a) literature experiences, (b) meaningful experiences, (c) narrative experiences, (d) story structure, (e) phonics, (f) phonics experiences, (g) word analysis, (h) skill instruction, and (i) integration of skills. Pre-, post-, and total percentages were calculated as well.
No statistically significant differences in responses were found for the pre- and posttest scores of the participants except for the question involving comprehension. Overall, the results indicated that the instruction had been literature-based with phonics and skill instruction emphasized. Beliefs about the integration of skills were weak, with the exception of teaching skills to foster comprehension and distinguishing shapes of various letters. Post coursework beliefs suggested that pre-service teachers believed 1st-grade experiences with reading need to be in meaningful contexts. The teachers indicated that their belief that a combination of methods to teach reading decreased after they completed their coursework.

Barnyak and Paquette (2010) concluded that pre-service teachers need to know the importance of using effective, research-based reading instructional strategies with their students, despite their personal learning experiences. They recommend that additional research is needed in the area of pre-service elementary programs and the impact of coursework on teacher attitudes and beliefs.

Le Fevre (2011) conducted a study that examined the learning of pre-service teachers through the sharing of personal narratives and autobiographical narratives during a literacy methods course. The purpose of this study was for pre-service teachers to gain a critical perspective on literacy learning and teaching. Seventy-five, pre-service teachers participated in the study.

The initial eight weeks of the course focused on autobiographical work. Participants examined their personal stories of literacy learning and used their personal stories to facilitate an awareness of experiences their future students might have. The
autobiographies were presented to the class, followed by whole-class reflective discussions.

Data collected included (a) 75 autobiographies, (b) 75 reflective papers by the pre-service teachers, post presentation, (c) a perceptions of learning questionnaire administered to the participants five months after completing the literacy course, and (d) a teaching and research journal maintained throughout the course. Data were analyzed using a grounded theory approach. This allowed categories to be created pertaining to themes that emerged in the data collected. Categorical themes focused on the content of the autobiographies shared in class. Le Fevre (2011) turned these categories into a framework for pre-service teacher coursework. Three processes emerged from the analysis: (a) problematic dominant stories, (b) developing a community of learners, and (c) understanding different perspectives.

Le Fevre (2011) concluded that an examination of personal stories could facilitate a framework of teacher perspectives about literacy. The study found that the personal stories of the pre-service teachers allowed them to connect with literacy issues they may face in their future teaching careers. She maintained that this research demonstrated the interactive nature of changing beliefs and practices in teaching. Le Fevre (2011) recommends a longitudinal study examining the relationship between observed and hands-on pre-service teacher learning and the effects on classroom reading instruction practices.

Haverback and Parault (2011) conducted a comparative study on the efficacy of pre-service reading teachers. The purpose of the study was to compare two different types of pre-service field experiences for college students enrolled in a language development
and reading acquisition course (direct tutoring versus observation). The study compared the experience of teaching children one-on-one through tutoring with a control group of pre-service educators who observed children being taught reading skills.

Participants in the study were 86 university students. Forty students were assigned randomly to the treatment group (tutoring experience) and 46 were assigned to the control group (observing). All participants were enrolled in a language development and reading acquisition course. Twenty-one students were included in the study of who did not participate in either group, but did complete the efficacy measures.

Instruments used to collect the data included the Reading Teacher Sense of Efficacy Scale (RTSES) (Moran & Hoy, 2001), a reading content knowledge exam composed of content taught during the course, and interviews. A mixed methods design, involving both qualitative and quantitative data was used. A factor analysis also was conducted on the RTSES (Moran & Hoy, 2001) to ensure reliability of the scale.

Participants in the treatment group performed one-on-one tutoring sessions at an elementary school. The tutoring sessions were 30 minutes a week for 10 weeks. Students in the control group observed students at the university child development center for 30 minutes a week for 10 weeks.

A t-test was performed on the RTSES pretest and reading exam scores. Neither the control group nor the treatment group differed on their pretest or reading exam scores. A 2 x 2 ANOVA (time x treatment) was used to compare data from the measures in regard to time. Results from the ANOVA indicated that there was an effect for time for both groups of participants. Both groups reported higher efficacy levels and knowledge from the pretest to posttest. Analysis of the between-group factors showed a marginally
significant interaction between the two groups for the reading motivation subscale, but not the reading assessment subscale. The control group achieved higher posttest scores and more change regarding the reading motivation efficacy subscale compared to the treatment group. Analysis of the group indicated that the student observers rated themselves higher than the tutors in regard to efficacy. The majority of the pre-service teachers in the study reported having higher efficacy during the posttest. From the interviews, a central theme emerged that included the sense that the field experience contributed to the student change in efficacy. Almost 89% of the students reported that the field experience caused the most change in their efficacy.

Haverback and Parault (2011) concluded that tutoring creates an opportunity for pre-service teachers to experience mastery teaching of reading. They recommend that having a mastery pre-service teaching experience is beneficial and that teacher educators nationwide need to focus on creating learning experiences conducive to pre-service teachers gaining domain specific experiences.

Washburn, Joshi, and Cantrell (2011) conducted a study examining elementary pre-service teachers knowledge of language constructs, perceptions, and knowledge of dyslexia. They also examined the perceived teaching ability for typically developing readers, struggling readers, phonemic awareness, phonics, vocabulary, and knowledge of dyslexia among the pre-service teachers. Ninety-one pre-service teachers participated in the study. The teachers were part of a university preparation program for kindergarten through 5th-grade education.

A survey of 39 items was designed to measure knowledge and skills concerning phonological awareness, phonemic awareness, phonics/alphabetic principle, morphology,
dyslexia, and comprehension. Because of the design of the study, only 28 items from the survey were analyzed. Demographic and perceived teaching ability data also were collected.

Each of the 28 items on the survey was coded either right or wrong. The total number of correct items was used for analysis as well as the total number of correct items for each of the subgroups (e.g., phonological awareness, phonemic awareness, phonics, and morphological items). Items involving dyslexia were coded one through four, ranging from definitely false to definitely true. Descriptive and inferential statistical analyses were used to answer the research questions. Exploratory factor analysis was used to analyze the data.

More than half of the participants chose moderate concerning their perceived ability to teach reading to typically developing students and struggling readers. The pre-service students reported strengths in phonological awareness skills, however only 58% of the students identified the correct definition of phonological awareness. Less than half of the participants exhibited knowledge in phonics or the alphabetic principle. Analysis of student knowledge concerning word parts was low, but the participants perceived themselves as more prepared to teach vocabulary than any other area of reading instruction. According to a canonical correlation analysis using structural equation modeling, a relationship existed between the teachers’ perceived teaching ability and their actual knowledge of the areas.

Washburn et al. (2011) concluded that pre-service teachers lack knowledge of the very basic constructs of language needed to teach readers who have difficulty in reading.
They recommend that those who design teacher preparation programs make sure that coursework involves specific content knowledge of reading instruction.

**In-service teacher education.** High-quality professional development directly focused on classroom curricula and instruction is the key to instructional practices associated with higher reading achievement (Darling-Hammond, 2000). Teachers must be provided opportunities to access and use effective instructional strategies (Hughes, Cash, Klingner, & Ahwee, 2001). Professional development (in-service education) provides teachers the opportunity to increase their knowledge of best practices in reading (American Federation of Teachers, 1999). The proof of a successful professional development program is apparent when student reading achievement is high (Cash, Klingner, & Ahwee, 2001). Unfortunately, ineffective professional development programs are more common than effective programs (Anders, Hoffman, & Duffy, 2000).

Hughes, Cash, Klingner, and Ahwee (2001) conducted a study investigating the professional development programs offered to general and special education elementary-level teachers in the area of reading instruction. The purpose of the study was to examine the content, structure, and context of the professional development programs. Hughes et al. (2001) also wanted to ascertain the methods for assessing accountability.

Participants of the study were recruited from 294 randomly selected school districts. The school districts included the 20 largest districts in the United States. Two districts from each metropolitan group, as defined by the National Center of Educational Statistics, were randomly chosen to participate. Each school district received one survey for the program director of elementary reading and language arts and one survey for the
program director of special education. A total of 628 surveys were mailed. Two hundred ninety-two completed surveys were returned for analysis.

The survey contained 19 questions, focusing on three themes pertinent to professional development programs: (a) program content, (b) program structure, and (c) post-program accountability. Participants had two weeks to complete and return the survey. A second mailing was sent to those who had not responded. After six weeks, all completed surveys were counted and survey collection closed.

Data were analyzed using frequencies and descriptive information. Nonparametric analyses were used to determine statistical significance between comparative groups. Examination of the responses between both groups (special education and reading language arts directors) across the three themes revealed no significant differences on any item in the survey. Fifty-three percent of participants believed that the professional development they offered in their district prepared teachers to teach reading. Twenty-eight percent believed that the professional development programs did very well in preparing teachers to teach reading. Eight percent of participants believed that professional development did not prepare teachers to teach reading. Results indicated that the reading philosophies of the districts strongly influenced the content taught at workshops. The directors believed strongly that content of the workshops needed to be research-based. Only 50% of the respondents indicated that data were collected on implementation or sustainability of the content taught in the workshops from participating teachers. The effect of content learned was most commonly measured by student standardized achievement test scores.
Hughes et al. (2001) concluded that much improvement is still needed in preparing teachers to meet the reading needs of all students in school. They maintain that school districts need guidance in accessing and/or developing high-quality professional development. Unfortunately, very few school districts in the study collected data concerning teacher implementation of the skills learned after attending professional development workshops. Hughes et al. (2001) recommended that for teachers to benefit from professional development, school districts must examine their assessment methods to measure transfer of training, practice, feedback, reflection, support, and reinforcement of teacher implementation in their classrooms.

Mather, Bos, and Baber (2001) conducted a study examining the perceptions and knowledge of early literacy instruction of pre-service and in-service general educators. The purpose of the study was to identify the emphasis pre-service and in-service teachers placed on explicit, code-based early reading instruction and their knowledge of language elements.

The study involved 293 pre-service teachers and 131 in-service teachers. The pre-service teachers had completed all required coursework for their degree and were involved in their student teaching field experience. The in-service teachers worked for school districts as kindergarten through 3rd-grade teachers.

The Teacher Perceptions Toward Early Reading and Spelling (TPERS) (DeFord, 1985) survey was used to collect data on teacher perceptions. The Teacher Knowledge Assessment: Structure of Language (TKA:SL) (Lerner, 1997; Moats, 1994; Rath, 1994) was used to collect data on teacher knowledge of language. The pre-service teachers completed both measures toward the end of their student teaching experience. In-service
teachers completed the measures toward the end of the school year. A 2 x 2 ANOVA was used to determine differences between groups and between instruction types (code-based instruction and meaning-based instruction) on responses from the _TPERS_ (DeFord, 1985). A _t_-test for independent samples was used to determine differences in knowledge between the two groups according to responses collected from the _TKA:SL_ (Lerner, 1997; Moats, 1994; Rath, 1994). The ANOVA indicated a significant main effect for the participants and a significant main effect for instructional type. Significant interaction effect was also evident. The _t_-test for independent samples reported a significant difference of knowledge of the structure of the English language between pre-service and in-service teachers.

Analyses indicated in-service teachers had more knowledge on the structure of the English language compared to pre-service teachers, although neither group scored high on the assessment. In-service teachers also had more positive perceptions regarding the use of explicit, code-based instruction for early literacy. Results of the analyses showed both groups had insufficient knowledge about the concepts of the English language structure and both groups had limited knowledge of the meanings of structured language terminology. Neither group had a solid understanding of alphabetic knowledge and its connection to word recognition or use of strategies for word identification. Multiple pre-service teachers expressed concern in their lack of knowledge in sound-symbol relationship instruction.

_Mather et al. (2001)_ concluded that this study supported the need for better teacher preparation and professional development programs in the area of reading
instruction. They recommend that research focus on general education teachers and their lack of critical knowledge necessary for teaching children who struggle with reading.

McCutchen et al. (2002) conducted a study to examine the effects of a teacher in-service program focused on phonological awareness and word reading skills on classroom practice and student learning. Forty-four teachers responded to a letter of invitation to participate in the study. Twenty-four teachers were placed in the experimental group and 20 teachers were placed in the control group.

The teachers were assessed concerning their knowledge of language structure with the *Informal Survey of Linguistic Knowledge* (Moats & Lyon, 1996). For general knowledge assessment, a cultural literacy test was administered. All teachers were observed during their literacy instruction.

A two-week instructional course was implemented as the primary intervention for teacher in-service for the experimental group. The intervention included explicit instruction of phonology, phonological awareness, and balanced reading instruction. These instructional interventions continued throughout the school year, with three follow-up sessions. Teachers in the control group did not participate in the in-service. The teachers were observed during literacy instruction throughout the school year and their students were assessed four times throughout the school year.

To analyze teacher knowledge, a repeated measures ANOVA was used. Results indicated no significant difference between the pretest and second pretest scores. Significant differences were found between the second pretest and post-instruction, with the posttest indicating an increase in phonological awareness and word reading skills of the teachers.
The teacher practice data indicated significant differences in multiple areas including explicit phonological activities and phonological awareness for the kindergarten teachers. No significant effect of condition was apparent in comprehension instruction or orthographic activities. First-grade teachers spent less time on phonological awareness instruction and more time on explicit comprehension instruction. During observations, many of the teachers in the experimental group used instructional methods taught during in-service.

McCutchen et al. (2002) concluded that when effective practice is implemented by teachers, progress is being made toward reading and writing goals. No recommendations for further study were provided.

O’Connor, Fulmer, Harty, and Bell (2005) conducted a longitudinal study investigating the long-term effects of sustained intervention efforts, as taught through a professional development format with primary elementary teachers. The purpose of the study was to investigate the impact of professional development for teachers on the literacy development of students.

The study included 16 general education teachers, two remedial teachers, two special education teachers, and two speech teachers. Students who participated in the study included 103 kindergarten students and 103 first graders who comprised the treatment group. The control group consisted of 101 second graders and 102 third graders. Each subsequent year, the class groups were followed until they reached the end of their 3rd-grade year.

Intervention was implemented beginning with professional development for three years. The professional development content was specific to each grade level and was

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comprised of reading instruction components. Following professional development, direct intervention was implemented with students considered to be at risk for reading failure. For direct intervention, small group instruction was implemented. Change in teacher instruction was determined by data collected through teacher self-reports, open-ended surveys, and classroom observations.

Teacher outcomes were collected through observation and teacher interviews. Thirty percent of the teachers were using small-group instruction for reading prior to the professional development. After professional development, teachers began using whole group, small group, and paired-practice instruction. Kindergarten teachers reported the greatest changes in phoneme awareness instruction and in the sequence of letter-sound instruction. First-grade teachers reported the greatest change in decoding instruction, while 2nd-grade and 3rd-grade teachers reported greater use of flexible grouping, small-group instruction, and reading aloud. Overall, teachers reported being more mindful of their instructional choices and more aware of strategy use as a result of the professional development.

Student outcomes were analyzed through a series of one-way ANOVAs with comparisons between the control and experimental groups. Reading outcomes were all significant for word identification, word attack, comprehension, and fluency for second-grade students. For groups considered at-risk or in special education receiving direct intervention, significant differences also were found. Larger effect sizes across all reading areas were found for second grade.

O’Conner et al. (2005) concluded that the model of layered interventions was a practical consideration to teach during in-service training. Teachers who used the model
were able to show significant achievement outcomes in their classrooms. O’Conner et al. (2005) recommend that the model be explicitly orchestrated as students grow and need more complex reading instruction.

Kennedy (2010) implemented a study to improve literacy achievement in a high-poverty school. The purpose of the study was to examine the effect of a professional development course on literacy achievement of students. An examination of home, school, and classroom factors affecting literacy achievement was conducted. Data were collected from four 1st-grade classrooms in a school categorized as high-poverty. Fifty-six students and their parents, classroom teachers, and four special education teachers participated in the study.

An on-site professional development program comprised of research-based, customized, multifaceted components of literacy instruction was implemented with the teachers. The content of the program was designed to enhance teacher knowledge in alphabetics, vocabulary, comprehension, fluency, writing, and other essential literacy skills. Pedagogical content strategies were taught to the teachers as well as how to use formative assessment tools to respond to student needs.

The teachers completed a questionnaire focused on their teacher knowledge of instructional practices. Standardized test results of the children were collected and current ratings of student writing samples analyzed. A repeated-measures MANOVA and post-hoc tests were used to determine statistically significant differences in student outcomes. Cohen’s $d$ was used to evaluate differences. Correlations were run to analyze differences between scales. Qualitative data were collected through individual interviews with classroom teachers as well as from a representative sample of high-, middle-, and low-
achieving students. Qualitative data were analyzed, coded, compared, and divided into thematic categories.

The researchers measured the effects of the professional development course through student outcomes. Student participants showed significantly higher achievement by the end of the intervention in reading, writing, and spelling compared to their pretest scores. Twenty percent of students who initially performed below the 10th percentile on the pre-test performed above the 80th percentile on the posttest. Writing gains were higher than expected with significant improvements noted in overall quality, expression, and spelling. The students, teachers, and parents reported, through qualitative data, that the students were more motivated, engaged, and used more strategic thought processes in their work. Parents also reported an increase in reading engagement by their child outside of required school readings.

Kennedy (2010) concluded that a multi-element professional development program for teachers was critical in facilitating literacy achievement in low-achieving students. He also maintained: (a) teacher creativity and individuality should be honored in professional development, (b) change in instructional practices should be initiated gradually, (c) a systematic, integrated, coherent, challenging curriculum was important in high-poverty schools, and (d) a collaborative approach was critical to the success of a program. Kennedy (2010) recommended including parental involvement in future studies as a critical component of professional development.

Effective teacher education promotes effective practice and effective practice promotes reading achievement in students (O’Connor, Fulmer, Hardy, and Bell, 2005). Research on pre-service programs found that direct, hands-on field experience that
included the use of strategies taught throughout the course of study resulted in significant gains made by students taught after graduation (McCutchen et al., 2002). Professional development or in-service programs tailored to the needs of the children within a targeted school are effective in improving teacher knowledge and impacting student achievement in reading knowledge (Kennedy, 2010).

**Special Education**

Six percent of children in school qualify for special education services (NCES, 2012b), with 80% of these children receiving services for reading deficits (NCES, 2012b). Children who experience difficulty with reading in the 1st-grade will likely continue to struggle through the remainder of their school career (Juel, 1988). Research indicates that teacher-training programs are inadequate in providing explicit reading instruction and special educators continue to lack content expertise and supervised experience in reading (Lyon, Vaasen, & Toomey, 1989; Nolen, McCutchen & Berninger, 1990). Program requirements and certification programs must be upgraded to provide effective reading instruction (Lyon, Vaasen, & Toomey, 1989; Nolen, McCutchen & Berninger, 1990).

Special education teachers typically provide support for primary classroom reading instruction, conducting progress monitoring, and making data-based decisions regarding use of interventions for students with reading disabilities (Al Otaiba & Lake, 2007). Early identification of reading deficits by the teacher as well as intervention practices are considered key elements in the reading success of children in need (Torgesen et al., 1999). Teachers knowledgeable in reading instruction have the greatest
potential to prevent reading failure if using effective reading instructional practices (Washburn, Joshi, & Cantrell, 2011).

The National Reading Panel (NICHD, 2000) provides an evidence-based framework from which reading instruction can be built, allowing for systematic explicit, sequential instruction. This framework includes instruction in the areas of (a) phonemic awareness, (b) phonics, (c) fluency, (d) vocabulary, and (e) comprehension strategies.

**Pre-service teacher education.** Preparation of teachers must include linguistic knowledge as well as explicit, code-emphasized reading instruction (Moats, 1994; Al Otaiba & Lake, 2007). Evidence indicates that unskilled readers who struggle with the phonological building blocks of language and the alphabetic principle must be provided explicit knowledge of language structure (Moats, 1994). Reading research emphasizes that explicit instruction in pre-service training requires higher education instructors to interpret these findings and apply them to required coursework (Adams, 1990; Moats, 1994).

Moats (1994) conducted a study involving the knowledge of the structure of spoken and written language in teacher education. The purpose of the study was to analyze experienced teachers’ knowledge of language elements and the representation of language elements in writing.

Reading, language arts, and special education teachers who participated in the study completed their pre-service coursework at a variety of colleges and graduate schools and had an average of 5-years teaching experience. The teachers completed a survey focused on teacher knowledge of speech sounds, speech/sound identity in words, sound-to-symbol correspondence, language concepts, and morphemic units in words. The
survey was designed to collect data on the depth and specific content of teacher knowledge as well as to identify the gaps and misconceptions of teacher knowledge. The survey contained questions involving the definition of terms, locating examples of phonic, syllabic, and morphemic units as well as breaking down words into speech sounds, syllables, and morphemes.

Percentages of correct answers were calculated for each survey question and compared. The results indicated that the skills needed to implement direct language-focused reading instruction (e.g., including concepts about language) were extremely underdeveloped. Only 20% of the teachers could identify consonant blends in written words. Almost no one could identify a consonant digraph. Only 27% of the teachers could identify morpheme components. The teachers had extreme difficulty with phoneme counting and phoneme identification and also had difficulty isolating and pronouncing specific speech sounds.

Moats (1994) concluded that teachers who are literate and experienced have a poor grasp of spoken and written language structure even after graduating from their teacher education program. Moats (1994) also concluded that these teachers could not teach reading instruction explicitly to struggling readers or beginning readers.

Moats (1994) made several recommendations for teacher preparation involving reading instruction. She maintained that teachers must be able to (a) demonstrate phonemic awareness, (b) understand the speech sound system, (c) possess knowledge of how orthography represents spoken language, and (d) apply their knowledge through practice.
Bos, Mather, Dickson, Pdhajski, and Chard (2001) conducted a study to examine the perceptions and knowledge of pre-service and in-service teachers concerning early reading instruction. The participants included 252 pre-service teachers and 286 in-service teachers. Both groups were comprised of general education and special education teachers. The pre-service teachers were in their last semester prior to student teaching or currently enrolled in student teaching. The in-service teachers taught kindergarten through 3rd-grade general or special education at the elementary level.

The *Teacher Perceptions About Early Reading and Spelling* (DeFord, 1985) instrument and the *TKA:SL* (Lerner, 1997; Moats, 1994) were used to collect data for this study. Both instruments were completed by the pre-service teachers after they completed their reading methods course, while enrolled in student teaching or prior to student teaching. The in-service teachers completed the instruments prior to professional development training.

Data were analyzed in the areas of (a) the perceptions and knowledge of pre-service and in-service teachers, (b) the perceptions and knowledge of in-service teachers with varying years of experience in teaching, (c) a comparison of the knowledge of pre-service and in-service general and special education teachers, (d) the relation between the perceptions of pre-service and in-service teachers concerning their preparedness, and (e) teacher perceptions of explicit and implicit code instruction and their knowledge of language structure. Means for each group were computed and individual item response means were visually assessed. An ominous F-test in an ANOVA was used for each cluster of years of experience. Several 2 x 2 ANOVAs were conducted to compare groups with
perceptions and knowledge. *Pearson Product-Moment Correlation* coefficients were computed and significance was examined.

For responses on the perceptions survey (containing a six-point Likert scale), the pre-service and in-service teachers agreed on the importance of explicit code instruction. The pre-service teachers scored an average of 11 correct (out of 20 items) on the knowledge assessment and the in-service teachers scored an average of 12 correct. No significant differences were found among the in-service educators’ years of teaching experience in regard to perceptions toward explicit and implicit code instruction. In-service teachers with more than 11-years teaching experience performed significantly higher on the knowledge assessment than teachers with one-to-five years teaching experience. The general and special education in-service teachers expressed a more positive attitude regarding explicit code instruction on the perceptions survey. The pre-service and in-service general educators expressed a more positive attitude toward implicit code instruction than did the special educators. The in-service teachers demonstrated greater knowledge of the structure of the English language than pre-service teachers and within the pre-service group, special educators demonstrated greater knowledge than did the general educators.

The results for teacher preparedness indicated that pre-service and in-service teachers perceived themselves as somewhat prepared to teach early reading instruction to struggling readers or general learners. The pre-service teachers expressed a positive attitude toward explicit code instruction, which correlated with their perceptions of preparedness to teach. In-service teachers expressed a positive attitude toward explicit instruction, which positively and significantly correlated with teaching using
phonological awareness. A significant and negative correlation existed for implicit code instruction with perceptions of preparedness to teach struggling readers for pre-service teachers. For in-service teachers, a significant positive correlation existed between implicit code instruction and whole language instruction.

Bos et al. (2001) expressed concern over teacher inability to answer almost half the questions on the knowledge assessment. They concluded that this exposed the gap between research and teacher education. They maintained that the results from this study suggest that current and future teachers have very limited knowledge of how to teach reading and language. Bos et al. (2001) recommended that teacher preparation programs instill the content and pedagogical framework as detailed by the National Reading Panel (2000) at both the in-service and pre-service levels of preparation.

Al Otaiba and Lake (2007) conducted a study examining teacher preparedness to teach reading and use curriculum-based assessments. The purpose of the study was to examine the effect of tutoring and progress monitoring of struggling readers on pre-service teachers’ (PSTs) knowledge and preparedness to teach reading instruction. Eighteen PSTs in their third-year of undergraduate coursework participated in the study. Each PST had completed one language arts course, one behavior management course, and several practicum courses. None of the PSTs had tutoring experience. Thirteen second-graders were nominated by their teachers as tutees for this study. Part of the agreement from the principal of the school in which the study took place was that no control group would exist, but that all student participants would receive tutoring.

The pre-service teacher data were assessed using a mixed methods approach using pre- and posttest measures of teacher knowledge and preparedness, reflection analyses,
and final reports. Student achievement was assessed with five measures of reading ability. Three standardized tests and two progress monitoring measures were administered to the children. The TKA:SL (Lerner, 1997; Moats, 1994; Rath, 1994) was used to assess teacher knowledge of the structure of the English language. Teachers also answered a questionnaire rating their preparedness to teach reading. Two subtests from the Dynamic Indicators of Early Literacy Skills Test (DIBELS) (Good and Kaminski, 2002) were used to monitor student progress. The Woodcock Reading Master Test-Revised (WRMT-R) (Woodcock, 1997) was used to evaluate student pre- and posttest reading achievement.

The PSTs were enrolled in the second of four required reading classes for their program of study. A class period was used to train the PSTs to use the intervention as well as to provide information concerning tutoring, school climate, and school rules and expectations. All PSTs were trained to administer the DIBELS (Good & Kaminski, 2002). A direct instruction intervention strategy, Tutor Assisted Intensive Learning Strategies (TAILS) (Al Otaiba, 2003) was used with the children. They were tutored a minimum of twice per week for 30 to 45 minutes.

A repeated-measures ANOVA and t-tests were conducted to analyze the PSTs and children pre- and post-treatment changes to determine statistical significance. Effect sizes were calculated to determine the amount of change. Qualitative data also were collected. An ANOVA was conducted to analyze responses to the TKA:SL (Lerner, 1997; Moats, 1994; Rath, 1994) with the pre- and posttest raw scores as the dependent variables. The PSTs showed significant improvement over time. Their preparedness to teach reading significantly improved over time as well. Qualitative data revealed that the
PSTs attributed their improved preparedness to their pre-service coursework and the tutoring experience. A t-test was conducted on the student pre- and posttest raw scores and revealed no significant difference in word identification, word attack, or passage comprehension. Qualitative data indicated that the PSTs began using curriculum-based assessments to evaluate student progress and differentiated instruction based on these assessments. The PSTs rarely used strategies taught during their coursework or training, however a few did use explicit comprehension questions. Overall, the PSTs felt they experienced an increase in knowledge of student strengths and weakness in phonological awareness, phonics, and fluency. They also indicated that they began to see the research-to-practice connection during their tutoring experience.

Al Otaiba and Lake (2007) concluded that pre-service teachers were able to deepen their knowledge of language structure and express preparedness to teach reading instruction. They maintained that a multi-tiered approach to teacher training should implement a research-to-practice model. They recommend further research in providing pre-service teachers with a solid knowledge base of language and reading foundations.

Pufpaff and Yssel (2010) conducted a study involving a six-week literacy unit for pre-service special education teachers. The purpose of the study was to demonstrate that the unit could promote gains in literacy instructional knowledge of pre-service special education teachers. Forty-one, pre-service special education students participated in the study. The students were enrolled in one of two methods courses focusing on students with disabilities. The literacy unit in the class was the treatment component of the study and was infused into the methods courses. This six-week curriculum was based on the NRPs (2000) five reading components (e.g., phonemic awareness, phonics, fluency,
vocabulary, and comprehension). One component was addressed each week with the sixth week targeting handwriting, composition, and spelling instruction. Emergent literacy also was discussed during the first week of instruction.

A pre- and posttest design was used to assess pre-service teacher growth in knowledge of literacy components. The pretest was given two weeks before the unit began. The posttest was administered one week after the unit was completed. Means of the pre- and posttests were compared. Results indicated significant gains in literacy knowledge including (a) the five key components of literacy, (b) emergent literacy, (c) writing, and (d) spelling. Puffpaff and Yssel (2010) concluded that explicit teaching of literacy instruction and knowledge is imperative in teacher preparation programs. They recommend that higher education take responsibility for the provision of this knowledge in pre-service programs.

Leko and Brownell (2011) conducted a study investigating pedagogical tools used by pre-service teachers to teach reading. The purpose of the study was to examine multiple influences on special education pre-service teachers’ use of pedagogical reading instructional tools when teaching students with high-incidence disabilities. An activity theory framework (Grossman, Smagorinsky, & Valenica, 1999) was used for the study. Six pre-service teachers participated in the study.

The intervention consisted of a collaborative program of elementary education and high-incidence disability education. Three reading methods courses were required as part of the intervention. The first reading methods course was a beginning reading course with a focus on literacy development and evidence-based teaching practices for K-3 students. The second methods course was an intermediate methods course for grades
three through eight, focusing on vocabulary and comprehension instruction. The third reading course contained material specifically on the language and instructional needs of students with disabilities. Participants also were involved in field experience and practica opportunities in inclusive classrooms.

Qualitative data were collected in this study through (a) observation field notes, (b) observation ratings, (c) interviews, and (d) artifacts. Constructivist grounded-theory methods were used to analyze the data and were triangulated by collecting multiple pieces of evidence.

Analysis of the data found formative information for pre-service programs. Three of the participants expressed they felt that learning phonics during the first methods course was demeaning and unimportant, until they needed that knowledge when working in their practicum with struggling readers. Many factors played a role in how the participants used the reading tools learned in their methods courses including (a) grade level, (b) service delivery model, (c) the cooperating teacher, (d) characteristics of student learners, and (e) curricula. The participants stated the most important factor during their field experience was the cooperating teacher. The pre-service teachers experienced the merging of knowledge from the methods courses and actual reading instruction in the classroom during their field experience opportunities. Personal attributes such as personal reflection, dedication, confidence, and initiative were considered key elements in teaching reading methods at higher levels. Also, the participants felt higher levels of achievement were gained when they centered on the needs of the students to inform their teaching. Access to knowledge through the methods
courses also was considered a key influence in the choice of reading instruction used during field experience placement.

Leko and Brownell (2011) concluded that special education pre-service teachers will likely use the necessary tools to teach reading to students with disabilities when given the opportunity to first apply the pedagogical knowledge in a field experience setting. When pre-service teachers are given the opportunity to actively use knowledge gained in their teacher education program, reading instruction in the classroom improves. Leko and Brownell (2011) recommend use of field experience (e.g., activity theory), maintaining it is a viable framework for reading instruction.

**In-service teacher education.** Professional development programs have increased in intensity and duration throughout the years, mostly due to the highly qualified component of *No Child Left Behind* (NCLB, 2001). With little emphasis on research-based interventions as a component of staff development, high-quality professional development is still lacking (Hughes, Cash, Klingner, & Ahwee, 2001).

McCutchen and Berninger (1999) conducted a study to teach educators relevant literacy-related information and the application of the content in the classroom. The purpose of the study was to examine the effects of an in-service training model designed for general and special educators that focused on updating teachers on recent research for teaching reading and writing to students with disabilities. McCutchen and Berninger (1999) attempted to document a partnership between researchers and teachers and how working together can translate research into practice. The in-service focused on translating research into practice. Fifty-nine teachers participated in the study.
The intervention process spanned three years and included three components: (a) teacher knowledge, (b) teacher practice, and (c) student learning. The professional development sessions were conducted during a summer institute prior to the beginning of the school year. Components of the institute were derived from the *International Dyslexia Position Paper* (Brady & Moats, 1997) and included eight topics: (a) phonological awareness, (b) orthographic awareness, (c) alphabetic principle, (d) functional reading systems, (e) functional writing systems, (f) motivation, (g) language and cultural issues, and (h) conceptual issues. Throughout the in-service, the teachers had the opportunity to (a) observe members of the research team modeling instructional activities with students, (b) experiment with these activities by working with students, (c) adapt activities to use in their own classrooms, and (d) demonstrate teaching to fellow educators participating in the study for critique purposes. McCutchen and Berninger (1999) observed content taught during the intervention in multiple ways in classrooms. Teachers merged old knowledge with new knowledge in this process. Effective instruction took place with those teachers who were able to transform the knowledge into practice.

McCutchen and Berninger (1999) concluded from this study that some teachers require more scaffolding of instruction than others, just as students do. Long-term changes in teacher practice and teacher knowledge are essential for appropriate reading instruction. Recommendations were made to replicate this study to continue to expand teacher knowledge.

Dingle, Brownell, Leko, Boardman, and Haager (2011) implemented a study to examine the impact of professional development in the context of the classroom,
particularly in the area of word study and fluency. The *Literacy Learning Cohorts* (Desimone, 2009) model was used as the framework for this professional development study. Three special education teachers were involved in the study.

The intervention was comprised of four components: (a) the professional development institute, designed to deepen teacher knowledge about teaching word study and reading; (b) monthly cohort meetings, to deepen teacher content knowledge of word study and fluency as well as help the teachers incorporate new strategies into their daily instructional practice; (c) an online learning community, and (d) reflection and feedback on observations, in which the teachers were video-recorded and self-reflected.

A cross-case analysis was used within a case-study design to observe and record data. The data were collected through video recordings of word study and fluency lessons, teacher interviews, video recordings of cohort meetings, administration of the *Content Knowledge for Teaching Reading Survey* (Phelps & Schilling, 2004), notes collected from debriefing meetings, and online community conversations. Analyses revealed that each teacher changed their instructional practice as a result of the professional development (PD) through knowledge gained during the PD, motivation to change their instruction as a result of attending the PD, and curricula used in the classroom after attending the PD.

Dingle et al. (2011) concluded that there are several important factors of professional development (in-service): (a) curricular knowledge plays a vital role in special education teacher learning, (b) content knowledge and knowledge of effective instruction are key components of special education teacher learning, and (c) special education teacher motivation and thoughts on their own efficacy plays an important role.
in the learning of children. Dingle et al. (2011) recommended the changes discussed in this study be implemented and more data be collected from more teachers involved in the professional development programs nationally.

Osipova, Prichard, Boardman, Kiely, and Carroll (2011) implemented a study to enhance elementary special education reading instruction. The purpose of the study was to examine the use of video self-reflection combined with professional development (PD) and their combined effects on the practices of special education teachers. Fifteen upper-elementary special education teachers participated in the study.

The teachers were video-recorded during instruction six times throughout the year and were provided a form to use to guide their self-reflections. The form focused on the principles of effective instruction and aspects of word study and fluency instruction. The teachers watched their video recording and rated it using a Likert Scale (1=low to 4=high). They were asked to reflect on (a) intensiveness of instruction, (b) explicitness of instruction, (c) practice, (d) coherence of the lesson, (e) responsiveness to students, (f) active engagement of students, (g) metacognition, (h) phonemic awareness word study, (i) decoding word study, and (j) fluency. The teachers were given an indicator sheet containing ideas of what was taught during the PD to use during their self-reflection. The instructors from the PD also observed the video recordings and rated them. The instructors shared their thoughts and suggestions with the teachers immediately after the teachers completed their self-reflections.

Video self-reflections across teachers, per scheduled observation, and within individual teachers were quantitatively analyzed through rating scale data collected. Comments from self-reflections were coded and qualitatively analyzed. To ascertain the
specific components of the PD, a chart was created aligning teacher suggestions next to the observer suggestions during teacher observations.

Results of the analyses revealed that the teachers rated themselves high during their initial self-reflection. During midpoint, their self-reflection ratings dropped to average or lower. The final self-reflections increased and teachers were more accurate on the skills they believed worked well. The reflection notes of the professional development instructors did not match the teacher self-reflection ratings, until the final self-reflection.

Osipova et al. (2011) concluded that video self-reflection was an effective component of a PD program. They maintained that the reflection assisted teachers in critically analyzing their practice and compared it to knowledge from the PD. The use of video self-reflection proved to be a valuable tool to enhance the practice of teachers in the classroom. Osipova et al. (2011) recommend replication of the study to further the effects of the PD program with a larger population of teachers.

Erickson, Noonan, and McCall (2012) investigated the effect of online professional development for special education teachers. The purpose of the study was to examine the learner characteristics, academic performance, professional competency, and satisfaction of the special education teachers via online seminars. The online component used as the intervention was the Transition Seminar Series (Division on Career Development and Transition, 2000) for high school special educators, that included literacy-based transition skills.

The intervention consisted of a series of five four-week online seminars. The series was implemented during the school year and through the summer months. Topics
included (a) transition history and compliance, (b) transition assessment, (c) student and family involvement, (d) preparation of students for employment and postsecondary education, and (e) interagency collaboration. Each seminar used a research-based interaction design including: (a) a syllabus outlining assignments, expectations, and due dates; (b) detailed technical assistance instructions; (c) discussions that initiated collaboration and resource sharing; (d) content and media options; (e) student choice application activities; and (f) reflection on and evaluation of the instruction and learning experience.

This longitudinal study recruited 149 transition professionals to participate in the study. These transition professionals consisted of secondary special educators, transition coordinators, transition specialists, and administrators. A mixed-method design was used, with a variety of measures, to collect data. Descriptive statistics, independent sample and paired-sample t-tests, and multivariate analyses (MANOVAs) were used to analyze quantitative data. Participant responses were collected and coded into themed categories to serve as qualitative data.

Data collected before implementation of the seminar indicated that a majority of the participants felt either not prepared or only somewhat prepared to teach transition-related skills. At the conclusion of the online series, the same survey was completed again to collect data on perceived understanding of teaching transition-related skills. A significant increase existed in the perceived level of competency of the special educators after participating in the treatment. Once the data were collected, targeted goals were set according to the needs of the special educators. Participants used knowledge from the online seminars to create the steps needed to complete their goals. The teachers were
highly satisfied with the content of the seminars and the delivery method in the online format. Each educator involved in the study had the opportunity to apply the knowledge learned with students, classrooms, and local school communities. Erickson et al. (2012) concluded that the online *Transition Seminar Series* was an effective method in which to provide professional development to rural special educators and recommends implementation of this series in future studies.

Findings from the review of literature for special education pre-service teacher programs reveal that pre-service programs provide minimal knowledge in the area of reading instruction (Moats, 1994). Overall, a comprehensive framework concerning the components of reading instruction appears to be lacking (Bos et al., 2001). Teachers tend to rely on in-service professional development to gain knowledge of current and effective reading practices (Dingle et al., 2011). In-service training has the most impact concerning the transition of research-based practices to the population of students than an educator teaches (Erickson, Noonan, & McCall, 2012; Osipova et al., 2011). This review of literature supports the fact that effective pre-service and in-service programs can increase the knowledge of current practitioners.

**Summary**

Reading instruction has been provided throughout a variety of frameworks through the years (NICHD, 2000). General educators have been taught to use approaches related to whole-word learning implemented within a whole-class approach (Cunningham & Stanovich, 1990). While special education teacher programs focus on strategies that support reading instruction for students struggling with reading achievement (Moats, 1994). Nationally, reading scores indicate that both children in general and special
education classes experience difficulty with the basic skills involved in reading (NCES, 2012b).

Research demonstrates that direct explicit instruction of reading skills is the most effective intervention for all children (NRP, 2000). The National Reading Panel (2000) has constructed a framework for the implementation of reading instruction. However, research indicates that teachers still have limited knowledge of the elements of literacy and components of reading (Barnyak and Paquette, 2010; Cheek, 1982; Haverback and Parault, 2011; Washburn et al., 2011). Because reading is the most valuable tool known to facilitate lifelong achievement, it is crucial that the framework created by the National Reading Panel (2000) be taught at both the pre-service and in-service levels of teacher education. Providing this knowledge to teachers can benefit all learners.
CHAPTER THREE

METHODOLOGY

Overview

The importance of reading cannot be over-emphasized. It is the skill by which the individual accesses personal and educational content. The most current statistics indicate that approximately 14% of adults cannot read (NCES, 2012a). Children who experience reading difficulty are more likely to experience school failure, be identified for special education, have emotional problems, or not attend school at all (Cicchetti & Nurcombe, 1993). A strong link exists between low reading ability and high school drop out rates (Snow, Burns, & Griffin, 1998).

Reading is the most critical skill to be learned, particularly at the elementary level (Hosp & Fuchs, 2005; Moats, 2009; Vaughn, Wanzek, Murray, Scammacca, Linan-Thompson, & Woodruff, 2009). The longer a child struggles to read, the more challenging the remediation process becomes (Roberts, Torgesen, Boardman, & Scammacca, 2008). It appears that intensive, systematic, explicit reading instruction can remediate low achievement in reading at a rapid pace (by up to two grade levels within one school year) (Houtveen & van de Grift, 2007; Kamps, Abbott, Greenwood, Wills, Verrkamp & Kaufman, 2008).

The purpose of this study was to investigate the types of knowledge and level of instruction received by general and special educators in their pre-service and in-service programs. Teachers enrolled in graduate level courses at 13 universities, selected through a convenience sample, were asked to complete a questionnaire via a web link. The universities asked to participate were University of Nevada Las Vegas, California State
University Monterey Bay, California State University Fullerton, San Diego State University, Arizona State University, University of North Carolina Greensboro, University of Georgia, University of Massachusetts Amherst, Southern Connecticut State University, St. Cloud University, Emporia State University, Eastern Illinois University and Wichita State University. Convenience sampling was used in the design of the study through the selection of universities. However, the teacher participants were representative of educators from rural, town, suburban, or city settings (NCES, 2012c).

Research Questions

Data were collected to evaluate the effectiveness of teacher education programs (pre-service and in-service) using a questionnaire comprised of questions focusing on the direct and incidental instruction of reading skills identified by the National Reading Panel (2000). The following questions were asked:

Research Question 1: Do special education teachers receive more training in knowledge of the five big ideas of reading compared to general education teachers in their pre-service education programs?

It was predicted that general education teachers receive more training in knowledge of the five big ideas of reading in pre-service education programs.

Research Question 2: Do special education teachers receive more training in the knowledge of the five big ideas of reading compared to general education teachers in their in-service training?

It was predicted that general education teachers receive more training in the five big ideas of reading in their in-service training.
Research Question 3: Do special education teachers receive more training in the components of reading compared to general education in their pre-service education programs?

It was predicted that general education teachers receive more training in the components of reading in their pre-service education programs.

Research Question 4: Do special education teachers receive more training in the components of reading compared to general education teachers in their in-service training?

It was predicted that general education teachers receive more training in the components of reading in their in-service training.

Research Question 5: Do special education teachers receive more training in reading strategies compared to general education teachers in their pre-service education programs?

It was predicted that special education teachers receive more training in reading strategies in their pre-service education programs.

Research Question 6: Do special education teachers receive more training in reading strategies compared to general education teachers in their in-service training?

It was predicted that special education teachers receive more training in reading strategies in their in-service training.

Participants

The participants in this study were general education and special education teachers who were enrolled in degree programs at rural, urban, and suburban universities across the United States. The special education participants included those who taught in
resource rooms, self-contained, and co-teaching classrooms. The general education teachers taught at the elementary and secondary levels. The questionnaire was disseminated on-line and all participants completed a digital informed consent (see Appendix A).

**Special Education and General Education Teachers**

All educators who participated in this study were volunteers enrolled in a degree or certification program in curriculum and instruction (general education) or special education. Only currently practicing teachers were invited to participate. Demographic information was collected from all participants via the online questionnaire (see Table B1).

**University Facilitators**

Thirteen university professors in the field of special education were contacted and invited to participate in this study. The 13 professors asked one of their general education colleagues to participate, bringing the total to 26 university facilitators. These university professors assisted in soliciting volunteers for the study. Demographic information for the participating professors was collected (see Table 1). All university professors signed an informed consent prior to participation in the study (see Appendix C).
Table 1

Demographics of University Facilitators

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Special Education Facilitator</th>
<th>General Education Facilitator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Female</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>Years Teaching in Higher Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 – 3 years</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>4 – 10 years</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>10 or more years</td>
<td>3</td>
<td>5</td>
</tr>
</tbody>
</table>

Setting

Thirteen Colleges of Education were invited and agreed to participate in this study. A University Site Consent Letter was signed by the appropriate Department Chair at each participating university allowing access to the site for the study (see Appendix D). The participating universities were located throughout the United States in rural, town, suburban, or city sections of the country (NCES, 2012a).

Participating Universities

University professors were contacted via email and their participation was solicited. Professors from the following universities agreed to participate:

Arizona State University, located in the Phoenix metro area, has an enrollment of 72,254 students (58,404 undergraduate and 6,776 graduate) (NCES, 2012d). Mary Lou
Fulton Teachers College has an enrollment of 5,672 students (Arizona State University, 2012).

California State University, Fullerton is located in suburban Orange County, California with an enrollment of 36,156 students (30,782 undergraduate students and 5,374 graduate students) (NCES, 2012e). The College of Education offers only graduate degrees in education; there is an enrollment rate of 824 graduate students (California State University, Fullerton, 2012).

California State University, Monterey Bay is located in suburban California, with an enrollment of 5,173 students (4,806 undergraduate and 367 graduate) (NCES, 2012f). California State University, Monterey Bay’s Teacher Education Program only has graduate degrees in education, with an enrollment rate of approximately 45 graduate students (California State University, Monterey Bay, 2012).

Eastern Illinois University is a public university located in suburban Charleston, Illinois, with an enrollment of 11,178 students (9,657 undergraduate and 1,521 graduate students) (NCES, 2012g). The College of Education and Professional Studies has an enrollment of 3,222 students (Eastern Illinois University, 2012).

Emporia State University is located in rural Kansas and has an enrollment of 5,976 students (3,846 undergraduate and 2,130 graduate) (NCES, 2012h). The Teachers College has an enrollment of 2,372 students (Emporia State University, 2012).

San Diego State University is located in urban San Diego, California with an enrollment of approximately 30,541 students (25,796 undergraduate and 4,745 graduate) (NCES, 2012i). The School of Leadership and Education Sciences has an enrollment of 1,045 students (San Diego State University, 2012).
Southern Connecticut State University is located in suburban New Haven, Connecticut with an enrollment of 11,533 students (8,696 undergraduate and 2,837 graduate) (NCES, 2012j). The School of Education has an enrollment of 2,077 students (Southern Connecticut State University, 2012).

St. Cloud State University is located in rural Minnesota with an enrollment of 17,604 students (15,879 undergraduate and 1,725 graduate) (NCES, 2012k). The School of Education has an enrollment of 692 students (St. Cloud State University, 2012).

University of Georgia is located in suburban Athens, Georgia with an enrollment of 34,816 students (26,373 undergraduate and 8,443 graduate) (NCES, 2012l). The College of Education has an enrollment of 4,575 students (University of Georgia, 2012).

The University of Massachusetts, Amherst is located near Boston, Massachusetts with an enrollment of 28,084 students (21,812 undergraduate and 6,272 graduate) (NCES, 2012m). The School of Education has an enrollment of 672 students (University of Massachusetts Amherst, 2012).

The University of Nevada, Las Vegas has an enrollment of 27,364 students (22,137 undergraduate and 5,227 graduate students) (NCES, 2012n). The College of Education has an enrollment of 2,433 students (University of Nevada Las Vegas, 2012).

University of North Carolina, Greensboro has an enrollment of 18,627 students (14,898 undergraduate and 3,729 graduate) (NCES, 2012o). The School of Education has an enrollment of 2,066 students (University of North Carolina Greensboro, 2012).

Wichita State University is an urban state university located in Kansas with an enrollment of 14,909 students (12,106 undergraduate and 2,803 graduate) (NCES,
The College of Education has an enrollment of 1,887 students (1,268 undergraduate and 619 graduate) (Wichita State University, 2012).

**Instrumentation**

The instrument created for this study was developed by synthesizing information from the work of the National Reading Panel (2000). The reading categories compiled by the panel were used to develop the questionnaire (see Appendix E). The questionnaire is comprised of 66 questions, divided into three sections: (a) knowledge of the *five big ideas*, (b) knowledge of the reading components, and (c) explicit reading strategies. The goal was to evaluate the type of reading skills instruction general and special education teachers received during their pre-service and in-service training. The National Institute of Child Health and Human Development (NICHD), the copyright holder of the work of the National Reading Panel, granted permission to use content from the *Report of the National Reading Panel, Teaching Children to Read: An Evidence-Based Assessment of the Scientific Research Literature on Reading and Its Implications for Reading Instruction* (2000) in the development of the questionnaire (see Appendix F).

**Materials**

Specific materials were necessary for this study. Details of the materials used for the study are included below.

**Reading Skills Instruction Questionnaire**

The *Reading Skills Instruction Questionnaire* (see Appendix E) was used by the teachers to provide information related to the level and type of reading skills instruction they received during their pre-service teacher education program and their school-based in-service programs. The 66-item questionnaire focused on the type of knowledge and
level of instruction teachers received concerning the teaching of specific reading skills identified by the National Reading Panel (2000). Participants indicated their level of response for each question using a 5-item Likert scale. The response choices included (a) mentioned and a specific strategy was taught through direct instruction, (b) mentioned and a specific strategy was discussed, (c) mentioned and strategies were mentioned incidentally, (d) mentioned but no specific strategy was taught, or (e) never mentioned and a specific strategy was never taught. Qualtrics (2012) was used to create the questionnaire. A URL allowed access to the questionnaire.

**Website**

The *Reading Skills Instruction Questionnaire* (see Appendix E) was accessible via a URL address that was provided in the script given to the university facilitators. The script directed the participant to Qualtrics, a website dedicated solely to questionnaire development. The web address was live for four months. Once a participant completed the questionnaire, they were not be able to access it again. Data collected from the responses were maintained in an electronic database, accessible only to two people. The data collected were solely for the purpose of the study, statistical analysis, and dissemination of results. All data were anonymous.

**Qualtrics**

*Qualtrics* (2012) is survey research software accessible via the internet. *Qualtrics* (2012) was used to create the on-line questionnaire for this study. The hard copy of the questionnaire was transferred into digital format through the use of *Qualtrics* (2012). Two reliability checkers verified accurate transfer of the hardcopy questionnaire to the digital format. This occurred by reading through the hardcopy and verifying exact
transfer to digital format as well as pilot testing the digital format of the questionnaire (see Appendix G). Reliability was achieved. The questionnaire was transferred with 100% accuracy. Distribution and data storage were managed by Qualtrics (2012). Data stored in Qualtrics (2012) were exported to SPSS and Excel.

**Design and Procedures**

This study was conducted in four phases. These included online questionnaire development, solicitation of participants, questionnaire distribution, and data collection and analysis.

**Phase One**

The first phase of this study involved development of the on-line questionnaire into digital format. The work of the NRP (2000) was accessed to obtain valid, research-based components of reading skills instruction. Through this synthesis, questions were developed for the *Reading Skills Instruction Questionnaire* (see Appendix E). The questionnaire contained 66 questions directly related to skills and strategies used in reading instruction. The first section of the questionnaire focused on the definitions of the *five big ideas* of reading. It was comprised of questions directly related to teacher knowledge of phonemic awareness, systematic phonics, fluency, vocabulary, and comprehension. The second section consisted of items focusing on the components of reading instruction as related to the *five big ideas* of reading. The third section consisted of questions concerning strategies used to teach phonemic awareness, systematic phonics, fluency, vocabulary, and comprehension.

The *Reading Skills Instruction Questionnaire* (see Appendix E) was converted to an online format, using *Qualtrics* (2012). The website allowed online access to
approximately 1000 participants. The first page of the website was the informed consent form (see Appendix A). Digital consent is considered a legal form of consent (C. Esparza, personal communication, August 27, 2012). The teachers were not able to move forward in the questionnaire without clicking “Yes, I have read the above information and agree to participate in this study. I am at least 18 years of age. (By clicking here, you will be directed to the questionnaire)” on the informed consent form. After completing the informed consent, participants moved forward to the questionnaire. Upon completion of the questionnaire, data were downloaded and stored in a database with no participant identification. Participants were only able to access the questionnaire once from their computer.

**Phase Two**

Phase Two involved obtaining consent from universities willing to participate in the study. Universities asked to participate in the study were chosen through a convenience sample. Professors from a pool of 13 Colleges of Education across the country were asked to participate in this study. The special education professors served as site facilitators and recruited participation from one general education professor. The site facilitators asked volunteers to complete the on-line questionnaire. Professors who agreed to serve as site facilitators signed an informed consent form (see Appendix C).

Each participating university had a general education and special education facilitator responsible for identifying a minimum of one graduate level course scheduled during the Fall 2012 and Spring 2013 semesters. A minimum of 20 students had to be enrolled in the course for participation to occur. Each facilitator read a short description of the study and requested students volunteer to complete the questionnaire (see
Appendix H). Professors indicated that participation in the study was not mandatory and would not affect student grades in any way. Participating professors used a prepared protocol description of the study to read and distribute so that potential volunteers had the information to access the online questionnaire (see Appendix H). The protocol included a request to participate, and the URL addresses of two other questionnaires. Approval was granted by the UNLV Institutional Review Board to establish one protocol for recruitment of participants for the three questionnaires (L. Olafson, personal communication, September 5, 2012).

**Phase Three**

Professors at each university solicited volunteers to complete the questionnaire (four weeks during Fall 2012 and four weeks during early Spring 2013). The solicitation was once a week for four consecutive weeks each semester. The professors passed out written instructions that contained the URL address to access the questionnaire. The teacher volunteers were able to access the questionnaire only one time.

**Phase Four**

The online questionnaire was accessible for a period of four months to attain the maximum amount of student participation. Participant responses were collected, categorized, and stored in a spreadsheet system with restricted access.

Data analysis occurred to allow for a thorough review of responses and dissemination of findings. Data were downloaded into a database system and grouped according to response. *SPSS* (SPSS Inc., 2001) was used for statistical analysis purposes.
Data Collection

Responses to the Reading Skills Instruction Questionnaire, along with demographic information, were collected and coded electronically through the online database. The data were collected for a four-month period.

Treatment of the Data

Data collected from the Reading Skills Instruction Questionnaire were analyzed to answer the following questions:

Research Question 1: Do special education teachers receive more training in knowledge of the five big ideas of reading compared to general education teachers in their pre-service education programs?

Analysis: A 2 x 5 Chi-Square Test of Independence was conducted to determine if a significant relationship existed between teacher type, general or special education, during their teacher education (pre-service) programs and level of instruction of the five big ideas of reading for the five levels: (a) mentioned and a specific strategy was taught through direct instruction, (b) mentioned and a specific strategy was discussed, (c) mentioned and strategies were mentioned incidentally, (d) mentioned and no specific strategy was taught, and (e) never mentioned and a specific strategy was never taught.

Research Question 2: Do special education teachers receive more training in the knowledge of the five big ideas of reading compared to general education teachers in their in-service training?

Analysis: A 2 x 5 Chi-Square Test of Independence was conducted to determine if a significant relationship existed between teacher type, general or special education, during their in-service training and level of instruction of the five big ideas of reading for the
five levels: (a) mentioned and a specific strategy was taught through direct instruction, (b) mentioned and a specific strategy was discussed, (c) mentioned and strategies were mentioned incidentally, (d) mentioned and no specific strategy was taught, and (e) never mentioned and a specific strategy was never taught.

**Research Question 3:** Do special education teachers receive more training in the components of reading compared to general education in their pre-service education programs?

**Analysis:** A 2 x 5 Chi-Square Test of Independence was conducted to determine if a significant relationship existed between teacher type, general or special education, during their pre-service programs and level of instruction of the components of reading for the five levels: (a) mentioned and a specific strategy was taught through direct instruction, (b) mentioned and a specific strategy was discussed, (c) mentioned and strategies were mentioned incidentally, (d) mentioned and no specific strategy was taught, and (e) never mentioned and a specific strategy was never taught.

**Research Question 4:** Do special education teachers receive more training in the components of reading compared to general education teachers in their in-service training?

**Analysis:** A 2 x 5 Chi-Square Test of Independence was conducted to determine if a significant relationship existed between teacher type, general or special education, during their in-service training and level of instruction of the components of reading for the five levels: (a) mentioned and a specific strategy was taught through direct instruction, (b) mentioned and a specific strategy was discussed, (c) mentioned and strategies were
mentioned incidentally, (d) mentioned and no specific strategy was taught, and (e) never mentioned and a specific strategy was never taught.

**Research Question 5:** Do special education teachers receive more training in reading strategies compared to general education teachers in their pre-service education programs?

**Analysis:** A 2 x 5 Chi-Square Test of Independence was conducted to determine if a significant relationship existed between teacher type, general or special education, during their pre-service programs and level of instruction in reading strategies for the five levels: (a) mentioned and a specific strategy was taught through direct instruction, (b) mentioned and a specific strategy was discussed, (c) mentioned and strategies were mentioned incidentally, (d) mentioned and no specific strategy was taught, and (e) never mentioned and a specific strategy was never taught.

**Research Question 6:** Do special education teachers receive more training in reading strategies compared to general education teachers in their in-service training?

**Analysis:** A 2 x 5 Chi-Square Test of Independence was conducted to determine if a significant relationship existed between teacher type, general or special education, during their in-service training in reading strategies and level of instruction for the five levels: (a) mentioned and a specific strategy was taught through direct instruction, (b) mentioned and a specific strategy was discussed, (c) mentioned and strategies were mentioned incidentally, (d) mentioned and no specific strategy was taught, and (e) never mentioned and a specific strategy was never taught.
CHAPTER FOUR

RESULTS

Reading is a skill that provides access to personal and educational content. Typically, the development of the skill begins at the elementary level (Hosp & Fuchs, 2005; Moats, 2009; Vaughn, Wanzek, Murray, Scammacca, Linan-Thompson, & Woodruff, 2009). When a child experiences reading difficulty, multiple outcomes may occur: (a) school failure, (b) identification for special education, (c) emotional problems, or (d) dropping out of school (Cicchetti & Nurcombe, 1993; Snow, Burns, & Griffin, 1998). Ideally, educators are trained in their pre-service education to teach reading and this training is reinforced in their in-service professional development.

The purpose of this study was to investigate the types of knowledge and level of instruction received by general and special educators in their pre-service and in-service programs. Thirteen universities from across the nation participated in the study. Graduate students, who were employed as teachers, completed a questionnaire. The questionnaire was created using the components of reading identified by the National Reading Panel (2000) to determine the level, type, and area of reading skills instruction provided to general and special educators during their pre-service and in-service training (see Appendix D). Data were collected over a four-month period. A total of 277 participants completed the on-line questionnaire. Quantitative analyses were used to analyze the data.

Reading Skills Instruction Questionnaire

The Reading Skills Instruction Questionnaire (see Appendix E) was created using the elements of reading identified by the National Reading Panel (2000). The questionnaire asked the participants to identify the level of instruction and type of reading
skills instruction received in pre-service and in-service programs. The *Reading Skills Instruction Questionnaire* contained 66 questions focused on instruction received on specific reading skills in their teacher education program (pre-service) or during in-service training. A 5-item Likert scale was provided for each item, that allowed teachers to indicate if the reading skill was (a) mentioned and a specific strategy taught through direct instruction, (b) mentioned and a specific strategy discussed, (c) mentioned and strategies mentioned incidentally, (d) mentioned and no specific strategy taught, or (e) never mentioned and a specific strategy never taught. The data collected from the respondents were analyzed to answer the following research questions:

**Research Question 1:** Do special education teachers receive more training in the knowledge of the *five big ideas* of reading compared to general education teachers in their pre-service education programs?

It was predicted that general education teachers receive more training in the knowledge of the *five big ideas* of reading in their pre-service education programs.

Data were analyzed using a 2 x 5 Chi-Square Test of Independence to determine if a significant relationship existed between teacher type, general or special education, during their teacher education (pre-service) programs and level of instruction of the *five big ideas* of reading for the five levels: (a) mentioned and a specific strategy taught through direct instruction, (b) mentioned and a specific strategy discussed, (c) mentioned and strategies mentioned incidentally, (d) mentioned, and no specific strategy taught, and (e) never mentioned and a specific strategy never taught. An alpha level of .05 was set for this analysis.
Results of the 2 x 5 Chi-Square Test of Independence indicated a significant relationship between the two variables (e.g., teacher type, level of instruction) in the subcategories of phonemic awareness ($\chi^2=24.606$, $p<.001$), phonics ($\chi^2=15.522$, $p=.004$), and fluency ($\chi^2=11.207$, $p=.024$) (see Table 2). Percentages of teacher responses are listed in Table 3. This analysis indicated that the prediction was incorrect. Special education teachers received more training in three of the five big ideas of reading compared to general education teachers in their pre-service education programs.

Table 2

<table>
<thead>
<tr>
<th>Idea</th>
<th>$\chi^2$</th>
<th>$p$</th>
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<tbody>
<tr>
<td>Phonemic awareness</td>
<td>24.606</td>
<td>&lt;.001*</td>
</tr>
<tr>
<td>Phonics</td>
<td>15.522</td>
<td>.004*</td>
</tr>
<tr>
<td>Fluency</td>
<td>11.207</td>
<td>.024*</td>
</tr>
<tr>
<td>Vocabulary</td>
<td>3.731</td>
<td>.444</td>
</tr>
<tr>
<td>Comprehension</td>
<td>6.868</td>
<td>.143</td>
</tr>
</tbody>
</table>

Note. $p<.05$
Table 3

*Percentage of Responses of General Education Teachers and Special Education Teachers for The Five Big Ideas of Reading in Pre-Service Programs*

<table>
<thead>
<tr>
<th>Five Big Ideas of Reading</th>
<th>General Education Teachers (n=142)</th>
<th>Special Education Teachers (n=135)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Phonemic Awareness</strong></td>
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<td></td>
</tr>
<tr>
<td>Mentioned/Specific strategy was taught through direct instruction</td>
<td>38.3</td>
<td>61.7</td>
</tr>
<tr>
<td>Never mentioned/Specific strategy was never taught</td>
<td>81.8</td>
<td>18.2</td>
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<tr>
<td><strong>Phonics</strong></td>
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<tr>
<td>Mentioned/Specific strategy was taught through direct instruction</td>
<td>41.5</td>
<td>58.5</td>
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<tr>
<td>Never mentioned/Specific strategy was never taught</td>
<td>77.8</td>
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<td><strong>Vocabulary</strong></td>
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</tr>
<tr>
<td>Mentioned/Specific strategy was taught through direct instruction</td>
<td>47.1</td>
<td>52.9</td>
</tr>
<tr>
<td>Never mentioned/Specific strategy was never taught</td>
<td>71.4</td>
<td>28.6</td>
</tr>
<tr>
<td><strong>Fluency</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned/Specific strategy was taught through direct instruction</td>
<td>45.4</td>
<td>54.6</td>
</tr>
<tr>
<td>Never mentioned/Specific strategy was never taught</td>
<td>72.0</td>
<td>28.0</td>
</tr>
<tr>
<td><strong>Comprehension</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned/Specific strategy was taught through direct instruction</td>
<td>46.9</td>
<td>53.1</td>
</tr>
<tr>
<td>Never mentioned/Specific strategy was never taught</td>
<td>64.7</td>
<td>35.3</td>
</tr>
</tbody>
</table>
Research Question 2: Do special education teachers receive more training in the knowledge of the five big ideas of reading compared to general education teachers in their in-service training?

It was predicted that general education teachers receive more training in the five big ideas of reading in their in-service training.

Data were analyzed using a 2 x 5 Chi-Square Test of Independence to determine if a significant relationship existed between teacher type, general or special education, during their in-service training and the level of instruction of the five big ideas of reading for the five levels: (a) mentioned and a specific strategy taught through direct instruction, (b) mentioned and a specific strategy discussed, (c) mentioned and strategies mentioned incidentally, (d) mentioned and no specific strategy taught, and (e) never mentioned and a specific strategy never taught. An alpha level of .05 was set for this analysis.

Results of the 2 x 5 Chi-Square Test of Independence indicated a significant relationship between the two variables (e.g., teacher type, level of instruction) in the subcategory of phonemic awareness ($X^2=10.917, p=.028$) (see Table 4). Percentages of teacher responses are listed in Table 5. This analysis indicated that the prediction was incorrect. Special education teachers received more training in one subcategory (phonemic awareness) of the five big ideas of reading compared to general education teachers in their in-service training. The four remaining categories (e.g., phonics, fluency, vocabulary, comprehension) had very similar distribution. This indicates that general education and special education teachers would benefit from additional explicit reading skills instruction provided during in-service training.
Table 4

*Chi-Square Test of Independence Significant Relationship for The Five Big Ideas of Reading for Special Education Teachers in In-Service Training*

<table>
<thead>
<tr>
<th>Idea</th>
<th>$X^2$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phonemic Awareness</td>
<td>10.917</td>
<td>.028*</td>
</tr>
<tr>
<td>Phonics</td>
<td>9.611</td>
<td>.087</td>
</tr>
<tr>
<td>Fluency</td>
<td>2.468</td>
<td>.650</td>
</tr>
<tr>
<td>Vocabulary</td>
<td>.374</td>
<td>.985</td>
</tr>
<tr>
<td>Comprehension</td>
<td>2.028</td>
<td>.731</td>
</tr>
</tbody>
</table>

*Note. $p<.05$*
Table 5

*Percentage of Responses of General Education Teachers and Special Education Teachers for The Five Big Ideas of Reading in In-Service Trainings*

<table>
<thead>
<tr>
<th>Five Big Ideas of Reading</th>
<th>General Education Teachers (n=142)</th>
<th>Special Education Teachers (n=135)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Phonemic Awareness</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned/Specific strategy was taught through direct instruction</td>
<td>39.8</td>
<td>60.2</td>
</tr>
<tr>
<td>Never mentioned/Specific strategy was never taught</td>
<td>35.2</td>
<td>21.5</td>
</tr>
<tr>
<td><strong>Phonics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned/Specific strategy was taught through direct instruction</td>
<td>42.7</td>
<td>57.3</td>
</tr>
<tr>
<td>Never mentioned/Specific strategy was never taught</td>
<td>32.4</td>
<td>24.4</td>
</tr>
<tr>
<td><strong>Vocabulary</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned/Specific strategy was taught through direct instruction</td>
<td>49.5</td>
<td>50.5</td>
</tr>
<tr>
<td>Never mentioned/Specific strategy was never taught</td>
<td>17.6</td>
<td>17.0</td>
</tr>
<tr>
<td><strong>Fluency</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned/Specific strategy was taught through direct instruction</td>
<td>47.8</td>
<td>52.2</td>
</tr>
<tr>
<td>Never mentioned/Specific strategy was never taught</td>
<td>51.8</td>
<td>48.2</td>
</tr>
<tr>
<td><strong>Comprehension</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned/Specific strategy was taught through direct instruction</td>
<td>48.3</td>
<td>51.7</td>
</tr>
<tr>
<td>Never mentioned/Specific strategy was never taught</td>
<td>59.6</td>
<td>40.4</td>
</tr>
</tbody>
</table>
**Research Question 3:** Do special education teachers receive more training in the components of reading compared to general education teachers in their pre-service education programs?

It was predicted that general education teachers receive more training in the components of reading in their pre-service education programs.

Data were analyzed using a 2 x 5 Chi-Square Test of Independence to determine if a significant relationship existed between teacher type, general or special education, during their pre-service programs and the level of instruction of the components of reading for the five levels: (a) mentioned and a specific strategy taught through direct instruction, (b) mentioned and a specific strategy discussed, (c) mentioned and strategies mentioned incidentally, (d) mentioned and no specific strategy taught, and (e) never mentioned and a specific strategy never taught. An alpha level of .05 was set for this analysis.

Results of the 2 x 5 Chi-Square Test of Independence indicated a significant relationship between the two variables (e.g., teacher type, level of instruction) in the subcategories of phoneme isolation ($X^2=24.218, p=<.001$), phoneme identification ($X^2=17.000, p=.001$), phoneme categorization ($X^2=11.033, p=.026$), phoneme blending ($X^2=15.527, p=.004$), phoneme segmentation ($X^2=19.008, p=.001$), phoneme deletion ($X^2=16.017, p=.003$), phoneme addition ($X^2=16.865, p=.002$), synthetic phonics/converting letters to phonemes ($X^2=17.924, p=.001$), synthetic phonics/blending phonemes to form words ($X^2=17.863, p=.003$), analytic phonics ($X^2=17.654, p=.001$), phonics in context ($X^2=15.867, p=.003$), analogy phonics ($X^2=10.070, p=.039$), guided oral reading/paired reading ($X^2=20.073, p=<.001$), guided oral reading/repeated reading ($X^2=17.997, p=.001$), guided oral reading/neurological impress ($X^2=11.048, p=.026$),
guided oral reading/assisted reading ($\chi^2 = 18.438, p = .001$), independent silent reading/Drop Everything and Read ($\chi^2 = 11.611, p = .020$), independent silent reading/Accelerated Reader ($\chi^2 = 12.332, p = .015$), and independent silent reading/reading incentive program ($\chi^2 = 10.491, p = .015$) (see Table B2). Percentages of teacher responses are listed in Table B3. This analysis indicated that the prediction was incorrect. Special education teachers received more training in 19 of the 23 reading components compared to general education teachers in their pre-service education programs. These results indicate a need for more direct reading instruction in general education teacher preparation programs.

**Research Question 4:** Do special education teachers receive more training in the components of reading compared to general education teachers in their in-service training?

It was predicted that general education teachers receive more training in the components of reading in their in-service training.

Data were analyzed using a 2 x 5 Chi-Square Test of Independence to determine if a significant relationship existed between teacher type, general or special education, during their in-service training and the level of instruction of the components of reading for the five levels: (a) mentioned and a specific strategy taught through direct instruction, (b) mentioned and a specific strategy discussed, (c) mentioned and strategies mentioned incidentally, (d) mentioned and no specific strategy taught, and (e) never mentioned and a specific strategy never taught. An alpha level of .05 was set for this analysis.

Results of the 2 x 5 Chi-Square Test of Independence indicated a significant relationship between the two variables (e.g., teacher type, level of instruction) in the
subcategories of phoneme deletion ($\chi^2 = 9.800, p = .044$) and synthetic phonics/converting letters to phonemes ($\chi^2 = 9.949, p = .041$) (see Table 6). Percentages of teacher responses are listed in Table B4. This analysis indicated that the prediction was incorrect. Special education teachers received more training in two out of the 23 subcategories of reading components compared to general education teachers in their in-service training. The remaining subcategories show no significant relationship between the two variables. These results indicate minimal difference in the amount of direct instruction of reading components being provided for general education and special education teachers during their in-service training.
Table 6

Chi-Square Test of Independence Outcomes for the Components of Reading for Special Education Teachers in Their In-Service Training

<table>
<thead>
<tr>
<th>Component</th>
<th>$\chi^2$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phoneme Isolation</td>
<td>7.771</td>
<td>.100</td>
</tr>
<tr>
<td>Phoneme Identification</td>
<td>7.974</td>
<td>.093</td>
</tr>
<tr>
<td>Phoneme Categorization</td>
<td>4.591</td>
<td>.332</td>
</tr>
<tr>
<td>Phoneme Blending</td>
<td>7.985</td>
<td>.092</td>
</tr>
<tr>
<td>Phoneme Segmentation</td>
<td>7.917</td>
<td>.095</td>
</tr>
<tr>
<td>Phoneme Deletion</td>
<td>9.800</td>
<td>.044*</td>
</tr>
<tr>
<td>Phoneme Addition</td>
<td>7.093</td>
<td>.131</td>
</tr>
<tr>
<td>Synthetic Phonics/</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Convert Letters into Phonemes</td>
<td>9.949</td>
<td>.041*</td>
</tr>
<tr>
<td>Synthetic Phonics/ Blend Phonemes to Form Words</td>
<td>9.369</td>
<td>.053</td>
</tr>
<tr>
<td>Analytic Phonics</td>
<td>8.984</td>
<td>.062</td>
</tr>
<tr>
<td>Guided Oral Reading/ Paired Reading</td>
<td>7.316</td>
<td>.120</td>
</tr>
<tr>
<td>Phonics in Context</td>
<td>5.512</td>
<td>.239</td>
</tr>
<tr>
<td>Analogy Phonics</td>
<td>3.732</td>
<td>.444</td>
</tr>
<tr>
<td>Guided Oral Reading/ Repeated Reading</td>
<td>9.030</td>
<td>.060</td>
</tr>
<tr>
<td>Guided Oral Reading/ Shared Reading</td>
<td>3.457</td>
<td>.484</td>
</tr>
<tr>
<td>Guided Oral Reading/ Neurological Impress</td>
<td>4.393</td>
<td>.355</td>
</tr>
<tr>
<td>Guided Oral Reading/ Assisted Reading</td>
<td>8.653</td>
<td>.070</td>
</tr>
<tr>
<td>Independent Silent Reading/ Drop Everything and Read</td>
<td>5.881</td>
<td>.208</td>
</tr>
<tr>
<td>Independent Silent Reading/ Accelerated Reader</td>
<td>6.133</td>
<td>.189</td>
</tr>
<tr>
<td>Independent Silent Reading/ Reading Incentive Program</td>
<td>8.590</td>
<td>.072</td>
</tr>
<tr>
<td>Independent Silent Reading/ Sustained Silent Reading</td>
<td>1.916</td>
<td>.751</td>
</tr>
<tr>
<td>Text Comprehension</td>
<td>6.589</td>
<td>.159</td>
</tr>
<tr>
<td>Comprehension through Vocabulary Instruction</td>
<td>.341</td>
<td>.987</td>
</tr>
</tbody>
</table>

*Note. $p<.05$
Research Question 5: Do special education teachers receive more training in reading strategies compared to general education teachers in their pre-service education programs?

It was predicted that special education teachers receive more training in reading strategies in their pre-service education programs.

Data were analyzed using a 2 x 5 Chi-Square Test of Independence to determine if a significant relationship existed between teacher type, general or special education, during their pre-service programs and their level of instruction in reading strategies for the five levels: (a) mentioned and a specific strategy taught through direct instruction, (b) mentioned and a specific strategy discussed, (c) mentioned and strategies mentioned incidentally, (d) mentioned and no specific strategy taught, and (e) never mentioned and a specific strategy never taught. An alpha level of .05 was set for this analysis.

Results from the 2 x 5 Chi-Square Test of Independence indicated a significant relationship between the two variables (e.g., teacher type, level of instruction) in the subcategories of relate letters and sounds ($X^2=19.019, p=.001$); break spoken words into sounds ($X^2=22.080, p=<.001$); blend sounds to form new words ($X^2=27.063, p=<.001$); understand the alphabetic principle ($X^2=17.915, p=.001$); decode words, sentences, and text ($X^2=17.921, p=.001$); use the Alphabetic Principle in writing ($X^2=18.875, p=.001$); adapt individual instruction based on assessment ($X^2=14.356, p=.006$); model fluent reading/daily read-alouds ($X^2=16.539, p=.002$); student-adult reading ($X^2=10.201, p=.037$); choral reading ($X^2=10.415, p=.034$); audio-assisted reading ($X^2=23.819, p=<.001$); partner reading ($X^2=22.778, p=<.001$); previewing words prior to reading text ($X^2=13.094, p=.011$); extend vocabulary instruction ($X^2=10.716, p=.030$); how to use
word parts to break apart meaning ($X^2=15.296, p=.004$); how to use base words to
discover meaning ($X^2=19.863, p=.001$); how to use root words to discover meaning
($X^2=13.148, p=.011$); and how to use problem solving ($X^2=13.611, p=.009$) (see Table
B5). Percentages of teacher responses are listed in Table B6. This analysis supported the
prediction. Special education teachers received more training in 18 of the 38 reading
strategies compared to general education teachers in their pre-service education
programs. These results indicate that general education teachers receive less direct
instruction in reading strategies in their teacher education programs compared to special
education teachers.

**Research Question 6:** Do special education teachers receive more training in
reading strategies compared to general education teachers in their in-service training?

It was predicted that special education teachers receive more training in reading
strategies in their in-service training.

Data were analyzed using a 2 x 5 Chi-Square Test of Independence to determine if a
significant relationship existed between teacher type, general or special education, during
their in-service training in reading strategies and the level of instruction for the five
levels: (a) mentioned and a specific strategy taught through direct instruction, (b)
mentioned and a specific strategy discussed, (c) mentioned and strategies mentioned
incidentally, (d) mentioned and no specific strategy taught, and (e) never mentioned and a
specific strategy never taught. An alpha level of .05 was set for this analysis.

Results from the 2 x 5 Chi-Square Test of Independence indicated a significant
relationship between the two variables (e.g., teacher type, level of instruction) in the
subcategories of break spoken words into sounds ($X^2=17.726, p=.001$); blend sounds to
form new words ($X^2=17.924, p=.001$); understand the Alphabetic Principle ($X^2=13.025, p=.011$); decode words, sentences, and text ($X^2=11.640, p=.020$); and use the Alphabetic Principle in writing ($X^2=10.018, p=.040$) (see Table B7). Percentages of teacher responses are listed in Table B8. This analysis supported the prediction. Special education teachers receive more training in five of the 38 reading strategies compared to general education teachers in their in-service trainings. These results indicate minimal difference in the amount of direct instruction of reading strategies received by special and general educators during in-service training.

These analyses suggest that more direct reading skills instruction is provided to special education teachers as compared to general education teachers. According to the data, most direct reading skills instruction is provided in pre-service programs to both general and special educators. The data indicated that, nationally, less direct reading skills instruction is provided to general education teachers in teacher preparation programs or in-service trainings compared to special education teachers in their preparation programs and in-service trainings. Data also indicated that special education teachers receive more direct reading skills instruction during their pre-service education programs compared to their in-service trainings. Both special and general educators receive minimal direct instruction in reading components and reading strategies during their in-service training.
CHAPTER FIVE

DISCUSSION

The importance of reading cannot be over emphasized, as it is the skill used daily for work, to learn, and to communicate. Thus, reading is considered the most critical skill to be learned and taught (Hosp & Fuchs, 2005; Moats, 2009; Vaughn, Wanzek, Murray, Scammacca, Linan-Thompson, & Woodruff, 2009). Children who experience reading difficulty are more likely to fail in school or not attend school at all (Cicchetti & Nurcombe, 1993). Time becomes an important component in reading instruction. The longer a student struggles, the more challenging the remediation process becomes (Roberts, Torgesen, Boardman, & Scammacca, 2008).

Students with disabilities and learners without disabilities may exhibit reading deficits that require remediation. The National Reading Panel (2000) provided the most current research-based framework for teaching reading. It identifies direct instruction as a crucial component of the process. Little research exists that describes the knowledge of the components of reading (National Reading Panel, 2000) for general education and special education teachers.

The purpose of this study was to investigate the types of knowledge and level of reading skills instruction received by general and special educators in their pre-service and in-service programs nationwide. Comparisons were made between the level of knowledge and type of reading skills instruction provided to general and special education teachers. Data were collected using an online questionnaire developed using the components of reading (National Reading Panel, 2000).
The questionnaire measured the types of knowledge of reading skills instruction in three areas: (a) the *five big ideas* of reading, (b) reading components, and (c) reading strategies. The questionnaire also evaluated the level of instruction: (a) mentioned and a specific strategy taught through direct instruction, (b) mentioned and a specific strategy discussed, (c) mentioned and strategies mentioned incidentally, (d) mentioned and no specific strategy taught, and (e) never mentioned and a specific strategy never taught.

**Knowledge of the Five Big Ideas**

Questions One and Two were analyzed to determine the level of instruction received by general and special education teachers in the *five big ideas* of reading in their pre-service and in-service programs. Question One focused on the level of instruction provided to general and special education teachers in their pre-service education programs. The data indicated that special education teachers receive more instruction in the areas of phonemic awareness, phonics, and fluency as reported by corresponding Pearson chi-square values and significance levels. The Standard Residual indicated that the source of the significant relationship in the area of phonemic awareness was in the *mentioned and a specific strategy was taught* category. The Standard Residual in the area of phonics indicated that the source of the significant relationship was in the *never mentioned and never taught* category for general education teachers, with a 77.8% response rate. These findings indicate less direct instruction in phonemic awareness, phonics, and fluency is taught in general education teacher pre-service preparation programs when compared to special education teacher preparation programs. These results support the findings of researchers stating that most general education pre-service
instruction is literacy-based (Barnyak & Paquette, 2010; Cheek, 1982; Washburn et al., 2011).

Question Two focused on the level of instruction of the five big ideas of reading provided to general and special education teachers in their in-service training. The data indicated that special education teachers receive more instruction in the area of phonemic awareness as reported by the Pearson chi-square value and significance level. The response of 60.2% special education teachers indicated that phonemic awareness was mentioned and a specific strategy was taught. This finding indicates that special education teachers have greater knowledge of pre-reading skills instruction compared to general education teachers. Data also indicated that in-service training provides similar outcomes for both general and special education teachers in four of the five big ideas of reading (e.g., phonics, vocabulary, fluency, comprehension). These findings support earlier research stating that whole-word learning is the main focus of general education in-service trainings (Cunningham & Stanovich, 1990; Hughes et al., 2001; Mather et. al, 2001). Also, that in-service training for special education teachers is lacking in quality (Hughes, Cash, Klinger, & Ahwee, 2001).

Knowledge of Components of Reading

Questions Three and Four were analyzed to determine the level of instruction received by general and special education teachers in the components of reading in their pre-service and in-service education programs. Question Three centered on the level of instruction provided to general and special education teachers in their pre-service education programs. Corresponding Pearson chi-square values and significance levels indicated that special education teachers receive more instruction in multiple components
of reading: (a) phoneme isolation, (b) phoneme identification, (c) phoneme categorization, (d) phoneme blending, (e) phoneme segmentation, (f) phoneme deletion, (g) phoneme addition, (h) synthetic phonics/converting letters to phonemes, (i) synthetic phonics/blending phonemes to form words, (j) analytic phonics, (k) phonics in context, (l) analogy phonics, (m) guided oral reading/paired reading, (n) guided oral reading/neurological impress, (o) guided oral reading/assisted reading, (p) independent silent reading/\textit{Drop Everything and Read}, (p) independent silent reading/\textit{Accelerated Reader}, and (q) independent silent reading/reading incentive program. Standard Residuals indicated that the source of the significant relationship was in the category of never mentioned and never taught for general education teachers in the areas of (a) phoneme isolation, (b) phoneme identification, (c) phoneme blending, (d) phoneme segmentation, (e) phoneme deletion, (f) synthetic phonics/converting letters to phonemes, (g) synthetic phonics/blending phonemes to form words, (h) analytic phonics, (i) guided oral reading/paired reading, (j) phonics in context, (k) guided oral reading/repeated reading, and (l) guided oral reading/assisted reading. These data indicate that less direct instruction of reading components is taught in general education teacher preparation programs compared to special education teacher preparation programs. It appears that direct instruction of the specific components of reading is not a priority of general education teacher preparation programs nationally. These results support earlier findings stating that many teachers still have a poor understanding of spoken and written language structure and are not prepared to teach reading instruction explicitly (Mather, Bos, & Babur, 2001; Moats, 1994). Also, these results indicate general education teachers lack
knowledge of the components of reading because pre-service education programs are still literacy-based (Fielding-Barnsley & Purdie, 2005).

Question Four focused on the level of instruction of reading components provided to general and special education teachers in their in-service trainings. Pearson chi-square values and significance levels indicated that special education teachers receive more in-service training in the reading components of phoneme deletion and synthetic phonics/converting letters to phonemes. These data indicated that in-service training for special education and general education teachers provide a similar amount of instruction in the components of reading aside from the two identified components (e.g., phoneme deletion and synthetic phonics/converting letters to phonemes). Overall, it appears that direct instruction of the components of reading is not a priority of in-service training nationally for either general or special education teachers. These results support the findings of Anders, Hoffman, and Duffy (2000) stating that ineffective professional development (in-service) programs are more common than effective programs.

**Knowledge of Reading Strategies**

Questions Five and Six were analyzed to determine the level of instruction received by general and special education teachers in reading strategies in their pre-service and in-service education programs. Question Five centered on the level of reading strategy instruction provided to general and special education teachers in their pre-service education programs. Pearson chi-square values and significance levels indicated significant relationships between the two variables (e.g., teacher type, level of instruction) in the reading strategies: (a) relate letters and sounds; (b) break spoken words into sounds; (c) blend sounds to form new words; (d) understand the alphabetic principle;
(e) decode words, sentences, and text; (f) use the alphabetic principle in writing; (g) adapt individual instruction based on assessment; (h) model fluent reading/daily read-alouds; (i) student-adult reading, (j) choral reading; (k) audio-assisted reading; (l) partner reading; (m) previewing words prior to reading text; (n) extend vocabulary instruction; (o) how to use word-parts to break-apart meaning; (p) how to use base words to discover meaning; (q) how to use root words to discover meaning; and (r) how to use problem solving.

Standard Residuals indicated that the source of the significant relationship was in the category of *never mentioned and never taught* for general education teachers in twelve areas: (a) relate letters and sounds; (b) break spoken words into sounds; (c) blend sounds to form new words; (d) understand the alphabetic principle; (e) decode words, sentences, and text; (f) use the alphabetic principle in writing; (g) adapt individual instruction based on assessment; (h) model fluent reading/daily read-alouds; (i) audio-assisted reading; (j) partner reading; (k) how to use word-parts to figure out meaning; and (l) how to use base words to discover meaning. These data indicated that less direct instruction of reading strategy instruction occurs in general education teacher preparation programs compared to special education teacher preparation programs. Data collected from special education teachers indicated that reading strategy instruction is provided through direct instruction in their teacher preparation programs. It appears that direct instruction of reading strategies is a priority of special education teacher education programs. These results support the findings of Al Otaiba and Lake (2007) indicating that pre-service teachers provided the coursework to deepen their knowledge of reading instruction are more prepared to teach reading.
Question Six focused on the level of reading strategy instruction provided to general and special education teachers in their in-service trainings. Pearson chi-square values and significance levels indicated that special education teachers receive more in-service training in the reading strategies (a) break spoken words into sounds; (b) blend sounds to form new words; (c) understand the alphabetic principle; (d) decode words, sentences, and text; and, (e) use the alphabetic principle in writing. Standard Residuals indicated that the source of the significant relationship was in the category of never mentioned and never taught for general education teachers in two areas: (a) break spoken words into sounds, and (b) blend sounds to form new words. These data indicated that more direct instruction in reading strategies is provided to special education teachers in five of the 38 reading strategies during in-service training. Overall, it appears that general education teachers receive less direct instruction in reading strategy instruction during in-service trainings nationally. The data indicate a minimal advantage of reading strategy instruction for special educators. Both special and general education teachers would benefit from more direct reading strategy instruction during their in-service trainings. These results support earlier findings indicating a lack of quality in professional development programs across the nation (Hughes, Cash, Klingner, & Ahwee, 2001).

**Conclusions**

Several conclusions can be derived from this study according to the quantitative data collected. Limitations of the study must be considered when viewing these conclusions.

1. Special education teachers receive more overall instruction on the knowledge of the five big ideas of reading in their pre-service education programs.
2. General education and special education teachers receive minimal instruction in the *five big ideas* of reading in their in-service trainings nationally.

3. Special education teachers receive more overall instruction in 19 of the 23 components of reading in their pre-service education programs nationally.

4. The amount of instruction provided during in-service trainings for special and general education teachers is similar for 21 of the 23 components of reading, aside from more instruction provided in two components to special education teachers (e.g., phoneme deletion and synthetic phonics/converting letters to phonemes).

5. Special education teachers receive more overall instruction in 19 of the 38 reading strategies in their pre-service education programs.

6. General education teachers receive less training in reading strategy instruction during their pre-service education programs compared to special education teacher preparation programs.

7. Special education teachers receive more instruction in eight of the 38 reading strategies in their in-service trainings nationally.

8. General and special educators receive minimal instruction in reading strategies during their in-service trainings.

**Recommendations for Further Study**

Nationally, reading instruction is viewed as an important component of both general and special education. However, learners continue to struggle with reading across all grade levels and abilities (NCES, 2012b). This study indicates that a limited amount of direct reading skills instruction is being provided to general education teachers in their
pre-service training as well as a lack of support through in-service training to special education teachers. Based on the results of this study, further research is recommended in the following areas:

1. Future research should compare the reading skills curricula provided to general education and special education teachers in their pre-service education programs.

2. Future research should investigate curricula being provided during in-service trainings to general and special education teachers.

3. Future research should investigate the reading content being taught by general and special educators in the classroom.

4. Future research should compare the perceptions of higher education faculty to school district administrators regarding direct reading skills instruction as part of teacher education programs and in-service trainings.

5. Future research should compare the structure and content of reading course syllabi in general and special education teacher preparation programs.

**Summary**

A child must be taught to read to access the content necessary for success in life and the workforce (Hosp & Fuchs, 2005; Moats, 2009; Vaughn, Wanzek, Murray, Scammacca, Linan-Thompson, & Woodruff, 2009). Current national policy and the research literature indicate the importance of direct reading skills instruction as effective practice for the teaching of reading (NCLB, 2000; NRP, 2000).

This study contributes to the current knowledge base of general education through the evidence regarding the lack of direct instruction of reading skills provided to general
education teachers in their pre-service programs and in-service trainings. This study also contributes to the current knowledge base of special education by providing evidence regarding the direct instruction of reading skills provided in their pre-service education programs and the lack of instruction during in-service trainings. Overall, general education teachers do not receive more direct reading skills instruction compared to special education teachers in their pre-service programs or in-service trainings.

Because current policy promotes that every child should read by third grade, it is important that all teachers are well versed in teaching reading directly and explicitly (NCLB, 2000). Because 40% of adolescents struggle with or cannot read, it is apparent that educators need to possess adequate skills to teach reading (Torgesen, 2008). The focus of pre-service education and in-service trainings must include teaching reading directly. The data from this study indicate a lack of direct reading skills instruction being provided to general education teachers in their pre-service education and in-service programs and to special education teachers in their in-service trainings.
APPENDIX A

PARTICIPANT CONSENT FORM
Department of Educational and Clinical Studies

TITLE OF STUDY: An Analysis of Reading Skills Instruction Provided to Special and General Educators in Preservice and In-Service Teacher Education
INVESTIGATOR(S) AND CONTACT PHONE NUMBER: Dr. Amanda Kyle Higgins, Ph.D.; Wendie Lappin Castillo, M.Ed.; Phone Number: 702-895-1102

The purpose of this study is to analyze the type of reading skills instruction provided to you during your pre-service and in-service teacher education programs. You are being asked to participate in the study because you meet the following criteria: You are a licensed practicing teacher.
If you volunteer to participate in this study, you will be asked to do the following:
Fill out an on-line questionnaire. Participants must complete all questions of the questionnaire.
This study includes only minimal risks. The study will take 20 minutes of your time. You will not be compensated for your time.
For questions regarding the rights of research subjects, any complaints or comments regarding the manner in which the study is being conducted you may contact the UNLV Office of Research Integrity – Human Subjects at 702-895-2794, toll free at 877-895-2794, or via email at IRB@unlv.edu.
Your participation in this study is voluntary. You may withdraw at any time. You are encouraged to ask questions about this study at the beginning or any time during the research study. If you have already completed this questionnaire once, it is not necessary to complete it again.

Participant Consent:

☐ Yes, I have read the above information and agree to participate in this study. I am at least 18 years of age. (By clicking here, you will be directed to the questionnaire.)

☐ No, I do not want to participate at this time.
APPENDIX B

TABLES
Table 1  
*Demographics of Special and General Education Teachers*

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Special Education Teachers</th>
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(continued)
Table 1

*Demographics of Special and General Education Teachers*

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Table 1  
*Demographics of Special and General Education Teachers*

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<th>General Education Teachers</th>
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*Note: Some respondents may work with more than one type of disability*
Table 2

Chi-Square Test of Independence Outcomes for the Components of Reading for Special Education Teachers in Their Pre-Service Programs

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<th>Component</th>
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<th>$p$</th>
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<td>&lt;.001*</td>
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<tr>
<td>Phoneme Identification</td>
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<td>.001*</td>
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<td>Phoneme Categorization</td>
<td>11.033</td>
<td>.026*</td>
</tr>
<tr>
<td>Phoneme Blending</td>
<td>15.527</td>
<td>.004*</td>
</tr>
<tr>
<td>Phoneme Segmentation</td>
<td>19.008</td>
<td>.001*</td>
</tr>
<tr>
<td>Phoneme Deletion</td>
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<td>.003*</td>
</tr>
<tr>
<td>Phoneme Addition</td>
<td>16.865</td>
<td>.002*</td>
</tr>
<tr>
<td>Synthetic Phonics/Convert Letters into Phonemes</td>
<td>17.924</td>
<td>.001*</td>
</tr>
<tr>
<td>Synthetic Phonics/Blend Phonemes to Form Words</td>
<td>17.863</td>
<td>.003*</td>
</tr>
<tr>
<td>Analytic Phonics</td>
<td>17.654</td>
<td>.001*</td>
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<tr>
<td>Guided Oral Reading/Paired Reading</td>
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<tr>
<td>Phonics in Context</td>
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<td>.003*</td>
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<tr>
<td>Analogy Phonics</td>
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<td>.039*</td>
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</table>

*Note. $p<.05$ (continued)*
Table 2

Chi-Square Test of Independence Outcomes for the Components of Reading for Special Education Teachers in Their Pre-Service Programs

<table>
<thead>
<tr>
<th>Component</th>
<th>$X^2$</th>
<th>$p$</th>
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<tbody>
<tr>
<td>Guided Oral Reading/Repeated Reading</td>
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<td>.001*</td>
</tr>
<tr>
<td>Guided Oral Reading/Shared Reading</td>
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</tr>
<tr>
<td>Guided Oral Reading/Neurological Impress</td>
<td>11.046</td>
<td>.026*</td>
</tr>
<tr>
<td>Guided Oral Reading/Assisted Reading</td>
<td>18.438</td>
<td>.001*</td>
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<tr>
<td>Independent Silent Reading/ Drop Everything and Read</td>
<td>11.611</td>
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<td>Independent Silent Reading/ Accelerated Reader</td>
<td>12.332</td>
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<td>Independent Silent Reading/Reading Incentive Program</td>
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<td>Comprehension through Vocabulary Instruction</td>
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*Note. $p < .05$
Table 3

*Percentage of Responses of General Education Teachers and Special Education Teachers for the Components of Reading in Pre-Service Programs*

<table>
<thead>
<tr>
<th>Components of Reading</th>
<th>General Education Teachers (n=142)</th>
<th>Special Education Teachers (n=135)</th>
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<tbody>
<tr>
<td><strong>Phoneme Isolation</strong></td>
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<tr>
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<td>Never mentioned/Specific strategy was never taught</td>
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<td>58.7</td>
</tr>
<tr>
<td>Never mentioned and a specific strategy was never taught</td>
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<td>20.9</td>
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</tbody>
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(continued)
Table 3

Percentage of Responses of General Education Teachers and Special Education Teachers for the Components of Reading in Pre-Service Programs

<table>
<thead>
<tr>
<th>Components of Reading</th>
<th>General Education Teachers (n=142)</th>
<th>Special Education Teachers (n=135)</th>
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</thead>
<tbody>
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Table 3
Percentage of Responses of General Education Teachers and Special Education Teachers for the Components of Reading in Pre-Service Programs

<table>
<thead>
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<th>Components of Reading</th>
<th>General Education Teachers (n=142)</th>
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<tr>
<th>Components of Reading</th>
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<td>Synthetic Phonics/Converting Letters to Phonemes</td>
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<tr>
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<td>Never mentioned and a specific strategy was never taught</td>
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Table 3

Percentage of Responses of General Education Teachers and Special Education Teachers for the Components of Reading in Pre-Service Programs

<table>
<thead>
<tr>
<th>Components of Reading</th>
<th>General Education Teachers (n=142)</th>
<th>Special Education Teachers (n=135)</th>
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</thead>
<tbody>
<tr>
<td>Synthetic Phonics/Blending Phonemes to Form Words</td>
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<tr>
<td>Mentioned and a specific strategy was taught through direct instruction</td>
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<td>60.0</td>
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<tr>
<td>Never mentioned and a specific strategy was never taught</td>
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Table 3

Percentage of Responses of General Education Teachers and Special Education Teachers for the Components of Reading in Pre-Service Programs

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<th>Components of Reading</th>
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<td>Analogy Phonics</td>
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<td>59.1</td>
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Table 3
Percentage of Responses of General Education Teachers and Special Education Teachers for the Components of Reading in Pre-Service Programs

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<th>Components of Reading</th>
<th>General Education Teachers (n=142)</th>
<th>Special Education Teachers (n=135)</th>
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<tbody>
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<td>21.4</td>
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<td>Mentioned and a specific strategy was taught through direct instruction</td>
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<td>60.2</td>
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<tr>
<td>Never mentioned and a specific strategy was never taught</td>
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<td>21.4</td>
</tr>
<tr>
<td>Guided Oral Reading/Neurological Impress</td>
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<tr>
<td>Mentioned and a specific strategy was taught through direct instruction</td>
<td>44.9</td>
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(continued)
Table 3
Percentage of Responses of General Education Teachers and Special Education Teachers for the Components of Reading in Pre-Service Programs

<table>
<thead>
<tr>
<th>Components of Reading</th>
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<tbody>
<tr>
<td>Guided Oral Reading/Assisted Reading</td>
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<tr>
<td>Never mentioned and a specific strategy was never taught</td>
<td>78.4</td>
<td>21.6</td>
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<tr>
<td>Independent Silent Reading/ Drop Everything and Read</td>
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</tr>
<tr>
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<td>44.0</td>
<td>56.0</td>
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(continued)
Table 3
Percentage of Responses of General Education Teachers and Special Education Teachers for the Components of Reading in Pre-Service Programs

<table>
<thead>
<tr>
<th>Components of Reading</th>
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<tbody>
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<td>60.3</td>
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<td>64.6</td>
<td>35.4</td>
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<td>Independent Silent Reading/ Reading Incentive Program</td>
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<tr>
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<tr>
<td>Never mentioned and a specific strategy was never taught</td>
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<tr>
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<tr>
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<tr>
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<td>35.6</td>
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<td>Text Comprehension</td>
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Table 3
Percentage of Responses of General Education Teachers and Special Education Teachers for the Components of Reading in Pre-Service Programs

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<tr>
<th>Components of Reading</th>
<th>General Education Teachers (n=142)</th>
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<tr>
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<tr>
<td>Never mentioned and a specific strategy was never taught</td>
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<td>31.2</td>
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Table 4
Percentage of Responses of General Education Teachers and Special Education Teachers for the Components of Reading in In-Service Training

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<td>Phoneme Isolation</td>
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<td>62.8</td>
<td>37.2</td>
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<td>Phoneme Identification</td>
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<tr>
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<td>39.3</td>
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Table 4
Percentage of Responses of General Education Teachers and Special Education Teachers for the Components of Reading in In-Service Training

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<thead>
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<th>Components of Reading</th>
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<tr>
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<td>44.0</td>
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<tr>
<td>Phoneme Blending</td>
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<td>38.0</td>
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Table 4

Percentage of Responses of General Education Teachers and Special Education Teachers for the Components of Reading in In-Service Training

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<td>Phoneme Deletion</td>
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Table 4
Percentage of Responses of General Education Teachers and Special Education Teachers for the Components of Reading in In-Service Training

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<th>Components of Reading</th>
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<td>Never mentioned and a specific strategy was never taught</td>
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<td>Synthetic Phonics/Converting Letters to Phonemes</td>
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<tr>
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<td>Never mentioned and a specific strategy was never taught</td>
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<thead>
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<th>Components of Reading</th>
<th>General Education Teachers (n=142)</th>
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<tbody>
<tr>
<td>Synthetic Phonics/</td>
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<td></td>
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<tr>
<td>Blending Phonemes to Form Words</td>
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<tr>
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<td>Analytic Phonics</td>
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<tr>
<td>was taught through direct instruction</td>
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<td></td>
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<tr>
<td>Never mentioned and a specific strategy was never taught</td>
<td>59.2</td>
<td>40.8</td>
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Table 4  
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<thead>
<tr>
<th>Components of Reading</th>
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<td>Never mentioned and a specific strategy was never taught</td>
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<td>37.8</td>
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<td><strong>Analogy Phonics</strong></td>
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<td>45.1</td>
<td>54.9</td>
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<td>Never mentioned and a specific strategy was never taught</td>
<td>57.8</td>
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Table 4
Percentage of Responses of General Education Teachers and Special Education Teachers for the Components of Reading in In-Service Training

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<th>Components of Reading</th>
<th>General Education Teachers (n=142)</th>
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<tbody>
<tr>
<td>Guided Oral Reading/Partnered Reading</td>
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<td>42.2</td>
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<tr>
<td>Guided Oral Reading/Repeated Reading</td>
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<tr>
<td>Never mentioned and a specific strategy was never taught</td>
<td>62.8</td>
<td>37.2</td>
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<td>39.4</td>
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<td><strong>Guided Oral Reading/Neurological Impress</strong></td>
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<tr>
<td>Never mentioned and a specific strategy was</td>
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<tbody>
<tr>
<td>Guided Oral Reading/Assisted Reading</td>
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<td>Mentioned and a specific strategy was taught through direct instruction</td>
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<td>Mentioned and a specific strategy was taught through direct instruction</td>
<td>46.9</td>
<td>53.1</td>
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<tr>
<td>Never mentioned and a specific strategy was never taught</td>
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<td>41.9</td>
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<th>General Education Teachers</th>
<th>Special Education Teachers</th>
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<td>(n=135)</td>
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<td>Independent Silent Reading/Accelerated Reader</td>
<td>39.0</td>
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<td>Mentioned and a specific strategy was taught through direct instruction</td>
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<tr>
<td>Never mentioned and a specific strategy was never taught</td>
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<td>40.9</td>
</tr>
<tr>
<td>Independent Silent Reading/Reading Incentive Program</td>
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<tr>
<td>Mentioned and a specific strategy was taught through direct instruction</td>
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<td>Never mentioned and a specific strategy was never taught</td>
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<td>36.8</td>
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<tr>
<th>Components of Reading</th>
<th>General Education Teachers (n=142)</th>
<th>Special Education Teachers (n=135)</th>
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<tbody>
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<td>Independent Silent Reading/Sustained Silent Reading</td>
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<td>Mentioned and a specific strategy was taught through direct instruction</td>
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<td>53.3</td>
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<tr>
<td>Never mentioned and a specific strategy was never taught</td>
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<tr>
<td>Never mentioned and a specific strategy was never taught</td>
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<th>Components of Reading</th>
<th>General Education Teachers (n=142)</th>
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Table 5
Chi-Square Test of Independence Outcomes for Reading Strategies for Special Education Teachers in Their Pre-Service Education Program

<table>
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<th>Strategy</th>
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<tbody>
<tr>
<td>Relate Letters and Sounds</td>
<td>19.019</td>
<td>.001*</td>
</tr>
<tr>
<td>Break Spoken Words</td>
<td>22.080</td>
<td>&lt;.001*</td>
</tr>
<tr>
<td>Into Sounds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blend Sounds to Form</td>
<td>27.063</td>
<td>&lt;.001*</td>
</tr>
<tr>
<td>New Words</td>
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<tr>
<td>Understand the Alphabetic Principle</td>
<td>17.915</td>
<td>.001*</td>
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<tr>
<td>Blend Sounds to Form</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Understand the Alphabetic Principle</td>
<td>17.921</td>
<td>.001*</td>
</tr>
<tr>
<td>Decode Words, Sentences, and Text</td>
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<tr>
<td>Use the Alphabetic Principle in Writing</td>
<td>18.875</td>
<td>.001*</td>
</tr>
<tr>
<td>Adapt Individual Instruction Based on Assessment</td>
<td>14.356</td>
<td>.006*</td>
</tr>
<tr>
<td>Model Fluent Reading/ Daily Read-Alouds</td>
<td>16.539</td>
<td>.002*</td>
</tr>
<tr>
<td>Student-Adult Reading</td>
<td>10.201</td>
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<tr>
<td>Choral Reading</td>
<td>10.415</td>
<td>.034*</td>
</tr>
<tr>
<td>Audio-Assisted Reading</td>
<td>23.819</td>
<td>&lt;.001*</td>
</tr>
<tr>
<td>Partner Reading</td>
<td>22.778</td>
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</tr>
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<td>Reader’s Theatre</td>
<td>7.544</td>
<td>.110</td>
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<td>Independent Silent Reading</td>
<td>3.335</td>
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Note. $p<.05$ (continued)
Table 5
*Chi-Square Test of Independence Outcomes for Reading Strategies for Special Education Teachers in Their Pre-Service Education Program*

<table>
<thead>
<tr>
<th>Component</th>
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<tr>
<td>Previews Words Prior to Reading Text</td>
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<td>.011*</td>
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<tr>
<td>Extended Vocabulary Instruction</td>
<td>10.716</td>
<td>.030*</td>
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<td>How to Use a Dictionary</td>
<td>6.911</td>
<td>.141</td>
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<tr>
<td>How to Use Reference Materials</td>
<td>8.830</td>
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<tr>
<td>How to Use Word Parts to Break Apart Meaning</td>
<td>15.296</td>
<td>.004*</td>
</tr>
<tr>
<td>How to Use Base Words To Discover Meaning</td>
<td>19.863</td>
<td>.001*</td>
</tr>
<tr>
<td>How to Use Root Words To Discover Meaning</td>
<td>13.148</td>
<td>.011*</td>
</tr>
<tr>
<td>How to Use Context Clues to Discover Meaning</td>
<td>9.125</td>
<td>.058</td>
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<tr>
<td>Self-Monitor Comprehension/Awareness of Understanding</td>
<td>5.831</td>
<td>.212</td>
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*Note. $p<.05$ (continued)*
Table 5
Chi-Square Test of Independence Outcomes for Reading Strategies for Special Education Teachers in Their Pre-Service Education Program

<table>
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<th>Component</th>
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</tr>
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<tr>
<td>Self-Monitor Comprehension/</td>
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<td>Look Back or Look Forward</td>
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<td>Restate Passage In Own Words</td>
<td>7.472</td>
<td>.113</td>
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<tr>
<td>Graphic and Semantic Organizers</td>
<td>7.395</td>
<td>.116</td>
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<tr>
<td>How to Create Appropriate Comprehension Questions</td>
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<tr>
<td>Student-Generated Questions About Text</td>
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<tr>
<td>Main Idea of the Text</td>
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<td>.353</td>
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<tr>
<td>Model the Thinking Process</td>
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<td>Cooperative Learning</td>
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<td>How to Use Prior Experience</td>
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<td>How to Use Mental Imagery</td>
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Note. $p<.05$ (continued)
Table 5
Chi-Square Test of Independence Outcomes for Reading Strategies for Special Education Teachers in Their Pre-Service Education Program

<table>
<thead>
<tr>
<th>Component</th>
<th>$X^2$</th>
<th>$p$</th>
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<tbody>
<tr>
<td>How to Use Strategic Thinking</td>
<td>8.536</td>
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<td>How to Use Problem-Solving</td>
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<td>How to Use Prior Knowledge</td>
<td>5.982</td>
<td>.200</td>
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*Note. p<.05*
Table 6  
*Percentage of Responses of General Education and Special Education Teachers for Reading Strategies in Pre-Service Programs*

<table>
<thead>
<tr>
<th>Reading Strategy</th>
<th>General Education Teachers (n=142)</th>
<th>Special Education Teachers (n=135)</th>
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</thead>
<tbody>
<tr>
<td>Relate Letters and Sounds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned/Specific strategy</td>
<td>42.5</td>
<td>57.5</td>
</tr>
<tr>
<td>was taught through direct instruction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never mentioned/Specific strategy</td>
<td>75.9</td>
<td>24.1</td>
</tr>
<tr>
<td>was never taught</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Break Spoken Words Into Sounds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned/Specific strategy</td>
<td>41.4</td>
<td>58.6</td>
</tr>
<tr>
<td>was taught through direct instruction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never mentioned and a specific strategy</td>
<td>75.4</td>
<td>24.6</td>
</tr>
<tr>
<td>was never taught</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 6  
*Percentage of Responses of General Education and Special Education Teachers for Reading Strategies in Pre-Service Programs*

<table>
<thead>
<tr>
<th>Reading Strategy</th>
<th>General Education Teachers (n=142)</th>
<th>Special Education Teachers (n=135)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blend Sounds to Form New Words</td>
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<td></td>
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<tr>
<td>Mentioned and a specific strategy was taught through direct instruction</td>
<td>40.4</td>
<td>59.6</td>
</tr>
<tr>
<td>Never mentioned and a specific strategy was never taught</td>
<td>76.6</td>
<td>23.4</td>
</tr>
<tr>
<td>Understand The Alphabetic Principle</td>
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<td></td>
</tr>
<tr>
<td>Mentioned and a specific strategy was taught through direct instruction</td>
<td>37.7</td>
<td>62.3</td>
</tr>
<tr>
<td>Never mentioned and a specific strategy was never taught</td>
<td>67.1</td>
<td>32.9</td>
</tr>
<tr>
<td>Reading Strategy</td>
<td>General Education Teachers (n=142)</td>
<td>Special Education Teachers (n=135)</td>
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<tr>
<td>-------------------------------------------------------</td>
<td>-----------------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>Decode Words, Sentences, and Text</td>
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<tr>
<td>Mentioned and a specific strategy was taught through direct instruction</td>
<td>40.9</td>
<td>59.1</td>
</tr>
<tr>
<td>Never mentioned and a specific strategy was never taught</td>
<td>75.5</td>
<td>24.5</td>
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<tr>
<td>Use the Alphabetic Principle in Writing</td>
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<tr>
<td>Mentioned and a specific strategy was taught through direct instruction</td>
<td>44.6</td>
<td>55.4</td>
</tr>
<tr>
<td>Never mentioned and a specific strategy was never taught</td>
<td>70.6</td>
<td>29.4</td>
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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Adapt Individual Instruction</td>
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<td>Based on Assessment</td>
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<tr>
<td>Mentioned and a specific strategy was taught through direct instruction</td>
<td>45.2</td>
<td>54.8</td>
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<tr>
<td>Never mentioned and a specific strategy was never taught</td>
<td>81.8</td>
<td>18.2</td>
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<tr>
<td>Model Fluent Reading/Daily Read-Alouds</td>
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<tr>
<td>Mentioned and a specific strategy was taught through direct instruction</td>
<td>46.7</td>
<td>53.3</td>
</tr>
<tr>
<td>Never mentioned and a specific strategy was never taught</td>
<td>81.8</td>
<td>18.2</td>
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### Table 6

Percentage of Responses of General Education and Special Education Teachers for Reading Strategies in Pre-Service Programs

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<th>Reading Strategy</th>
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<tbody>
<tr>
<td>Student-Adult Reading</td>
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<td>53.8</td>
</tr>
<tr>
<td>Never mentioned and a specific strategy was never taught</td>
<td>67.7</td>
<td>32.3</td>
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<tr>
<td>Choral Reading</td>
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<td></td>
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<tr>
<td>Mentioned and a specific strategy was taught through direct instruction</td>
<td>46.8</td>
<td>53.2</td>
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<tr>
<td>Never mentioned and a specific strategy was never taught</td>
<td>70.5</td>
<td>29.5</td>
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Table 6
*Percentage of Responses of General Education and Special Education Teachers for Reading Strategies in Pre-Service Programs*

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<th>Reading Strategy</th>
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<tbody>
<tr>
<td>Audio Assisted Reading</td>
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<td>Mentioned and a specific</td>
<td>38.6</td>
<td>61.4</td>
</tr>
<tr>
<td>strategy was taught</td>
<td></td>
<td></td>
</tr>
<tr>
<td>through direct instruction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never mentioned and a</td>
<td>68.3</td>
<td>31.7</td>
</tr>
<tr>
<td>specific strategy was</td>
<td></td>
<td></td>
</tr>
<tr>
<td>never taught</td>
<td></td>
<td></td>
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<tr>
<td>Partner Reading</td>
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<td></td>
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<tr>
<td>Mentioned and a specific</td>
<td>38.7</td>
<td>61.3</td>
</tr>
<tr>
<td>strategy was taught</td>
<td></td>
<td></td>
</tr>
<tr>
<td>through direct instruction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never mentioned and a</td>
<td>77.6</td>
<td>22.4</td>
</tr>
<tr>
<td>specific strategy was</td>
<td></td>
<td></td>
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<tr>
<td>never taught</td>
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Percentage of Responses of General Education and Special Education Teachers for Reading Strategies in Pre-Service Programs

<table>
<thead>
<tr>
<th>Reading Strategy</th>
<th>General Education Teachers (n=142)</th>
<th>Special Education Teachers (n=135)</th>
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</thead>
<tbody>
<tr>
<td>Reader’s Theatre</td>
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<td>56.9</td>
</tr>
<tr>
<td>Never mentioned and a specific strategy was never taught</td>
<td>63.8</td>
<td>36.2</td>
</tr>
<tr>
<td>Independent Silent Reading</td>
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<td>45.8</td>
<td>54.2</td>
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<tr>
<td>Never mentioned and a specific strategy was never taught</td>
<td>57.6</td>
<td>42.4</td>
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(continued)
Table 6

*Percentage of Responses of General Education and Special Education Teachers for Reading Strategies in Pre-Service Programs*

<table>
<thead>
<tr>
<th>Reading Strategy</th>
<th>General Education Teachers (n=142)</th>
<th>Special Education Teachers (n=135)</th>
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<tbody>
<tr>
<td>Previewing Words Prior to Reading Text</td>
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<tr>
<td>Mentioned and a specific strategy was taught through direct instruction</td>
<td>43.6</td>
<td>56.4</td>
</tr>
<tr>
<td>Never mentioned and a specific strategy was never taught</td>
<td>67.6</td>
<td>32.4</td>
</tr>
<tr>
<td>Extended Vocabulary Instruction</td>
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<tr>
<td>Mentioned and a specific strategy was taught through direct instruction</td>
<td>47.6</td>
<td>52.4</td>
</tr>
<tr>
<td>Never mentioned and a specific strategy was never taught</td>
<td>67.2</td>
<td>32.8</td>
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(continued)
Table 6
Percentage of Responses of General Education and Special Education Teachers for Reading Strategies in Pre-Service Programs

<table>
<thead>
<tr>
<th>Reading Strategy</th>
<th>General Education Teachers (n=142)</th>
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</thead>
<tbody>
<tr>
<td>How to Use a Dictionary</td>
<td></td>
<td></td>
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<tr>
<td>Mentioned and a specific strategy</td>
<td>45.0</td>
<td>55.0</td>
</tr>
<tr>
<td>was taught through direct instruction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never mentioned and a specific strategy was never taught</td>
<td>61.6</td>
<td>38.4</td>
</tr>
<tr>
<td>How to Use Reference Materials</td>
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<td></td>
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<tr>
<td>Mentioned and a specific strategy</td>
<td>42.5</td>
<td>57.5</td>
</tr>
<tr>
<td>was taught through direct instruction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never mentioned and a specific strategy was never taught</td>
<td>58.4</td>
<td>41.6</td>
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Table 6
Percentage of Responses of General Education and Special Education Teachers for Reading Strategies in Pre-Service Programs

<table>
<thead>
<tr>
<th>Reading Strategy</th>
<th>General Education Teachers (n=142)</th>
<th>Special Education Teachers (n=135)</th>
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<tbody>
<tr>
<td>How to Use Word Parts To Break Apart Meaning</td>
<td></td>
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<tr>
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<td>58.0</td>
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<tr>
<td>Never mentioned and a specific strategy was never taught</td>
<td>71.2</td>
<td>28.8</td>
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(continued)
Table 6  
Percentage of Responses of General Education and Special Education Teachers for Reading Strategies in Pre-Service Programs

<table>
<thead>
<tr>
<th>Reading Strategy</th>
<th>General Education Teachers (n=142)</th>
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</thead>
<tbody>
<tr>
<td>How to Use Base Words</td>
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<tr>
<td>To Discover Meaning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned and a specific strategy</td>
<td>44.4</td>
<td>55.6</td>
</tr>
<tr>
<td>was taught through direct instruction</td>
<td></td>
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</tr>
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<td>25.5</td>
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<tr>
<td>How to Use Root Words</td>
<td></td>
<td></td>
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<tr>
<td>To Discover Meaning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned and a specific strategy</td>
<td>38.5</td>
<td>61.5</td>
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<tr>
<td>was taught through direct instruction</td>
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<tr>
<td>Never mentioned and a specific strategy was never taught</td>
<td>69.0</td>
<td>31.0</td>
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(continued)
<table>
<thead>
<tr>
<th>Reading Strategy</th>
<th>General Education Teachers (n=142)</th>
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</thead>
<tbody>
<tr>
<td>How to Use Context Clues</td>
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<tr>
<td>To Discover Meaning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned and a specific strategy</td>
<td></td>
<td></td>
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<tr>
<td>was taught through direct instruction</td>
<td>41.7</td>
<td>58.3</td>
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<tr>
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<td>31.9</td>
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<tr>
<td>Self-Monitor Comprehension/</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Awareness of Understanding</td>
<td></td>
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</tr>
<tr>
<td>Mentioned and a specific strategy</td>
<td></td>
<td></td>
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<tr>
<td>was taught through direct instruction</td>
<td>48.7</td>
<td>51.3</td>
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<tr>
<td>Never mentioned and a specific strategy was never taught</td>
<td>63.3</td>
<td>36.7</td>
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Table 6  
Percentage of Responses of General Education and Special Education Teachers for Reading Strategies in Pre-Service Programs

<table>
<thead>
<tr>
<th>Reading Strategy</th>
<th>General Education Teachers (n=142)</th>
<th>Special Education Teachers (n=135)</th>
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<tbody>
<tr>
<td>Self-Monitor Comprehension/ Look Back or Look Forward</td>
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<td>46.4</td>
<td>53.6</td>
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<tr>
<td>Never mentioned and a specific strategy was never taught</td>
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<td>38.3</td>
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<tr>
<td>Restate Passage In Own Words</td>
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<td>Mentioned and a specific strategy was taught through direct instruction</td>
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<td>61.4</td>
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<td>Never mentioned and a specific strategy was never taught</td>
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(continued)
Table 6
Percentage of Responses of General Education and Special Education Teachers for Reading Strategies in Pre-Service Programs

<table>
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<th>Reading Strategy</th>
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<th>Special Education Teachers (n=135)</th>
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<tr>
<td>Graphic and Semantic Organizers</td>
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<td>58.3</td>
</tr>
<tr>
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<td>39.5</td>
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<tr>
<td>How to Create Appropriate Comprehension Questions</td>
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<td>56.1</td>
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<tr>
<td>Never mentioned and a specific strategy was never taught</td>
<td>55.6</td>
<td>44.4</td>
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(continued)
Table 6
*Percentage of Responses of General Education and Special Education Teachers for Reading Strategies in Pre-Service Programs*

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<thead>
<tr>
<th>Reading Strategy</th>
<th>General Education Teachers (n=142)</th>
<th>Special Education Teachers (n=135)</th>
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<tbody>
<tr>
<td>Student-Generated Questions About Text</td>
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<td>59.6</td>
</tr>
<tr>
<td>Never mentioned and a specific strategy was never taught</td>
<td>65.9</td>
<td>34.1</td>
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<tr>
<td>Summarization of the Text</td>
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<td>Mentioned and a specific strategy was taught through direct instruction</td>
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<td>58.0</td>
</tr>
<tr>
<td>Never mentioned and a specific strategy was never taught</td>
<td>66.7</td>
<td>33.3</td>
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<th>Reading Strategy</th>
<th>General Education Teachers (n=142)</th>
<th>Special Education Teachers (n=135)</th>
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<td>Main Idea of the Text</td>
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<td>57.5</td>
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<tr>
<td>Never mentioned and a specific strategy was never taught</td>
<td>60.5</td>
<td>39.5</td>
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<th>Reading Strategy</th>
<th>General Education Teachers (n=142)</th>
<th>Special Education Teachers (n=135)</th>
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</thead>
<tbody>
<tr>
<td>Model the Thinking Process</td>
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<td></td>
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<tr>
<td>Mentioned and a specific strategy</td>
<td>53.7</td>
<td>46.3</td>
</tr>
<tr>
<td>was taught through direct instruction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never mentioned and a specific strategy was never taught</td>
<td>50.0</td>
<td>50.0</td>
</tr>
<tr>
<td>Guided Practice</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned and a specific strategy</td>
<td>49.6</td>
<td>50.4</td>
</tr>
<tr>
<td>was taught through direct instruction</td>
<td></td>
<td></td>
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<tr>
<td>Never mentioned and a specific strategy was never taught</td>
<td>58.6</td>
<td>41.4</td>
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<th>General Education Teachers (n=142)</th>
<th>Special Education Teachers (n=135)</th>
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<tbody>
<tr>
<td>How to Use Prior Experience</td>
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<td></td>
</tr>
<tr>
<td>Mentioned and a specific strategy</td>
<td>50.0</td>
<td>50.0</td>
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<tr>
<td>was taught through direct instruction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never mentioned and a specific strategy was never taught</td>
<td>66.7</td>
<td>33.3</td>
</tr>
<tr>
<td>How to Use Mental Imagery</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned and a specific strategy</td>
<td>48.0</td>
<td>52.0</td>
</tr>
<tr>
<td>was taught through direct instruction</td>
<td></td>
<td></td>
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<tr>
<td>Never mentioned and a specific strategy was never taught</td>
<td>63.5</td>
<td>36.5</td>
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(continued)
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**Percentage of Responses of General Education and Special Education Teachers for Reading Strategies in Pre-Service Programs**

<table>
<thead>
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<th>Reading Strategy</th>
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<th>Special Education Teachers (n=135)</th>
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<td>Into Sounds</td>
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<td>Independent Silent Reading</td>
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*Note. $p<.05$ (continued)*
Table 7
Chi-Square Test of Independence Outcomes for Reading Strategies for Special Education Teachers in Their In-Service Training

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<td>How to Use Word Parts to Break Apart Meaning</td>
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<td>How to Use Base Words</td>
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<td>How to Use Root Words</td>
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<td>3.688</td>
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<td>Self-Monitor Comprehension/Look Back or Look Forward</td>
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<td>Restate Passage In Own Words</td>
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Note. $p<.05$

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<thead>
<tr>
<th>Component</th>
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<td>Main Idea of the Text</td>
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<td>How to Use Prior Experience</td>
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<td>How to Use Problem-Solving</td>
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<tbody>
<tr>
<td>Blend Sounds to Form New Words</td>
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<td>Model Fluent Reading/Daily Read-Alouds</td>
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<td>Mentioned and a specific strategy was taught through direct instruction</td>
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<td>39.1</td>
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<td>Independent Silent Reading</td>
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<td>49.0</td>
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<tr>
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<td>50.8</td>
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<td>How to Use Word Parts</td>
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<td>42.5</td>
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<tr>
<td>How to Use Base Words</td>
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<tr>
<td>To Discover Meaning</td>
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<td></td>
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<td>How to Use Root Words To Discover Meaning</td>
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<td>How to Use Context Clues To Discover Meaning</td>
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<td>Generate Questions About Text</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned and a specific strategy was taught through direct instruction</td>
<td>45.1</td>
<td>54.9</td>
</tr>
<tr>
<td>Never mentioned and a specific strategy was never taught</td>
<td>54.7</td>
<td>45.3</td>
</tr>
</tbody>
</table>

(continued)
Table 8  
Percentage of Responses of General Education Teachers and Special Education Teachers for Reading Strategies in Their In-Service Training

<table>
<thead>
<tr>
<th>Reading Strategy</th>
<th>General Education Teachers (n=142)</th>
<th>Special Education Teachers (n=135)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summarization of the Text</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned and a specific strategy was taught through direct instruction</td>
<td>50.7</td>
<td>49.3</td>
</tr>
<tr>
<td>Never mentioned and a specific strategy was never taught</td>
<td>53.1</td>
<td>46.9</td>
</tr>
<tr>
<td>Main Idea of the Text</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned and a specific strategy was taught through direct instruction</td>
<td>45.2</td>
<td>54.8</td>
</tr>
<tr>
<td>Never mentioned and a specific strategy was never taught</td>
<td>54.2</td>
<td>45.8</td>
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<th>Reading Strategy</th>
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</thead>
<tbody>
<tr>
<td>Model the Thinking Process</td>
<td></td>
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</tr>
<tr>
<td>Mentioned and a specific strategy</td>
<td>54.9</td>
<td>45.1</td>
</tr>
<tr>
<td>was taught through direct instruction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never mentioned and a specific strategy</td>
<td>50.0</td>
<td>50.0</td>
</tr>
<tr>
<td>was never taught</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guided Practice</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned and a specific strategy</td>
<td>50.6</td>
<td>49.4</td>
</tr>
<tr>
<td>was taught through direct instruction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never mentioned and a specific strategy</td>
<td>53.7</td>
<td>46.3</td>
</tr>
<tr>
<td>was never taught</td>
<td></td>
<td></td>
</tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Cooperative Learning</td>
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<tr>
<td>Mentioned and a specific strategy</td>
<td>53.0</td>
<td>47.0</td>
</tr>
<tr>
<td>was taught through direct instruction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never mentioned and a specific strategy was never taught</td>
<td>50.0</td>
<td>50.0</td>
</tr>
<tr>
<td>How to Use Prior Experience</td>
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<td></td>
</tr>
<tr>
<td>Mentioned and a specific strategy</td>
<td>54.8</td>
<td>45.2</td>
</tr>
<tr>
<td>was taught through direct instruction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never mentioned and a specific strategy was never taught</td>
<td>54.7</td>
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</thead>
<tbody>
<tr>
<td><strong>How to Use Mental Imagery</strong></td>
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<td></td>
</tr>
<tr>
<td>Mentioned and a specific strategy was taught through direct instruction</td>
<td>54.1</td>
<td>45.9</td>
</tr>
<tr>
<td>Never mentioned and a specific strategy was never taught</td>
<td>56.7</td>
<td>43.3</td>
</tr>
<tr>
<td><strong>How to Use Strategic Thinking</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned and a specific strategy was taught through direct instruction</td>
<td>56.6</td>
<td>43.4</td>
</tr>
<tr>
<td>Never mentioned and a specific strategy was never taught</td>
<td>56.3</td>
<td>43.7</td>
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</thead>
<tbody>
<tr>
<td>How to Use Problem-Solving</td>
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<tr>
<td>Mentioned and a specific strategy was taught through direct instruction</td>
<td>47.6</td>
<td>52.4</td>
</tr>
<tr>
<td>Never mentioned and a specific strategy was never taught</td>
<td>56.3</td>
<td>43.7</td>
</tr>
<tr>
<td>How to Use Prior Knowledge</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned and a specific strategy was taught through direct instruction</td>
<td>53.9</td>
<td>46.1</td>
</tr>
<tr>
<td>Never mentioned and a specific strategy was never taught</td>
<td>54.5</td>
<td>45.5</td>
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</table>
APPENDIX C

UNIVERSITY FACILITATOR CONSENT FORM
INFORMED CONSENT

Department of Educational and Clinical Studies

TITLE OF STUDY: An Analysis of Reading Skills Instruction Provided to Special and General Educators in Preservice and In-service Teacher Education

INVESTIGATOR(S): Dr. Amanda Kyle Higgins, Ph.D.; Wendie Lappin Castillo, M.Ed.

For questions or concerns about the study, you may contact Dr. Amanda Kyle Higgins at 895-1102.

For questions regarding the rights of research subjects, any complaints or comments regarding the manner in which the study is being conducted, contact the UNLV Office of Research Integrity – Human Subjects at 702-895-2794, toll free at 877-895-2794 or via email at IRB@unlv.edu.

Purpose of the Study
You are invited to participate in a research study. The purpose of this study is to analyze the type of reading skills instruction provided to participants during your preservice and in-service teacher education programs.

Participants
You are being asked to participate in the study because you fit this criteria: You are a higher education instructor with a course including enrollment of current practicing teachers.

Procedures
If you volunteer to participate in this study, you will be asked to do the following: Read a script describing the study to your class and distribute the script to your students.

Benefits of Participation
There may be direct benefits to you as a participant in this study. However, we hope to learn the type of reading skills instruction your students were taught during their preservice and in-service teacher education.

Risks of Participation
There are risks involved in all research studies. This study may include only minimal risks. You may become uncomfortable with reading and distributing the script multiple times over the duration of the study.

Cost /Compensation
There will not be a financial cost to you to participate in this study. The study will take no more than 5 minutes per day of your time. You will not be compensated for your time.

**Confidentiality**
All information gathered in this study will be kept as confidential as possible. No reference will be made in written or oral materials that could link you to this study. All records will be stored in a locked facility at UNLV for 1 year after completion of the study. After the storage time the information gathered will be destroyed.

**Voluntary Participation**
Your participation in this study is voluntary. You may refuse to participate in this study or in any part of this study. You may withdraw at any time without prejudice to your relations with UNLV. You are encouraged to ask questions about this study at the beginning or any time during the research study.

**Participant Consent:**
I have read the above information and agree to participate in this study. I have been able to ask questions about the research study. I am at least 18 years of age. A copy of this form has been given to me.

__________________________________________  ______________________
Signature of Participant                       Date

__________________________________________
Participant Name (Please Print)
Arizona State University
Mary Lou Fulton Teachers College
Division of Educational Leadership and Innovation
PO Box 37100, Mail Code 3151
Phoenix, AZ 85069-7100

Subject: Letter of Notification to Conduct Research

Dear Department Chair:

This letter will serve as notification that the University of Nevada, Las Vegas ("UNLV") researchers, Amanda Kyle Higgins and Wendie Lapin Castillo would like to recruit participants at your facility for a research project entitled An Analysis of Reading Skills Instruction Provided to Special and General Educators in Pre-service and In-service Teacher Education.

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If you have any concerns or require additional information, please contact the UNLV Office of Research Integrity – Human Subjects at 895-2794 or email IRB@unlv.edu.

I give permission to recruit subjects at this facility.

Suzanne A. Painter, Director
Facility’s Authorized Signatory

[Signature]

9/1/2012

Date

Suzanne A. Painter, Director
Printed Name and Title of Authorized Signatory
Division of Educational Leadership + Innovation
Arizona State University

Office of Research Integrity – Human Subjects
4505 Maryland Parkway Box 451047 Las Vegas, NV 89154-1047
Phone 702.895.2794 Fax 702.895.0095
Website: www.unlv.edu/ResearchOPPS Email IRB@unlv.edu
UNLV
UNIVERSITY OF NEVADA LAS VEGAS

Notification to Recruit Research Participants

California State University Fullerton
Special Education Department.

Subject: Letter of Notification to Conduct Research

Dear Department Chair:

This letter will serve as notification that the University of Nevada, Las Vegas ("UNLV") researchers, Amanda Kyle Higgins and Wendy Lapin Castillo would like to recruit participants at your facility for a research project entitled An Analysis of Reading Skills Instruction Provided to Special and General Educators in Pre-service and In-service Teacher Education.

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I give permission to recruit subjects at this facility.

[Signature]
Facility’s Authorized Signatory

[Date]

[Name]
DEPT.

[Title]
Printed Name and Title of Authorized Signatory

Office of Research Integrity – Human Subjects
4505 Maryland Parkway, Box 451047 Las Vegas, NV 89154-1047
Phone: 702 895-2794 Fax: 702 895-0803
Website: www.unlv.edu/Research/OPRS Email: IRB@unlv.edu
Notification to Recruit Research Participants

California State University, Monterey Bay School of Education

Subject: Letter of Notification to Conduct Research

Dear Department Chair:

This letter will serve as notification that the University of Nevada, Las Vegas (‘UNLV”) researchers, Amanda Kyle Higgins and Wendie Lapin Castillo would like to recruit participants at your facility for a research project entitled An Analysis of Reading Skills Instruction Provided to Special and General Educators in Pre-service and In-service Teacher Education.

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____________________________________________________________________________________

I give permission to recruit subjects at this facility.

[Signature]
Facility’s Authorized Signatory

[Signature]
Date

Dr. Irene Nares-Guziecki, Chair, School of Education
Printed Name and Title of Authorized Signatory

____________________________________________________________________________________

Office of Research Integrity – Human Subjects
4505 Maryland Parkway, Box 451047 Las Vegas, NV 89154-1047
Phone: 702.785.2934 Fax: 702.785.0005
Website: www.unlv.edu/research/OPIS Email: IRB@unlv.edu
Notification to Recruit Research Participants

Special Education Department
600 Lincoln Avenue
1212 Buzzard Hall
Charleston, IL 61920

Subject: Letter of Notification to Conduct Research

Dear Department Chair:

This letter will serve as notification that the University of Nevada, Las Vegas ("UNLV") researchers, Amanda Kyle Higgins and Wendie Lapin Castillo would like to recruit participants at your facility for a research project entitled *An Analysis of Reading Skills Instruction Provided to Special and General Educators in Pre-service and In-service Teacher Education.*

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I give permission to recruit subjects at this facility.

[Signature]
Facility’s Authorized Signatory

9/13/12
Date

[Printed Name and Title of Authorized Signatory]

Office of Research Integrity – Human Subjects
4305 Maryland Parkway  Box 451947 Las Vegas, NV  89154-1047
Phone 702.895.2394   Fax 702.895.0805
Website: www.unlv.edu/Research/OPES  Email IRB@unlv.edu
Notification to Recruit Research Participants

Emporia State University  
Department of Elementary Education, Early Childhood, Special Education  
Box 4037  
1200 Commercial Street  
Emporia, KS 66801

Subject: Letter of Notification to Conduct Research

Dear Department Chair:

This letter will serve as notification that the University of Nevada, Las Vegas ("UNLV") researchers, Amanda Kyle Higgins and Wendie Lapin Castillo would like to recruit participants at your facility for a research project entitled An Analysis of Reading Skills Instruction Provided to Special and General Educators in Pre-service and In-service Teacher Education.

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I give permission to recruit subjects at this facility.

Facility’s Authorized Signatory

Date

Printed Name and Title of Authorized Signatory
Notification to Recruit Research Participants

[Insert name and address of your department and university]  
Department of Special Education  
College of Education  
San Diego State University  
5500 Campanile Drive  
San Diego, CA 92182-1170

Subject: Letter of Notification to Conduct Research

Dear Department Chair:

This letter will serve as notification that the University of Nevada, Las Vegas ("UNLV") researchers, Amanda Kyle Higgins and Wendie Lapin Castillo would like to recruit participants at your facility for a research project entitled "An Analysis of Reading Skills Instruction Provided to Special and General Educators in Pre-service and In-service Teacher Education."

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I give permission to recruit subjects at this facility.

Anne Graves
Facility’s Authorized Signatory

Anne Graves
Printed Name and Title of Authorized Signatory

Date

Office of Research Integrity – Human Subjects  
4505 Maryland Parkway  
Las Vegas, NV 89154-4047  
Phone 702.895.2794  
Fax 702.895.0805  
Website: www.unlv.edu/Research/OPRS  
Email IRB@unlv.edu
Department of Special Education
St. Cloud State University
School of Education
720 Fourth Avenue South
St. Cloud, Minnesota 56301-4498

Subject: Letter of Notification to Conduct Research

Dear Department Chair:

This letter will serve as notification that the University of Nevada, Las Vegas ("UNLV") researchers, Amanda Kyle Higgins and Wendie Lapin Castillo would like to recruit participants at your facility for a research project entitled An Analysis of Reading Skills Instruction Provided to Special and General Educators in Pre-service and In-service Teacher Education.

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If you have any concerns or require additional information, please contact the UNLV Office of Research Integrity – Human Subjects at 893-2794 or email IRB@unlv.edu.

I give permission to recruit subjects at this facility.

[Signature]

Mary Beth Noll, Ph.D., Department Chair
Printed Name and Title of Authorized Signatory

September 19, 2012
Date
Notification to Recruit Research Participants

Southern Connecticut State University, Department of Special Education and Reading

Subject: Letter of Notification to Conduct Research

Dear Department Chair:

This letter will serve as notification that the University of Nevada, Las Vegas ("UNLV") researchers, Amanda Kyle Higgins and Wendy Lapin Castillo would like to recruit participants at your facility for a research project entitled An Analysis of Reading Skills Instruction Provided to Special and General Educators in Pre-service and In-service Teacher Education.

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If you have any concerns or require additional information, please contact the UNLV Office of Research Integrity – Human Subjects at 895-2794 or email IRB@unlv.edu.

I give permission to recruit subjects at this facility.

[Signature]
Facility's Authorized Signatory

9/15/12
Date

Michael Alfano
Printed Name and Title of Authorized Signatory

Office of Research Integrity – Human Subjects
4505 Maryland Parkway  Box 451047 Las Vegas, NV 89154-1047
Phone 702.895.2794 Fax 702.895.0805
Website: www.unlv.edu/ResearchIRB Email IRB@unlv.edu
Notification to Recruit Research Participants

[Insert name and address of your department and university]

Bonnie S. Billingsley, Professor & Chair
Specialized Education Services
School of Education
University of North Carolina at Greensboro
PO Box 26170
Greensboro, NC 27402

Subject: Letter of Notification to Conduct Research

Dear Department Chair:

This letter will serve as notification that the University of Nevada, Las Vegas (“UNLV”) researchers, Amanda Kyle Higgins and Wendie Lapin Castillo would like to recruit participants at your facility for a research project entitled An Analysis of Reading Skills Instruction Provided to Special and General Educators in Pre-service and In-service Teacher Education.

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I give permission to recruit subjects at this facility.

[Signature]
Facility’s Authorized Signatory

[Signature]
Bonnie S. Billingsley
Printed Name and Title of Authorized Signatory

10/2/12
Date

Office of Research Integrity – Human Subjects
4505 Maryland Parkway  Box 451947 Las Vegas, NV 89154-1947
Phone 702.895.2794  Fax 702.895.0805
Website: www.unlv.edu/Research/OPRS  Email IRB@unlv.edu
Notification to Recruit Research Participants

Dr. Janice Ewing, Department Chair
Curriculum and Instruction
Wichita State University
1845 Fairmount Street
Wichita, KS 67260-0028

Subject: Letter of Notification to Conduct Research

Dear Department Chair:

This letter will serve as notification that the University of Nevada, Las Vegas (“UNLV”) researchers, Amanda Kyle Higgins and Wendie Lapin Castillo would like to recruit participants at your facility for a research project entitled An Analysis of Reading Skills Instruction Provided to Special and General Educators in Pre-service and In-service Teacher Education.

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I give permission to recruit subjects at this facility.

[Signature]
Facility’s Authorized Signatory

[Signature]
Janice K. Ewing - DEPT CHAIR
Printed Name and Title of Authorized Signatory

9-18-12
Date
Notification to Recruit Research Participants

Department of Communication Sciences and Special Education
University of Georgia
570 Aderhold Hall
Athens, GA 30602-7153

Subject: Letter of Notification to Conduct Research

Dear Department Chair:

This letter will serve as notification that the University of Nevada, Las Vegas ("UNLV") researchers, Amanda Kyle Higgins and Wendie Lapin Castillo would like to recruit participants at your facility for a research project entitled *An Analysis of Reading Skills Instruction Provided to Special and General Educators in Pre-service and In-service Teacher Education*.

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I give permission to recruit subjects at this facility.

[Signature]
Facility's Authorized Signatory

[Date]

[Signature]
Printed Name and Title of Authorized Signatory

Office of Research Integrity – Human Subjects
4505 Maryland Parkway  Box 451047 Las Vegas, NV  89154-1047
Phone 702.895.2794  Fax 702.895.0805
Website: www.unlv.edu/Research/OIRIS  Email IRB@unlv.edu
Notification to Recruit Research Participants

Department of Educational and Clinical Studies
University of Nevada, Las Vegas
4505 S. Maryland Parkway
Box 453014
Las Vegas, NV 89154

Subject: Letter of Notification to Conduct Research

Dear Department Chair:

This letter will serve as notification that the University of Nevada, Las Vegas ("UNLV") researchers, Amanda Kyle Higgins and Wendie Lapin Castillo would like to recruit participants at your facility for a research project entitled An Analysis of Reading Skills Instruction Provided to Special and General Educators in Pre-service and In-service Teacher Education.

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I give permission to recruit subjects at this facility.

Facility's Authorized Signatory

[Signature]

Date

9/10/12

Tom Pierce, Department Chair
Printed Name and Title of Authorized Signatory

Office of Research Integrity – Human Subjects
4505 Maryland Parkway, Box 451017 Las Vegas, NV 89154-1017
Phone: 702.895.2794, Fax: 702.895.0805
Website: www.unlv.edu/Research/OPRS Email IRB@unlv.edu
APPENDIX E

READING SKILLS INSTRUCTION QUESTIONNAIRE
Demographic Information

Please complete the following information by selecting a response. All information will be kept confidential.

Gender: Male ______ Female ______

Area of Concentration:

___Elementary   ___Secondary   ___Special Education

Current Teaching Assignment:

General Education:

- Grades Taught
  
  ___K-1   ___2-3   ___4-5   ___6-8   ___9-12

- Content Areas taught (if Secondary)
  
  ___Math   ___Science   ___Reading
  ___History/Social Studies   ___English   ___Other

Special Education:

- Grades Taught
  
  ___Elementary   ___Middle School   ___High School

- Type of Classroom
  
  ___Resource Room   ___Self-Contained   ___Co-teaching

Disabilities Taught:

- Autism Spectrum Disorder
- Early Childhood Special Education Needs
- Emotional Behavioral Disorders
- Deafness/Hearing Impairment
- Developmental Delays
- Intellectual Disability
- Learning Disability
- Multiple Disabilities
- Orthopedic Impairment
- Speech/Language Impairment
- Traumatic Brain Injury
- Visual Impairment (including blindness)
- Other Health Impairments
This questionnaire evaluates the types of reading skills instruction provided to educators in teacher education programs and in-service training.

**Reading Skills:**
There are five components of reading that promote reading achievement (National Reading Panel, 2000). These include phonemic awareness, phonics, vocabulary, fluency, and comprehension.

**Incidental Instruction:**
Instruction conducted during unstructured activities for brief periods of time typically when students show an interest or are involved with materials and activities (Brown, McEvoy & Bishop, 1991).

**Direct Instruction:**
Research-based instructional approach in which the instructor presents subject matter using a review of previously taught information, presentation of new concepts or skills, guided practice, feedback and correction, and independent practice (Friend & Bursuck, 2011).

**Pre-Service Training/Teacher Education Program:**
A 4-year university program with a course of study that results in a degree and licensure in education (general or special) (NRP, 2000).

**In-Service Training:**
Employee education that takes place after formal education is complete and employment has begun (IDEA, 2004b).

Please rate the level of instruction received in any teacher education program you have participated in and any in-service training in any school district you have worked in for each of the following reading skills and reading strategies:
Circle 1 if the item was mentioned and a specific strategy was taught through direct instruction.
Circle 2 if the item was mentioned and a specific strategy was discussed.
Circle 3 if the item was mentioned and strategies were mentioned incidentally.
Circle 4 if the item was mentioned and no specific strategy was taught.
Circle 5 if the item was never mentioned and a specific strategy was never taught.
Section A: Knowledge of the Five Big Ideas

1. **Phonemic Awareness:** Recognizing and manipulating sounds within spoken words.

   Teacher Education Program.................................
   In-Service Training...........................................

<table>
<thead>
<tr>
<th>Mentioned and a specific strategy was taught</th>
<th>Mentioned and a specific strategy was discussed</th>
<th>Mentioned but no specific strategy was taught</th>
<th>Never mentioned and no specific strategy was taught</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td></td>
<td>5</td>
</tr>
</tbody>
</table>

2. **Phonics:** Using sound-letter correspondence to construct or segment words.

   Teacher Education Program.................................
   In-Service Training...........................................

<table>
<thead>
<tr>
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</tr>
<tr>
<td></td>
<td>5</td>
<td></td>
<td>5</td>
</tr>
</tbody>
</table>

3. **Vocabulary:** Words used in a language.

   Teacher Education Program.................................
   In-Service Training...........................................

<table>
<thead>
<tr>
<th>Mentioned and a specific strategy was taught</th>
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<td>1</td>
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4. **Fluency:** The skill of reading smoothly and fluidly.

   Teacher Education Program.................................
   In-Service Training...........................................

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<th>Mentioned and a specific strategy was taught</th>
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5. **Comprehension**: Being able to recall what has been read.

Teacher Education Program..............................
In-Service Training.................................
6. **Phoneme isolation:** Teaching students to recognize individual sounds in a word.

   Teacher Education Program: 1 2 3 4 5
   In-Service Training: 1 2 3 4 5

7. **Phoneme Identification:** Teaching students to identify a common sound in different words.

   Teacher Education Program: 1 2 3 4 5
   In-Service Training: 1 2 3 4 5

8. **Phoneme Categorization:** Teaching students to recognize sounds in a sequence.

   Teacher Education Program: 1 2 3 4 5
   In-Service Training: 1 2 3 4 5

9. **Phoneme Blending:** Teaching students to listen to a series of separate spoken sounds and blend them.

   Teacher Education Program: 1 2 3 4 5
   In-Service Training: 1 2 3 4 5
10. **Phoneme Segmentation:**
Teaching students to tap out/count the sounds in a word.

Teacher Education Program..............................
In-Service Training.................................

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11. **Phoneme Deletion:** Teaching students to recognize what word remains when a specified phoneme is deleted.

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In-Service Training.................................

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12. **Phoneme Addition:** Teaching students to recognize what word is created when a specified phoneme is added.

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In-Service Training.................................

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### 13. Synthetic Phonics: Teaching students to convert letters into phonemes.

Teacher Education Program

In-Service Training

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### 14. Synthetic Phonics: Teaching students to blend phonemes to form words.

Teacher Education Program

In-Service Training

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### 15. Analytic Phonics: Teaching students to analyze letter-sound relations once the word is identified.

Teacher Education Program

In-Service Training

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16. **Guided Oral Reading:**
Teaching through the use of paired reading (pupils reading aloud in tandem with a partner).

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17. **Phonics in Context:**
Teaching students to use sound-letter correspondence along with context cues to identify unfamiliar words.

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18. **Analogy Phonics:** Teaching students to use parts of already known words to identify new words.

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19. **Guided Oral Reading:**
Teaching students through use of repeated reading (orally reading the same passage for a consecutive number of days).

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In-Service Training…………………………

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20. **Guided Oral Reading:**
Teaching through the use of shared reading (teacher reading aloud to a group of children or the class).

Teacher Education Program…………………………
In-Service Training…………………………

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21. **Guided Oral Reading:**
Teaching students through the use of neurological impress (teacher and student reading aloud simultaneously while tracking the text).

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In-Service Training…………………………

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22. **Guided Oral Reading:**
Teaching through the use of assisted reading (child and teacher sharing a book; child reads aloud and teacher follows silently, correcting errors if needed).

- **Teacher Education Program:**
  - 1
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  - 3
  - 4
  - 5

- **In-Service Training:**
  - 1
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23. **Independent Silent Reading:**
Teaching through the use of *Drop Everything and Read* (independent silent reading time that occurs on a daily or weekly basis).

- **Teacher Education Program:**
  - 1
  - 2
  - 3
  - 4
  - 5

- **In-Service Training:**
  - 1
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24. **Independent Silent Reading:**
Teaching through the use of *Accelerated Reader* (program involving guided independent reading).

- **Teacher Education Program:**
  - 1
  - 2
  - 3
  - 4
  - 5

- **In-Service Training:**
  - 1
  - 2
  - 3
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25. **Independent Silent Reading:**
Teaching through the use of a reading incentive program (earning rewards for reading).

Teacher Education Program

In-Service Training

26. **Independent Silent Reading:**
Teaching through the use of sustained silent reading.

Teacher Education Program

In-Service Training

27. **Text Comprehension:**
Teaching through the use of recalling of text content.

Teacher Education Program

In-Service Training

28. **Comprehension through Vocabulary Instruction:**
Teaching through the use of understanding of text through learning of vocabulary content.

Teacher Education Program

In-Service Training
Section C: Explicit Reading Strategies

29. How to teach students to explicitly and systematically relate letters and sounds: Teaching students to relate oral language sounds to print symbols.

Teacher Education Program:
Teacher Education In-Service Training:

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30. How to teach students to explicitly and systematically break spoken words into sounds: Teaching onset-rime instruction [onset: initial consonant sound of word; rime: the vowel and rest of the syllable that follows (e.g., cat; /c/= onset; /at/= rime)].

Teacher Education Program:
Teacher Education In-Service Training:

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31. How to teach students to explicitly and systematically blend sounds to form new words: Teaching students to take individual sounds and blend them to form a word.

Teacher Education Program:
Teacher Education In-Service Training:

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32. How to teach students the Alphabetic Principle: 
Teaching student to understand why they are learning the relationships between letters and sounds.

Teacher Education Program ........................................
In-Service Training .................................................

33. How to teach students to apply their knowledge of phonics as they read words, sentences, and text: Teaching students to decode words, sentences, and text.

Teacher Education Program ........................................
In-Service Training .................................................

34. How to teach students to use the Alphabetic Principle in their own writing: Teaching students to apply what they learn about sounds and letters to their own writing.

Teacher Education Program ........................................
In-Service Training .................................................
35. How to adapt instruction to the needs of individual students, based on assessment: Testing students present reading levels to know where to begin instruction.

Teacher Education Program
In-Service Training

36. How to model fluent reading/daily read-alouds:
Teacher reads aloud daily to students to model fluency and prosody (pace, intonation, and expression during reading aloud).

Teacher Education Program
In-Service Training

37. How to structure student-adult reading: Student reads one-on-one with an adult.

Teacher Education Program
In-Service Training
38. How to teach choral reading:
Students read along with the teacher (or other adult) as a group.

Teacher Education Program
In-Service Training

39. How to use audio-assisted reading:
Students read along in their books as they hear a fluent reader read the book on an audio recording.

Teacher Education Program
In-Service Training

40. How to teach partner reading:
Paired students take turns reading aloud to each other.

Teacher Education Program
In-Service Training
41. **How to use Reader’s Theatre:**
Students rehearse and perform a play for peers or others, reading from scripts that have been derived from books.

Teacher Education Program
In-Service Training

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42. **How to structure independent silent reading:**
Students read silently to themselves.

Teacher Education Program
In-Service Training

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43. **How to teach specific words prior to reading the text:**
Previewing difficult words in text with students prior to reading.

Teacher Education Program
In-Service Training

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44. **How to extend instruction that promotes active engagement with vocabulary:** Instruction provided over a period of days that allows students to work actively with the words in different contexts.

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45. **How to teach dictionary usage:** Students learn how to find words in the dictionary to derive the meaning of the word independently.

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46. **How to teach the use of reference materials:** Students learn how to find words in reference materials and discover the meaning independently.

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47. How to teach the use of information about word parts to figure out meaning:
Students learn how to break apart words by prefixes and suffixes to help discover the meaning of the word.

Teacher Education Program..............................
In-Service Training......................................

48. How to teach the recognition of base words and their meaning: Students learn how to break apart words by base words to discover the meaning of the word.

Teacher Education Program..............................
In-Service Training......................................

49. How to teach the recognition of root words and their meaning: Students learn how to break apart words by root words to discover the meaning of the word.

Teacher Education Program..............................
In-Service Training......................................
50. **How to teach the use of context clues to determine word meaning:** Students use hints about the meaning of an unknown word using the surrounding words.

Teacher Education Program............................
In-Service Training......................................

51. **How to teach students to monitor their own comprehension:** Students learn to be aware of what they do and do not understand.

Teacher Education Program............................
In-Service Training......................................

52. **How to teach students to monitor their own comprehension:** Students learn to look back or forward through the text.

Teacher Education Program............................
In-Service Training......................................
53. How to teach students to restate difficult passages in their own words to increase comprehension: Students learn to restate a difficult passage in their own words.

Teacher Education Program
In-Service Training

54. How to teach the use of graphic and semantic organizers: Teaching students to use a visual device to sort their thoughts and recall of the passage (e.g., web, concept map, mind map, paragraph sandwich).

Teacher Education Program
In-Service Training

55. How to create appropriate questions to guide and monitor learning: Teacher helps students to understand implicit and explicit text.

Teacher Education Program
In-Service Training
56. **Teach students how to generate questions about text:** Students learn to create questions about the passage through use of what, where, when, why, how, and who questions.

Teacher Education Program..............................
In-Service Training...........................................

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1 2 3 4 5
1 2 3 4 5
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57. **How to teach summarization of the text:** Students learn to identify the key components of a story.

Teacher Education Program..............................
In-Service Training...........................................

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1 2 3 4 5
1 2 3 4 5
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58. **How to teach the main idea of the text:** Students learn to identify the main ideas of a story.

Teacher Education Program..............................
In-Service Training...........................................

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1 2 3 4 5
1 2 3 4 5
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59. **How to teach modeling:**
Teacher models their own thinking process while trying to solve comprehension problems about the text.

Teacher Education Program
In-Service Training

60. **How to teach guided practice:**
Teacher works with student to guide them through the thinking process involved in solving comprehension problems.

Teacher Education Program
In-Service Training

61. **How to teach the use of cooperative learning:**
Students work in pairs to solve comprehension problems.

Teacher Education Program
In-Service Training
62. **How to teach the use of prior knowledge:** Students learn to use prior experience to understand what they are reading.

Teacher Education Program
In-Service Training

63. **How to teach the use of mental imagery:** Students learn to form mental images as they read.

Teacher Education Program
In-Service Training

64. **How to teach strategic thinking:** Teacher helps student think strategically to solve comprehension problems.

Teacher Education Program
In-Service Training
65. **How to teach problem-solving process:** Teacher helps student view reading as a problem-solving process.

Teacher Education Program
In-Service Training

66. **How to teach the use of prior knowledge:** Students learn to use prior knowledge to understand what they are reading.

Teacher Education Program
In-Service Training
Demographic Information

Please select a response for each question. All information will be unidentifiable and confidential.

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<td>Hispanic or Latino</td>
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<td>American Indian or Alaska Native</td>
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<td>Native Hawaiian or Other Pacific Islander</td>
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Highest Level of Teacher Education Completed:

- ___ BA/BS
- ___ MA/MEd/MS
- ___ EdS
- ___ EdD/PhD

Number of Years Teaching:

- ___ 1-3 years
- ___ 4-10 years
- ___ 10 or more years

Any Comments:
September 12, 2012

Christina Stile, ELS
Eunice Kennedy Shriver National Institute of Child Health and Human Development
31 Center Drive
Building 31, Room 2A32
Bethesda, MD 20892-2425

Dear Miss Stile,

I am conducting a study at the University of Nevada, Las Vegas as the dissertation component of my doctoral study. The study is entitled “An Analysis of Reading Skills Instruction Provided to Special and General Educators in Their Preservice and In-Service Teacher Education”. The survey conducted will include three sections. Examples of items in Section A include: Phonemic awareness, orthographic, vocabulary, fluency, and comprehension. Examples of items in Section B include: Phonemic isolation, analytic phonics, guided oral reading, etc. Examples of items in Section C include: How to teach students to explicitly and systematically relate letters and sounds, how to teach students the Alphabetic Principle, etc. I am writing to request permission to use items in my research tool that the National Reading Panel has identified as important in the following publication:


The requested permission extends to any future revisions and edition of this study, including non-exclusive world rights in all languages. These rights will in no way restrict republication of the material in any other form by you or by others authorized by you. Your signing of this letter will also confirm that you hold authority of the copyright to the above-described material.

If these arrangements meet your approval, I am requesting that you please sign this letter where indicated below and email or mail it back to me. Thank you for your consideration.

With Sincere Appreciation,

Wendie Lappin Castillo
wendiec@clear.net

PERMISSION GRANTED FOR THE REQUESTED ABOVE:

Christina Stile, ELS
Date: 9/13/12
APPENDIX G

PILOT TEST RESPONSE FORM
Pilot Test Response Form
An Analysis of Reading Skills Instruction Provided To Special And General Educators In Their Pre-Service And In-Service Teacher Education
Requested by: Wendie Lappin Castillo

URL Link:
https://unlv.us.qualtrics.com/SE/?SID=SV_02slEse73vlsqqh&Preview=Survey&BrandID=unlv

Please answer the following questions based on your experience relating to taking the survey tool for the dissertation title shown above. Thank you.

1. How much time did you spend completing the survey?

2. Was the URL link for the survey easy to access?

3. Did you find the site in which the survey was located user friendly?

4. Please provide any suggestions and comments:
APPENDIX H

FACILITATOR SCRIPT
Dear <University’s Name> student:

You are being invited to participate in three research studies. The purpose of these studies is to investigate teacher preparation in the following areas: Co-teaching, English Language Learners, and Reading.

Your participation in this study is voluntary. Your input to these studies is needed to contribute to the research on teacher preparation. Participation will in no way effect your grade in this course. Additionally, no identifying information will be collected.

Participation involves the completion of three online questionnaires; each questionnaire will take approximately 20 minutes to complete. If you wish to volunteer, please go to the following URL addresses:

http://unlv-reading.com
http://unlv-coteaching.com
http://unlv-ell.com

Once you press enter you will be directed to the homepage of the questionnaire.

If you have any questions concerning the research study, please contact Dr. Kyle Higgins at 702-895-1102. If you have any questions about your rights as a participant in this research, or if you feel you have been placed at risk, you can contact the Office of Research Integrity – Human Subjects Research, at (702) 895-0964.

Sincerely,

Amanda Kyle Higgins, Ph.D.
Principal Investigator

Wendie Castillo, M.Ed.
Catherine S. Howarter, M.A.
Lidia Sedano, M.Ed
Student Investigators
REFERENCES


University of Nevada Las Vegas (2012). *University of Nevada Las Vegas: Enrollment Summary, Fall Semester 2011, Office of Institutional Analysis.* Retrieved from [http://ir.unlv.edu.IAP.Reports/Content/HeadcountByCollegeAndMajorSummarizedByDegreeType.aspx](http://ir.unlv.edu.IAP.Reports/Content/HeadcountByCollegeAndMajorSummarizedByDegreeType.aspx)


Wendie Lappin Castillo  
Curriculum Vitae  

861 Donelle Avenue  
Las Vegas, NV 89123  
(702) 292-3428  
89154  
wendiec@clear.net  

Current Position  

2008-present  
PhD Doctoral Student, Department of Educational and Clinical Studies  
(Special Education) Projected Graduation Date May 2013  
College of Education, University of Nevada Las Vegas  
Title of Dissertation: An Analysis of Reading Skills Instruction Provided to Special and General Educators in Their Pre-Service and In-Service Teacher Education  

2011-present  
Graduate Assistant, Department of Educational and Clinical Studies  
(Special Education)  
College of Education, University of Nevada, Las Vegas  

Degrees Awarded  

Doctor of Philosophy, Special Education, 2013  
University of Nevada, Las Vegas  
Disability Areas: Learning Disabilities and Gifted and Talented Education  
Area of Emphasis: Reading Curriculum and Instruction  

Master of Education, Special Education, 2001  
University of Nevada, Las Vegas  
Area of Emphasis: Mild/Moderate Disabilities  

Bachelor of Science, Special Education, 1996  
University of Nevada, Las Vegas  
Major: Special Education  
Dean’s Honor List Fall 1994 & Spring 1995
Certification

Special Education Generalist, K – 12

Specialized Learning Disabilities Program, Self-Contained

Gifted and Talented Education

Professional Experience

University Experience

2011-2013
Graduate Assistant
Department of Educational and Clinical Studies
University of Nevada Las Vegas

2005-2013
Workforce Educator
Department of Workforce Education
College of Southern Nevada, Las Vegas

Grant Affiliations

2012-present
Formative Evaluator
Project Grow: Making Data-Based Decisions in the Science Content Area
NeCoTIP Project
Nevada System of Higher Education

2010 Fall
Data Collector/Assessor
IMPACT Project
Rutgers University
National Institute of Early Education Research
Public School Experience

1998-2003  Special Education Teacher  
Self-Contained Classroom  
Specialized Learning Disability Program  
Chaparral High School  
Clark County School District  
Las Vegas, Nevada

1996-1998  Special Education Teacher  
Self-Contained Classroom  
Ed Von Tobel Middle School  
Clark County School District  
Las Vegas, Nevada

Research and Scholarship

Honors

Member by Invitation of Golden Key Honor Society, Induction February 20, 2010  
University of Nevada Las Vegas Chapter

Publications

Refereed Articles


In Press

Presentations


Castillo, W. L. (2011, April). Integrated technologies for content area learning for students with mild cognitive disabilities. Poster session presented at the University of Nevada Las Vegas Department of Educational and Clinical Studies Spring Colloquium Symposium, Las Vegas, Nevada.


Castillo, W. L. (2009, April). Music integrated learning for diverse learning populations. Poster session presented at the University of Nevada Las Vegas Department of Special Education Spring Colloquium, Las Vegas, Nevada.
By Invitation

2012 Spring
Invited Guest Speaker on Gifted Education
Piñon Reservation Workshop
Department of Curriculum and Instruction
University of Nevada, Las Vegas

2012 Fall
Invited Guest Speaker
Doctoral Program Applicants
ESP 781, Dr. Susan Miller
Department of Educational and Clinical Studies
University of Nevada, Las Vegas

Participation in Large Scale Data-Collection Projects

2012-present
Formative Evaluator and Data Analysis
Project Grow: A NeCO Tip Project
University of Nevada Las Vegas/Clark County School District

Research team investigating the unwrapping of State of Nevada biology standards, teaching general and special educators to unwrap the standards to facilitate the inclusion of students with disabilities in general education 9th grade biology, collecting data on teacher implementation, and student outcomes over the course of a year. N=18 teachers and approximately 500 students.

(continued)
2010 Fall  
Data Collector and Assessor  
*Impact Project*  
Rutgers University  
National Institute of Early Education Research  

Data collection team conducted standardized testing on Pre-kindergarten level students chosen through random sampling within the Head Start Programs in Clark County. Team scored standardized tests and submitted data to the Project Investigator. N= approximately 800 students.

Teaching

University Courses Developed

*Graduate Level*

2011 Fall  
Curricula and Program Co-Developer for the Gifted Education Institute  
Department of Educational and Clinical Studies  
University of Nevada, Las Vegas  

Developed 4 courses for the Gifted Education Institute. Assisted in co-development of the Gifted Education Institute, providing courses to allow teachers the opportunity to gain a licensed endorsement in Gifted and Talented Education.
University Courses Taught

*Undergraduate*

<table>
<thead>
<tr>
<th>Institution</th>
<th>Course</th>
<th>Title</th>
<th>Semester(s) Taught</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regent University, Virginia Beach, VA</td>
<td>ETSP 552</td>
<td>Behavior Management and Social Skills</td>
<td>Fall 2011</td>
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<tr>
<td></td>
<td>Section 1 and Section 2</td>
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<tr>
<td>University of Nevada, Las Vegas</td>
<td>EDSP 453</td>
<td>Behavior Management and Modifications</td>
<td>Fall 2011</td>
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<tr>
<td>University of Nevada, Las Vegas</td>
<td>EDSP 488</td>
<td>Special Education Pre-Student Teaching Seminar</td>
<td>Spring 2012</td>
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<td>Fall 2012</td>
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<td></td>
<td></td>
<td></td>
<td>Spring 2013</td>
</tr>
<tr>
<td>University of Nevada, Las Vegas</td>
<td>EDSP 492</td>
<td>Special Education Student Teaching Seminar</td>
<td>Spring 2012</td>
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<td>Fall 2012</td>
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<td>Spring 2013</td>
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<tr>
<td>University of Nevada, Las Vegas</td>
<td>ECE 492</td>
<td>Early Childhood Student Teaching Seminar</td>
<td>Spring 2012</td>
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<td>Spring 2013</td>
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</table>
### Graduate

<table>
<thead>
<tr>
<th>Institution</th>
<th>Course</th>
<th>Title</th>
<th>Semester(s) Taught</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Nevada, Las Vegas</td>
<td>ESP 708</td>
<td>Advanced Strategies for Students with Disabilities</td>
<td>Fall 2010</td>
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<tr>
<td>University of Nevada, Las Vegas</td>
<td>ESP 730</td>
<td>Parent Involvement</td>
<td>Fall 2011</td>
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<tr>
<td>University of Nevada, Las Vegas</td>
<td>ESP 717g</td>
<td>Curriculum in Gifted Education</td>
<td>Spring 2012</td>
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<tr>
<td>University of Nevada, Las Vegas</td>
<td>ESP 743</td>
<td>Models of Learning in Gifted Education</td>
<td>Summer 2012</td>
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<tr>
<td>University of Nevada, Las Vegas</td>
<td>EDSP 461</td>
<td>Advanced Oral and Written Language</td>
<td>Fall 2012</td>
</tr>
<tr>
<td>University of Nevada, Las Vegas</td>
<td>ESP 719a</td>
<td>Advanced Oral and Written Language</td>
<td>Spring 2013</td>
</tr>
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</table>
Service

<table>
<thead>
<tr>
<th>Year</th>
<th>Position</th>
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</thead>
</table>
| 2012-present | Committee Member
              TechnologCommittee
              Council for Learning
              Disabilities                             |
| 2011-present | Treasurer
              UNLV Student Chapter of the Council
              for Exceptional Children
              Elected position                          |
| 2011-present | Curricula and Program
              Co-Developer
              Gifted Education Institute
              Department of Educational
              and Clinical Studies
              University of Nevada, Las Vegas            |
| 2011 Fall    | Writers Workshop
              Coordinator
              and Presenter
              UNLV Student Chapter of the Council for Exceptional
              Children
              Appointed position                          |
| 2011 Fall    | Guest Reviewer
              Intervention in School and Clinic, A peer-reviewed journal          |
| 2010-2012    | Mentor
              D2D Program
              Department of Special Education
              University of Nevada, Las Vegas           |
2008-present
Community Representative for UNLV Doctoral Program
Spread the Word Nevada, Kids to Kids
A Non-profit Organization
Las Vegas, Nevada

2008-present
Committee Member
Parent Involvement
Spread the Word Nevada, Kids to Kids
A Non-profit Organization
Las Vegas, Nevada

Professional Organizations

Association of Child Education Institute

Council for Exceptional Children
Teacher Education Division
The Association of the Gifted

Council for Exceptional Children, Student Chapter, UNLV

Council for Learning Disabilities