DOES EMPLOYING THE WILSON’S FUNDATIONS PROGRAM IMPACT THE READING GROWTH OF FIRST GRADE STUDENTS

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ABSTRACT

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The purpose of this study was to examine how the implementation of the Wilson’s Fundations Program in first grade classrooms impacted reading growth, more specifically, the growth of phonological awareness and fluency of first grade students. This study also asked whether or not the length of the intervention, Wilson’s Fundations, impacts student success in the program. The Wilson’s Fundations program (Wilson Language Training Corporation, 2012) is a systematic, explicit, and structured multi-sensory language program. According the Bradford (2008) using multisensory teaching methods simultaneously will help the student learn and hold onto new information better.

A sample of three groups (one group for each year) of first grade students’ scores from three AIMSweb screeners (Phoneme Segmentation Fluency, Nonsense Word Fluency and Oral Reading Fluency) were collected and analyzed from an elementary school in northwest Ohio. There were approximately 50 students in each group. The first group received no intervention. The second group received an accelerated version of the intervention during the second semester of school. The third group received a full year of the intervention.

After running statistical tests, each post-test from all three groups and all three screeners had statistically significant differences. In addition, there were also significant differences between each group. These data indicate that employing the Wilson’s Fundations Program in first grade classrooms appears to impact their phonological growth, as does the length of the program intervention.
I wish to dedicate this thesis to my family, especially my husband Mike, without whom I would never have been able to complete this worthwhile endeavor.
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Means of Each AIMSweb Test by Year and Assessment
CHAPTER I. INTRODUCTION

Reading is involved in every content area taught in school. Meyler, Keller, Cherkassky, Gabrieli and Just (2008) believe that “reading is among the most important of academic skills, affecting almost every aspect of a student’s learning” (p. 2580). According to the National Council on Teacher of English Standards for the English Language Arts, to participate fully in society and the workplace in 2020, citizens will need powerful literacy abilities that until now have been achieved by only a small percentage of the population. Because of this, the teaching of reading is not taken lightly.

Although reading is recognized as one of the most important literacy skills, many scholars of reading have not been able to agree on one definition of reading. Scholes (1998) writes:

Some specialists define reading as the ability to sound out string of letters (including strings that are nonsense); others follow the more common notion that reading involves understanding. Shaywitz (1996) provides a clear example of the view that reading is the conversion of text to phonology (even stronger, that speech and writing are both ‘phonemic’). To most people, however, reading refers to the comprehension of written language. (p. 179)

Just as there are different definitions for reading, there have been discussions about the different ways it should be taught. Two main approaches have been argued over the years: whole language versus phonics. These discussions became so heated that they became full-fledged political issues and were called the “Reading Wars.” Today, however, most students receive a balanced approach of literacy, which combines aspects of phonics and whole language. Part of the reason there are disagreements in the way children should be taught to read is because
there is more than one definition for reading. Another reason is that there are also disagreements about how children learn to read. With the implementation of the Common Core Subject Standards Initiative (2012) most of the states are united in what they teach, but each state and/or district can choose how to teach the standards.

Statement of the Problem

Every day educators face the challenge of teaching the content and literacy standards in their areas of specialization while trying to meet the individual academic needs of each of their students. While many specialists in reading debate how to teach reading and how children learn to read, we know one thing: each student develops at his or her own pace. Each student also has his or her own style of learning (Dierking, 1991). While many programs to teach reading now have a blend of whole language and phonics and provide differentiated instruction, they do not necessarily address the different ways children learn.

Since the 1970s, educators have recognized three basic learning styles: visual, auditory, and kinesthetic, otherwise known as VAK. Predating this, in the 1920s, Grace Fernald had students, who were reading impaired, trace letters or words while saying the word aloud. This procedure became known as VAKT (visual, auditory, kinesthetic, and tactile) approach (Fernald & Keller, 1921). According to Brown (n.d.) “Learning to read no longer consists of students sitting in chairs and simply repeating back what their teachers say. Today’s reading models are multi-sensory, taking the VAK approach” (para. 1). Caine and Caine (1991) claim that one principle is shared by all the brain-based theories and, therefore, is the most important precept: “Success [in teaching] depends on using all of the senses and immersing the learner in a multitude of complex and interactive experiences” (p. 86). Researchers also suggest a balanced literacy curriculum (a combination of the synthetic and authentic theoretical approaches)
implementing a combination of approaches may best meet the unique learning needs of students. McIntyre and Pickering (1995) contend, “Multisensory, structured language programs include both synthetic and analytic instruction” (para 11).

There are a variety of reading programs that address the multisensory approach, such as, Orton-Gillingham, from which many other programs have created modified versions. For example, The Slingerland Method, The Spalding Method, Project Read, Alphabetic Phonics, and the Herman Method were developed from former students of Orton. All of the programs involve the use of multisensory instruction with differences in the delivery, sequence, and area of concentration. The purpose of this study was to evaluate the Wilson Reading System, which was created by Barbara Wilson, another student of Orton. Wilson’s Fundations program, (Wilson Language Training Corporation, 2011) is designed as a systematic, explicit, structured multi-sensory language program that incorporates the VAK-T approach. Mesmer and Griffith (2005) related how explicit, systematic phonics instruction is correlated with the students’ developmental levels. Student engagement and accountability are said to be encouraged through direct teaching.

Research Question

The purpose of this study was to examine how the implementation of the Wilson’s Fundations Program in first grade classrooms impacted reading growth, and more specifically, the growth of phonological awareness and fluency of first grade students. In this study, reading growth was defined as the ability to segment phonemes and decode pseudo words. This investigation addressed the following research questions: Does employing the Wilson’s Fundations Program, impact the phonological growth and skills of first grade students? Does the length of the intervention impact student success in the program?
Rationale

Most educators and researchers would agree that each person has his or her own learning style. Students come to school with different abilities and different backgrounds. This wide variety of learning styles creates quite a task for teachers as they attempt to meet the academic needs of the students. Basic academic needs, such as reading fluently, are not being met for 44% of American fourth grade students, even when they read grade-level stories aloud under supportive testing conditions (Pinnell, 1995). According to these reports the academic needs of all students are not being met. Schools cannot control for every factor, but using multi-sensory methods to teach reading can help teachers address the different learning styles of each student.

According to Denton, West, and Walston (2003), “Kindergarten and 1st grade represent a time of rapid growth and learning for children. During these years, children acquire the reading knowledge and skills that prepare them for future schooling and life” (p. 1). Therefore it makes sense to use a multi-sensory approach for teaching early reading skills. This is where the most impact can be made.

Definition of Terms

Many specific terms will be used throughout this thesis that are critical to this study. Therefore, it is essential that readers also understand the terms and the definitions as they are used in this investigation.

Auditory Blending: Auditory blending involves the ability to reproduce a word by synthesizing its component sounds (Chall, Roswell, & Blumenthal, 1963).

Auditory learner: Auditory learners are those who learn best through hearing things (Brown, n.d.).

Kinesthetic learner: Tactile or kinesthetic learners are those who learn through
experiencing/doing things (Brown, n.d.).

Multi-sensory teaching: This approach to teaching is conducted using all learning pathways in the brain (visual/auditory, kinesthetic-tactile) simultaneously to enhance memory and learning (McIntyre & Pickering, 1995).

Phoneme: A phoneme is the smallest contrastive unit in the sound system of a language. (Lingualinks, 2004).

Phonemic awareness: Phonemic awareness is an important aspect of phonological awareness. According to Wasik, (2001) “phonemic awareness is the ability to auditorily recognize and manipulate individual sounds in words” (p. 128).

Phoneme segmentation: Phonemic segmentation “is the ability to break words down into individual sounds” (Light & McNaughton, 2002, para. 1).

Phonics: Phonics is “the sound/symbol relationship between the spelling of words and the way they are spoken” (Reyhner, 2008, p. 7).

Phonics emphasis: Phonics emphasis is “the approach to teaching reading that emphasizes the sound symbol relationship in alphabetic writing systems such as English” (Reyhner, 2008, p. 7).

Phonological awareness: Phonological awareness refers to the ability to reflect explicitly on the sound structure of spoken words (Hatcher, Hulme, & Ellis, 1994).

Pseudo words (nonsense words): These particular words are “a” fake word--that is, a string of letters that resembles a real word (in terms of its orthographic and phonological structure) but doesn't actually exist in the language” (Nordquist, n.d., para. 1).

Visual learners: Those who learn best by seeing things are referred to as visual learners (Brown, n.d.)
Wilson Fundations Program: See Chapter Three under Subjects

Whole language approach: “The approach to teaching reading that focuses on getting meaning through text and teaching reading, writing, and other subjects together” (Reyhner, 2008, p. 7) is called the whole language approach to teaching reading.

Limitations

This study recognized that children are different in the way they learn, in their ability levels, their respective home lives, and other influential factors that affect reading. It also recognized that each teacher has his/her own teaching style. With respect to those differences, it is assumed that the study population is typical first grade classrooms with typical first grade teachers for the demographics of this area. These demographics are not, however, typical for the state or the nation, so generalizability will be unlikely. The population is racially homogenous with some socioeconomic variety. Some variance may occur because the Wilson’s Fundations Program (2011) can be implemented differently by each teacher; however, it is assumed that the program was taught with fidelity. There also may be differences in the way each teacher, including the researcher, administered the AIMSweb assessments to each student. The sample size is also reduced because of the population size of the school. Convenient samples were used and the groups were not randomly assigned. Composition of the classes was determined at the beginning of the school year by administrators.
CHAPTER II. REVIEW OF LITERATURE

Meyler, Keller, Cherkassky, Gabrieli and Just (2008) believe that “reading is among the most important of academic skills, affecting almost every aspect of a student’s learning” (p. 2580). Reading is involved in every area of content that is taught in school. According to the National Council on Teacher of English Standards for the English Language Arts, to participate fully in society and the workplace in 2020, citizens will need powerful literacy abilities that until now have been achieved by only a small percentage of the population. Because of this, the teaching of reading is not taken lightly.

Teaching children to read is a difficult and complicated process. Many children struggle with this process for a variety of reasons. One such reason is the inability to make connections with letter-sound relationships. To assist those who struggle, researchers, publishers, and others have sought to identify ways to facilitate the teaching of reading to enable all children to learn to read.

This study was designed to examine how the implementation of Wilson’s Fundations Program in first grade classrooms impacted the phonemic awareness growth: specifically, phonemic segmentation fluency, nonsense word fluency, and oral reading fluency of first grade students. This investigation addressed the questions: Does employing Wilson’s Fundations Program, which is a multisensory approach to teaching phonics, spelling, and reading, impact the phonemic awareness growth of first grade students? Does the length of the intervention impact student success in the program?

The purpose for Chapter II is to review literature that relates to this investigation. The chapter begins discussing the theoretical orientation supporting the study. Next, there is a
discussion of the traditional strategies and practices used to teach reading, followed by a
discussion of the use of multisensory techniques to teach reading.

Theoretical Orientation

Several basic learning theories provide the support for this investigation. Dierking
(1991) explains, “Psychologists have used three major theories to explain the phenomenon of
human learning. Other important theories exist, but these three schools of thought have had the
greatest long-term impact in shaping traditional learning theory” (p. 4). The major theory
supporting this investigation is that of the development theory. Three theorists’ works will be
explained: Piaget, Vygotsky, and Chall, followed by a discussion of theories supporting
multisensory learning.

Piaget

Piaget’s contribution to learning theory involves several concepts that include schemata,
assimilation and accommodation, and developmental stages. With respect to schemata, Dierking
(1991) explains that Piaget suggested learning was an active process that involved an interaction
between a learner and his/her environment. Cognitive schemata, according to Piaget, was a way
of organizing new information by the creation of internal organizing frameworks. Dierking
interprets Piaget’s model further by stating that Piaget believes these schemata are constantly
changing and being refined as new information is learned. Piaget’s stage theory supports his
belief that learning occurs in a predictable developmental sequence. According to Dierking,
Piaget believes that when individuals interact with each other and events in their environment,
they actively construct meanings and this helps create movement from one developmental stage
to the next.
Gunning’s (2008) explanation of Piaget’s work suggests that cognitive development was more impacted by direct experience rather than language. Siegler and Ellis (1996) also provide support for Piaget’s theory by acknowledging that children are active thinkers who are constantly trying to construct more advanced understandings of the world. Flavell’s (1996) discussion of Piaget’s model focuses on the notion that children constantly attempt to make meaning of things through an assimilation-accommodation model. This means that children are constantly changing their learning based on new information and the new information has to be either assimilated with previous learning, or has to be adjusted (accommodated) to mesh with previous learning. According to Flavell, Piaget’s *assimilation-accommodation* model provides an opportunity to view cognitive development as a gradual, step-by-step process of acquiring new knowledge and organizing that information through the continuous operation of assimilation and accommodation.

Piaget’s four stages of development are outlined in Scholastic’s *Early Childhood Today* (2001, p. 43):

1. **Sensorimotor Stage** (first grade, from approximately age 0 to 2): Infants gain understanding of the immediate world through their senses and through their own actions, beginning with simple reflexes, such as sucking and grasping.

2. **Preoperational Stage** (approximately ages 2-6): Young children can use symbols for objects, such as numbers to express quantity and words such as mama, doggie, hat, and ball to represent real people and objects.

3. **Concrete Operation Stage** (approximately ages 6-11): Children can perform concrete mental operations with symbols—using numbers to add or subtract and organizing objects by their qualities, such as size and color.
4. Formal Operations (approximately 11 through adulthood): Normally developing early adolescents are able to think and reason abstractly, to solve theoretical problems, and answer hypothetical questions.

*Vygotsky*

Russian psychologist, Lev Vygotsky, was another leading developmental theorist. The constructivist learning theory draws from Vygotsky’s work and is based on the idea that children learn by connecting new knowledge to previously learned knowledge. According to Yan-bin (2009), Vygotsky believes a person’s interaction with society leads to the development of the mind. Vygotsky’s most notable contribution to developmental theory is his notion of the Zone of Proximal Development.

Gunning (2008) argues that Vygotsky distinguished between actual and potential development. According to Gunning, the Zone of Proximal Development (ZPD) is characterized by the difference between actual development (the level at which a child is developing) and potential development (what the child might be capable of achieving). Shabani, Khatib, and Ebadi (2010) explain further that Vygotsky defined the ZPD as the distance between the actual development level as determined by independent problem solving and the level of potential development, “That is, the ZPD was understood by Vygotsky to describe the current or actual level of development of the learner and the next level attainable through the use of mediating semiotic and environmental tools and capable adult or peer facilitation” (p. 238).

*Chall*

Jeanne Chall supported the developmental stages theory with respect to learning by suggesting that there were also stages of reading development. In her book on the *Stages of Reading Development* (1983), Chall described six stages of development that are consistent with
the stages of instruction that constitute the direct-instruction model. These stages are not discrete. They are continuous and overlapping (Carnine, Silbert, Kame’enui, & Tarver, 2010). Chall’s stages, as expressed by Carnine et al., 2010) described 5 stages:

1. **Stage 0 (up to age 6)** – this is considered the prereading stage where children’s knowledge and use of oral language grows. Children also begin to understand the structure of their oral vocabulary words along with the proper way to use them, syntax.

2. **Stage 1 (Grades 1-2)** – During this stage children acquire the knowledge of the letter names and shapes. They also learn that letters have corresponding sounds. Children have gained a general understanding of the alphabetic principal by the end of this stage.

3. **Stage 2 (Grades 2-3)** – During this stage, children are now able to apply the knowledge achieved from Stage 1. They are able to read words and stories. This is done when they realize that words are constructed from letters and sentences are composed from words.

4. **Stages 1 and 2 Together** – This is considered the “learning to read stage.” At the end of this time, children are able to have automaticity with most vocabulary. They have more fluency during oral and silent reading. This allows them to give more attention to comprehending the story, developing meaning and less on decoding. At the end of this stage, children are shifting from ‘learning to read’ to ‘reading to learn.’

5. **Stage 3 (Phase A, Grades 4-6; Phase B, Grades 7-8 and/or 9)** - In this stage through reading children gather new information and ideas. In this stage
vocabulary growth and background knowledge are the main goals. Most of the reading during this time is learn facts and concepts.

6. Stage 4 (High School) - Throughout this stage children read in greater depth and learn different points of view. In addition to different points of view, they deal with various interpretations, theories, and facts. At this stage, children acquire more complex information.

7. Stage 5 (Age 18 and Above) – Reading is constructive at this stage. As readers select materials to read, they build and develop their knowledge and understanding of the different topics. They are able to analyze, synthesize, and make judgments during their reading. Gunning (2008), supports Chall’s notion of stages of learning to read by suggesting there are developmental stages for reading words or word analysis skill development. These stages include: prealphabetic (prephonemic stage where students learn words by association through the use of word features), alphabetic (letter name where students use letter-sound relationships to read words), partial alphabetic (use of a letter or two to read words), full alphabetic (processes all the letters in words), and consolidated alphabetic (within word stage where students consolidate and process longer words).

Dierking (1991) explains that the process of learning is different for each individual. According to Dierking, perceptual preferences, social interaction preferences, age, and a host of other factors impact learning. Dierking explains the term generally used to describe the different ways people learn is learning style, and adds that just as there are many theories of learning, there are also many ideas regarding learning styles.
Connecting learning styles, learning theory, and reading instruction, Reyhner (2008) suggests:

The various approaches to reading presume that students learn differently. The phonics emphasis in reading draws heavily from behaviorist learning theory … whole language emphasis draws from constructivist learning theory. Phonics is considered a ‘bottom up’ approach where students ‘decode’ the meaning of a text Programs that focus on whole language (a ‘top down’ approach) where the reader constructs a personal meaning for a text based on his/her prior knowledge to interpret the meaning of what is read are operating within the constructivist theory. (p. 2)

*Multisensory Learning*

Wallace (2004) explains that universally, nervous systems have the capacity to fuse information from the different senses. This fusion allows people to generate a multisensory interpretation of the world. The information from our different senses “can be compared, integrated, and evaluated to form an accurate and meaningful representation of the external world” (p. 69). Sholes (2012) suggests we naturally use our eyes, ears, and hands to receive information from our environment and then process that information to construct meaning. We use the information that we get through our senses to remember, understand and form new ideas or solve problems.

Until recently, research on perception has focused on one kind of stimulus: vision. A study completed by Kim, Seitz and Shams (2008) found that adults who were trained using both visual and auditory stimuli performed significantly better than a control group that used only visual stimuli. The authors point to the fact that in real-world situations, we learn by using visual, auditory and motor senses. After studying and working with children who were considered non-
readers, Fernald and Keller (1921) discovered that it is essential for “children to develop a kinesthetic background before they can apperceive the visual sensation for which the printed words form the stimulus” (p. 376). After investigating multisensory integration, Calvert and Thesen (2004) concluded that performance is positively affected when different sensory organs interact.

Traditional Methods of Learning to Read

According to Williams, (1969) “the school has no greater obligation than to teach children to read. Most of a child’s educational achievement will depend on his mastery of this fundamental skill” (p. 290). For as long as there have been schools, there has been a debate on how to teach our children to read. It is difficult to agree on a single method of teaching reading, particularly when there are disputes on the definition of reading. Lee states (1969):

There seem to be two general categories of answers to the question of what reading is. One centers around such phrases as translating symbols into sound, saying words, getting meaning from the printed page. The other may be stated as bringing personal meaning to the printed page, reacting to the ideas, evaluating the author's recorded thoughts, gaining increased understanding through experiencing the recorded understandings of another. (p. 403)

During the beginning of the 1800s, the primary method of teaching beginning reading was the alphabetic method (Hendricks & Rinsky, 2007). This required children to learn the letters of the alphabet and then the sounds that were attached to the letter names. Then in the mid-1800s, the McGuffey Eclectic Readers were published. These readers followed three different approaches, hence, eclectic. The teachers were able to pursue the alphabetic, phonetic, or whole word method, or any combination. Then things started to turn around and the famous
Dick and Jane series was published 60 years later. This series was based on look-say or whole word method (Hendricks & Rinsky). In 1955, Rudolph Flesch wrote a best-selling book, *Why Johnny Can’t Read*, which “turned the pendulum back toward phonics in the 1960s. By the 1980s, the glory decade for whole-language, the pendulum had swung again” (Lemann, 1997, p. 129).

In their study where they surveyed teachers who taught grades K-2 on their views on the debate of phonics versus whole language, Baumann, Hoffman, Moon, and Duffy-Hester, (1998) found that a majority of the teachers adopt a balanced, eclectic approach to elementary reading instruction, blending phonics and holistic principles and practices in compatible ways. Then, in 2000, after two years of reviewing research-based knowledge in reading instruction to assess their effectiveness in teaching children to read, the National Reading Panel (NRP) reported their findings. Their report addressed phonemic awareness, phonics, reading fluency, vocabulary development, and comprehension strategies. They found these topics to be the five essential components of teaching reading (International Reading Association, 2002).

Throughout the history of teaching reading, there has been discussion as to the best approach. During all of this time, the way in which reading instruction was delivered had not changed. Students listened to lectures, completed worksheets, copied from the chalkboard, wrote out spelling and vocabulary words, read and/or listened to a story, etc… This approach basically involved using two senses: hearing and seeing.

**Understanding Multisensory Learning**

According a recent article (*I Learn*, 2012), “human beings learn through different modalities and learning styles. Each person uses multiple ‘learning channels,’ and each person has strengths in terms of which learning style works best” (para. 1). In this article, the author
wrote about the importance of people predominantly using their learning style abilities and as many channels as possible to increase attainment and retention of knowledge.

Bradford (2005) reports that research has shown that a multisensory teaching approach for children with difficulties learning to read seems to be the most effective teaching method because a multisensory teaching approach helps a child to learn through more than one of the senses. Bradford also finds that most instruction in schools utilizes visual or auditory sensations. Bradford believes the best teaching method involves the use of the kinesthetic sensation combined with the auditory and visual sensations. The use of these multisensory methods simultaneously, also known as VAK, will help the student hold onto new information better by creating visual, auditory, and kinesthetic-tactile memories in the brain.

Loudon and Arthur argued, in 1940, that the use of tactual and kinesthetic stimuli in education was not new. They supported their ideas by citing Madame Montessori’s reputation for successful teaching through the use of play equipment designed to provide opportunities for sensory discrimination and comparison.

According to Rowe (2005), studies show that children learned more quickly when stimuli were presented in a multisensory fashion rather than just in a single sensory modality. To further support the benefits of multisensory instruction, Shute (2002) praises Maria Montessori claiming that she developed a sensory-rich environment for learning for children who were considered mentally deficient. After exposure to the new environment, they were able to pass standard public-school tests. McKenzie and Zascavage (2012) claim many of the materials in Montessori classrooms provide sensorial experiences for children.

Rader, Alston, and Ellis (1989) referred to the sensory organs as the window to the brain. Radar et al. argue that a person’s nervous system develops during the first six years of life, with
the growth dependent on effective stimulation of the nervous system through the sensory organs. Wilkins (2009) explains that while everyone has a different learning style with one mode usually a strength, most people usually learn best when information is presented using a combination of Auditory-Visual-Kinesthetic (AVK) learning. Xie (2011) supports Wilkins’ notions and adds that he believes there are four learning pathways to the brain: visual, auditory, kinesthetic, and tactile. Xie explains that memory and learning could be enhanced if multiple learning pathways are utilized simultaneously. Rusinko (2011) adds that the idea of using multiple senses actually predates the term multisensory. Rusinko reports that early pioneers in language learning disability talked about using sensory modalities but did not use the specific term multisensory. The term first appeared in IDA literature in 1971, when Beth Slingerland published a classroom adaptation of the Orton Gillingham approach entitled *A Multisensory Approach to Language Arts for Specific Language Disability in Children*.

**History of Multisensory Structured Language Instruction**

In 1921, a psychologist by the name of Grace Fernald opened the Clinic School at the University of California in Los Angeles. She had been working with children who could not read or were considered uneducable for several years. At that time, “she specialized in treating children with alexia or word-blindness”, what we now call dyslexia (Torbe, 2000, para 2). She found that her students had poor visual memory. According to Torbe, Fernald’s methods involved techniques such as tracing words with fingers, not pencils. Dwyer (1983) adds that Fernald demonstrated that visual memory could be improved when initial learning is coupled with intensive sensory reinforcement. According to Dwyer, the student is able to see the word, feel the word, and hear the word.
This method had been developed over a period of almost 20 years and was brought to public attention with her book. Blau and Loveless (2001) claimed this was the beginning of the complete multisensory technique that prevailed as VAKT (Visual, Auditory, Kinesthetic, and Tactile). Fernald’s method was phonetic and highly structured and emphasized the need for successful experiences. She had a greater interest for incentive, so she would start with a word that was known and motivating to the child. The child would trace this word with a finger. The word was also used in text, reviewed and written from memory. The word be spoken and written again to ensure automaticity. This is where the T for tactile was added to VAKT.

Samuel Orton also was interested in multisensory teaching. According to Vickery, Reynold and Cochran (1987), “Orton (1929) recognized that perception played a role in the ability to master written language skills; however, he suggested that the answer to remediation lay in developing different instructional methods for teaching reading, spelling, and handwriting skills” (p. 190). While completing studies using children with reading disabilities, Orton found a relating symptom of directional problems. After further study on how to remediate the problem, he argued that “from the theoretical standpoint the most promising of these should be that of kinesthetic training by tracing or writing while reading and sounding and by following the letters with the finger (a method under taboo today) to insure consistent direction of reading during phonetic synthesis of the word or syllable” (Orton, p. 141). According to Henry (1998), around 1925, Orton suggested the logical training for children experiencing difficulties while reading would include repetitive drill on the fundamentals of phonic association with letter forms both visually presented and reproduced in writing, until the correct associations were built and the permanent elision of the reversed images and reversals in direction was assured.
Henry (1998) writes that Orton relied on the ideas of Fernald and Keller, believing it was necessary for children to develop kinesthetic backgrounds before they could apperceive the visual sensations for which the printed words form the stimulus. Orton argued that even the associations between the spoken and the printed word seem not be fixed without the kinesthetic links (Henry). According to Henry, “Orton had requested that Anna Gillingham organize the instruction to conform to his neurological hypotheses. He wanted the instruction carefully structured but not programmed, and it was to be adaptable to individual needs” (p. 9). Dr. Orton, along with Anna Gillingham, created a systematic program to be implemented on an individual to small group basis, designed for helping children with Dyslexia. Rusinko (2011) explains:

Multisensory Structured Language Instruction (MSLI), one method of intervention, has been used for decades by clinicians and practitioners as an intervention for teaching students with dyslexia. MSLI has its roots in the work of Dr. Samuel Orton, Helen Keller, Grace Fernald, and others from the early 20th century. These pioneers based their work on careful observation, without the benefit of today’s brain imaging technology. They developed and practiced a formula for successful intervention with students who were struggling to read, and they continued to refine that practice. (pp. 2-3)

In 1956, Gillingham and Stillman published a manual recommending teaching methods and multisensory techniques that included Orton’s theories and suggestions (Vickery et al, 1987). Henry (1998) wrote that Gillingham and Stillman claimed children with specific reading difficulties could not learn to read using the sight word method or by tracing as suggested by Fernald. Gillingham and Stillman explain that their technique was based upon the constant use of associations of all of the following: how a letter or word looks, how it sounds and how the speech organ or the hand in writing feels when producing it.
Rose and Zirkel (2007) believe the Orton-Gillingham (O-G) methodology uses a systematic, multisensory approach to teach students basic reading, spelling, and writing. It is reported that “children also learn the common rules of the English language such as the final e rule and when to use –ck and –tch. Older students learn a variety of syllable patterns and common prefixes and suffixes, then Latin and Greek word parts” (McIntyre & Pickering, 1995, para. 19). Henry (1998) reports, that in 1935 Gillingham and Stillman traveled abroad teaching others what came to be known as the Orton-Gillingham approach.

Henry (1998) reports that Gillingham and Stillman traveled to Hawaii to set up the Orton-Gillingham program at the Punahoe School in Honolulu; at this school, they met and trained Slingerland. According to Henry (1998), she took the program and changed it so that it could be used in classrooms to reach more students. Slingerland adapted their work and created what is known as The Slingerland Multisensory Approach. Today, the program is used as both a preventative and remedial approach and is practiced in classrooms, small groups, and with individuals who range in age from primary grade children to adults (McIntyre & Pickering, 1995). Lovitt and DeMier (1984) explain that Orton, Gillingham, and Slingerland believed dyslexic children could best learn to read if instruction was provided through at least three channels: visual, auditory, and kinesthetic.

Benefits of Multisensory Instruction

Thorpe and Borden (1985) suggest there are several reasons why using a multisensory approach benefits students. These include that (a) multisensory approaches provide maximum sensory input to the brain, (b) kinesthetic and tactile sensory inputs compensates for weak visual or auditory input, (c) auditory, tactile, and kinesthetic channels provide support for the visual channel, and (d) active involvement of all the senses results in recognition of the distinctive
features of the learning task. Based on their study, Thorpe and Borden found that multisensory instruction succeeds because it increases student attention to task.

Shams and Seitz (2008) also support multisensory education claiming that the world involves constant multisensory stimulation; therefore, it stands to reason the human brain has evolved to develop, learn, and operate optimally in multisensory environments. Lewkowicz and Ghaazanfar (2009) concur with the notion that today’s children are born into and live in a multisensory world. As children grow, their task is to discover their multisensory worlds. The authors state:

…most studies yielding evidence of multisensory perception in infancy have been driven either explicitly or implicitly by one of two theoretical views: (a) basic multisensory perceptual abilities are not present at birth and emerge gradually during the first years of life as a result of the child’s active exploration of the world and experience or (b) they are present at birth and become increasingly differentiated and refined with experience. (p. 470)

Lewkowicz and Ghaazanfar rationalize that since infants learn by using all of their senses, it makes sense to continue learning in that way.

Understanding Multisensory Instruction in Reading

Stewart (2011) believes that every child needs the best possible foundation in reading. The ability to read is critical for a child’s future learning. Stewart believes the National Reading Panel report suggests students do not have the phonics skills needed to decode unknown words. According to Campbell, Helf and Cooke (2008), the National Reading Panel report and the National Research Council report both indicate that explicit, systematic phonics instruction enhances a student's ability to learn to read, with the strongest effects in kindergarten and first
grade. They add that students who receive this instruction are typically better able to decode and spell. Ali (2012) suggests that phonological awareness, which involves the ability to differentiate and manipulate the individual sounds, or phonemes in words, is considered the strongest predictor of future reading success for children.

Chall, Roswell, and Blumenthal (1963) studied the relationship between first grade students’ auditory blending ability, intelligence and reading achievement. Auditory blending, which is a function of phonological awareness, was tested using a test constructed by the senior authors. Their results revealed a substantial relationship between auditory blending ability in grade 1 and silent reading in grade 3. Their study indicated that there was a significant correlation between auditory blending ability to reading achievement, especially to word recognition and analysis.

Woods (2003) explains that phonemic awareness is a part of phonological awareness by stating that words consist of individual, discrete sounds in particular sequences. Woods adds that phonemic awareness is crucial for learning the relationship between speech and the written word, and it is one part of the foundation for success with the written form of the language. The results from the study completed by Bradley and Bryant (1983) suggests that training in sound is more effective when it is connected with the alphabet.

In two separate investigations, Ball and Blachman (1988, 1991) studied the phonemic awareness of three groups of kindergarten students. One group received phonological training in word segmentation, letter names and sounds, and sound categorization. The second group received language activities, such as letter sounds and names, and general language activities. There was a third control group. The first group, who received phonemic awareness training, improved the most. This study shows that phonological training combined with teaching letter
names and sounds and spelling skills is effective. Their hypothesis holds that phonological training and reading skills need to be integrated to be effective in advancing reading skills.

Stahl (2006) declares that phonics instruction needs to keep in mind phonological awareness. Good instruction should overtly teach that pronounced words can be segmented into sounds and that letters can be represented onto these sounds. Stahl (1998) questioned why children with word attack problems, who receive more direct and indirect phonics instruction than average readers, do not progress in decoding. Stahl suggested that because students with reading difficulties have more problems with decoding than with comprehension, the focus of the reading instruction, which is based on research, should be a systematic, multisensory phonics instructional approach followed by application of the skills.

According to Campbell, Helf, and Cooke (2008):

…research findings suggest that students with strong phonological awareness…typically learn to read more readily…results of research indicate that systematically and explicitly teaching children to manipulate phonemes in words is highly effective for a variety of learners across a range of grade and age levels and the mastery of this skill allows children to significantly improve their reading skills…there are some children who fail to acquire basic skills and are, therefore, considered at-risk for reading failure. One possible solution for those students may be the addition of multisensory elements to an intensive, systematic, supplemental phonics program. (pp. 267-269)

**Multisensory Language Instruction**

Multisensory instruction was originally designed for students who have dyslexia or other learning disabilities. According to Sheffield (1991), many youngsters with dyslexia never internalize the notion that letters have names and sounds. Multisensory teaching attempts to
make sense of our language for children who have difficulties with sound-symbol relationships. The Orton-Gillingham teaches children to use language as they think about language. Sheffield further adds that Gillingham and Stillman believe in using the visual channel, the auditory channel, and the kinesthetic-tactile channel simultaneously to build learning. According to Sheffield, the kinesthetic-tactile channel is the strongest learning channel.

Multisensory learning theory, according to Birsch (1999), suggests that by simultaneously stimulating auditory, visual, and kinesthetic pathways, instruction and learning can be more natural. Birsch adds that in multisensory learning, links are consistently made between the visual, auditory, and kinesthetic-tactile pathways, which promotes learning for students.

McIntyre and Pickering (1995) believe that in multisensory language instruction, the organization of material should follow the logical order of the language. Instruction should follow a sequence that begins with the easiest and most basic elements and advance systematically to more challenging material. Each step must also be based on those already learned. Concepts taught must be methodically reviewed to reinforce memory.

The Orton-Gillingham Approach

Ali (2012) describes the Orton-Gillingham approach, on which all or most multisensory programs are grounded, as:

…a technique of studying and teaching language, understanding the nature of human language, the mechanisms involved in learning, and the language-learning processes in individuals. The teaching sessions … are action-oriented and involve constant interaction between the teacher and the student and the simultaneous use of multiple sensory input channels reinforcing each other for optimal learning.
The OG approach is structured, sequential, and cumulative. Elements of language are introduced systematically. Students go from the basic elements (consonants, vowels, etc.) to more advanced structural elements (syllable types, roots, and affixes). It is also a cognitive program. Students learn about the history of the English language and study the many generalizations and rules. They learn how best they can learn and apply the language knowledge. This program is flexible. Teachers review and reteach previously taught material until mastery. (p. 41)

Scheffel, Shaw, and Shaw (2008) studied the Orton-Gillingham (OG) approach on the phonemic awareness skills of first grade students. Overall the study provided evidence that the OG multisensory reading program, helped students in the treatment group acquire phonemic awareness and alphabetic principle skills more effectively than students at comparison schools.

Sheffield (1991) has studied the multisensory programs developed by Orton and the one developed by Gillingham and Stillman. According to Sheffield, the major difference between the two programs is whether the teacher has the student sound the sounds of the phonograms as he spells, or whether the student is taught to name the letters as he spells. Sheffield claims that both methods work well, and that both programs are designed to build memory chains that will fire automatically when a student traces a forgotten word. Another difference between the Orton and Gillingham, according to Sheffield, is that Gillingham seems to place a heavier emphasis on the routine use of key words to trigger sound memory. The Orton program is more inclined to use key words only when an individual student needs them. Another difference has to do with the teaching of the schwa sound. The Orton program directly teaches the use of schwa, and the schwa is an integral part of their successful teaching of accent. Originally, Gillingham did not include schwa; later she included the schwa sound.
Programs Directly Derived from Dr. Orton and Gillingham

Sheffield (1991) identifies the programs that have directly evolved from Dr. Orton; these programs include Spalding’s *Writing Road to Reading*; June Orton’s *Guide to Teaching Phonics*; Rome’s and Osman’s *The Language Tool Kit*, and Green’s and Enfield’s *Project Read*. Sheffield also reports that many programs were derived from Gillingham’s and Stillman’s original work: (a) *The Shedd Program* developed by Shedd and Shedd, (b) *The Slingerland Approach*, by Beth Slingerland, (c), *Alphabetic Phonics* developed by Childs and Cox, and (d) *Angling for Words*. Additional multisensory programs were developed from the Orton Gillingham methodologies and multisensory learning theories: *Lindamood-Bell, The Association Method, The Herman Approach, The Spalding Method, Montessori and Sequential English Education Approach, Starting Over, and The Wilson Reading System*.

Joshi, Dahlgren and Gooden (2002) investigated the efficacy of the multisensory teaching approach to improve reading skills of at the first grade level. They had a control group who was taught using a Houghton-Mifflin Basal Reading Program. The treatment group received instruction using the Language Basics: Elementary which is based on the Alphabetic Phonics Method, an Orton-Gillingham derived program. Their results demonstrated that the treatment group made statistically significant gains in phonological awareness, decoding, and reading comprehension.

The Wilson System

Barbara Wilson developed the Wilson Reading System while working with adults at Massachusetts General Hospital's Language Disorders Unit, and with students in her private tutoring practice. Wilson taught for several years as a special educator in public schools before she completed training in the Orton-Gillingham approach. After her training was completed, she
remained at the hospital for five years working with adults with dyslexia. In 1985, the Wilson Learning Center was founded and three years later published the Wilson Reading System (Wilson Language Training Website, 2011).

According to Wilson, many of her students had difficulty understanding English and the structure of the language. In response to meet their needs, the Wilson Reading System was developed to teach students the structure of words in a systematic and cumulative manner. It is believed that this systematic system encourages students by encouraging them and helping them to believe they can learn English, including dealing with the irregularities of the English language. As a result of the program’s successes, in 1992, the primary focus changed to teacher training. From the beginning, the goal was to make this type of specialized instruction available in the public setting. One characteristic of this program is the commitment to support teachers, which makes the Wilson Reading System unique as trainers have collaborated with school districts to implement successful and sustainable plans for teacher and student success.

Ali (2012) explains that the Wilson Reading System is a multisensory, phonics-based program developed for students who have difficulty with decoding and encoding. It is a 12-step program that begins with phoneme segmentation. The program incorporates five elements for teaching at-risk populations:

- phonemic awareness
- direct instruction of word analysis, prosody and comprehension
- coordination of reading and spelling instruction
- intensive, cumulative instruction
- teaching for mastery
The National Literacy project (2006) reports that although the empirical support for the _Wilson Reading System_ is limited, the content and instructional design of the program are aligned with current reading research. They also report that the effectiveness of the system has been documented with students who are dyslexic or who have other reading disabilities; however, no independent evaluation of the program with secondary readers exists.

Several studies and reports have been completed to show evidence of effectiveness of the Wilson Reading Programs. One such study, completed by Stebbins, Stormont, Lembke, Wilson, & Clippard (2012) described the method in which one school district monitored the effectiveness of the Wilson Reading System for students with disabilities who were experiencing difficulty with reading. The Wilson Reading System (WRS) was chosen based on reviews of research based practices conducted by experts in the field affiliated with the What Works Clearinghouse (WWC). Rigorous assessments were performed using a checklist of indicators identified as essential in intervention studies. The authors state that the use of the system with general education students was positive in alphabetics, which includes the basic phonological processes of phonemic awareness, phonics, and the alphabetic principle.

The purpose of this study was to provide supplemental evidence on the effectiveness of the WRS for children with disabilities. The participants were students with an Individual Education Program (IEP) and special education teachers. The Scholastic Reading Inventory was used to measure reading proficiency. The teachers experienced in-depth training on the WRS program. The students received the WRS program for two years. These students were examined longitudinally in reading growth. The students in the study demonstrated substantial growth in reading comprehension skills. The WRS participants exhibited significant growth in their employment of phonic and structural analysis skills in order to voice nonsense words.
O’Connor and Wilson (1995) assessed the efficacy of the Wilson Reading System and its impact on student reading and spelling skills using 220 third- through twelfth-grade students diagnosed with a language-learning disability. The participants in the study scored at least two grade levels below their placement on the pretest. The participants received the WRS for a full school year after their teachers received training in the program. The scores from the pretest and posttest scores on the Woodcock Reading Mastery Test-Revised and the Wilson Assessment of Decoding and Encoding (WADE) were compared for one year. Before this study, these students had shown little growth in reading and spelling. The students were pulled out for instruction previously without success. The WRS was successful. The students demonstrated statistically significant improvement in decoding ability, passage comprehension, total reading, and spelling.

In a later study, Wood (2002) evaluated the reading progress of 374 students in grades three through eight who received the Wilson Reading System (WRS). A pretest and posttest design was used. For a period of two years, the data were collected at WRS sites. Scores were reported in the areas of word identification, word attack, passage comprehension, basic skills, and overall reading. The investigation indicated that significant gains in all of the previously mentioned areas were demonstrated by the students receiving the reading program. The poorest readers exhibited the greatest and most significant skill gains.

A study completed by Torgesen et al. (2006) evaluated four different reading interventions. Rather than create new instructional programs, the researchers employed parts of four existing programs. As a result, one of the interventions was a modified form of the Wilson Reading System (WRS) using the word-level components. The other three interventions were Spell Read P.A.T., Corrective Reading, and Failure Free Reading. This study consisted of 27 districts; 50 schools from the 27 districts were randomly assigned one of the four interventions.
Within each school, eligible children in grades 3 and 5 were randomly assigned to a treatment or control group. Seven measures of reading skills were administered at the beginning and end of the school year. The areas of assessment were phonemic decoding, word reading accuracy and fluency and reading comprehension. The specific skills measured were word attack, phonemic decoding efficiency, word identification, sight word efficiency, oral reading fluency, and passage comprehension. After one year of instruction, outcome measures revealed significant gains for phonemic decoding, reading comprehension, word reading accuracy, and fluency for third graders. Less noteworthy results were reported for fifth graders.

After researching the most effective methods to teach beginning reading skills, Ali (2012) began implementing the Wilson Reading System (WRS), along with the Orton-Gillingham System and the Lindamood-Phoneme Sequencing Program. Ali employs the WRS to teach phonics because the six syllable types are introduced early. Ali also has found the Wilson Sound Tapping technique to be effective to teach decoding. For promoting fluency, Ali uses the WRS Penciling Method, which requires the students to scoop phrases to read instead of word by word.

After more than 10 years of data collection from school districts experiencing success using WRS, the Fundations program was developed. Fundations is a research-based program designed to bring explicit, cumulative, systematic, and multisensory reading instruction to K-3 general education classrooms. Published in 2002, Fundations has been implemented as a prevention and early intervention program in school districts across the country (Wilson Language Training Website, 2011)

Wilson’s Fundations (2011) provides children of varying learning abilities with a foundation for reading and spelling. It provides teachers with the skills and tools needed to
present a structured, sequential, and cumulative phonics/spelling program using multisensory teaching techniques. The program highlights are:

- Emphasis on systematic phonics and study of word structure
- Skills taught explicitly and systematically
- Instruction is cumulative and scaffolds presented skills
- Teachers model with “Echo” the owl puppet directing students to repeat sounds, words, and sentences
- Assessments monitor students throughout the program
- The manual provides direction for support staff to meet individual student needs
- Extensive practice provides multiple opportunities for skills application
- Home Support Packet encourages parental involvement

Each level of Fundations presents skills in a carefully structured scope and sequence. These build on previously taught skills and are brought forward cumulatively: from unit to unit, year to year. The skills taught are:

- Letter formation
- Phonological awareness and phonemic awareness
- Sound mastery
- Phonics
- Vocabulary
- Irregular (Trick) word instruction
- Fluency
- Comprehension
- Written composition
The system can be used for one-to-one tutoring, small groups, or whole class instruction. The Fundations program is usually delivered in whole classrooms. Small group instruction is given as a double dose, primarily by the Title 1 reading teacher or Intervention specialist. The Fundations program implements a unique ‘sound tapping’ system early in the program to help the student learn to differentiate phonemes in a word. This technique is used for both segmenting and blending sounds. In addition to the tactile use of tapping, students trace with two fingers or skywrite to learn letters and trick (sight) words. They incorporate ‘say it, spell it, say it’ while tracing or skywriting to study the letters and trick words.

Even though it is fairly new, some research studies have been completed on the Wilson Fundations program. One such report, authored by Feldman (2009) describes a public school in Brooklyn, New York that improved student outcomes and reduced unnecessary referrals to special education by establishing an RTI framework using Wilson Fundations in Tiers 1 and 2. The school implemented the RTI framework, which requires that they provide evidence-based general education instruction. The Wilson Fundations program was selected to provide the evidence based instruction. All students in grades K-3 received Wilson Fundations® in Tier I as the word study component of balanced literacy.

Feldman (2009) reports students in Grades K and 1 determined to be "at risk" made great gains during the first year of implementation in DIBELS measures. After three years of implementation there was significant improvement in student performance in Grade Three based on the 2008-2009 New York State ELA Assessment. In 2009, no students were at Level 1 compared to 7.8% of 3rd graders in 2005-2006. There was also a 7% increase in the number of students in Grade 3 scoring at Level 3 and 4-meeting learning standards (Level 3) and meeting learning standards with distinction (Level 4). PS 380 exceeded in performance compared to all
city schools. Due to the success of the pilot schools that worked with the NYC Department of Education, RTI expanded to 29 more schools throughout the city. In fall 2009, PS 380 was selected as a National Blue Ribbon school.

Several books also incorporate the Wilson Reading System and Fundations as structured language programs that provide direct, explicit, systematic instruction for general education and special education students. The books are *Sound it out! Phonics in a comprehensive reading program* by J.F. Savage, *Using Phonemic Awareness with ESL Students* by R. Schwartz, and *Overcoming Dyslexia: The New and Complete Science-Based Program for Reading Problems at Any Level* by Sally Shaywitz.

**Summary**

Through years of study and observation, researchers such as Chall, Vygotsky, and Piaget have determined that children learn in different stages and develop at individual rates. Through their research, we have learned different approaches to teaching. Research (Rowe, 2005) indicates that we all have multisensory capabilities and that we learn more quickly when stimuli are presented in a multisensory modality rather than single sensory. Even though research in multisensory instruction is not new, many of the programs that use that approach have been integrated into the public school curriculum more recently. Wilson’s Fundations Program is a multisensory approach to teaching reading. The purpose of this study is to determine whether the Wilson’s Fundations Program impacted the reading growth of first grade students. Also does the length of the intervention impact student success in the program?
CHAPTER III. METHODS AND PROCEDURES

According to Adams (1995) the strongest predictor of future reading success for children is phonological awareness, which is the ability to differentiate and manipulate the individual sounds or phonemes. This investigation addresses the research questions: Does employing the Wilson’s Fundations Program, which is a multisensory approach to teaching reading, impact the reading growth, more specifically the phonological awareness and fluency growth of first grade students? Does the length of the intervention impact student success in the program? Chapter Three will explain the methods and procedures used in this investigation.

Methods

Research Design

The research design used for this investigation is a longitudinal quasi-experimental research design. Bagley, Thompson, and Panacek (2006) report, “Quasi-experimental designs lack one or two of the study elements. They often have manipulation of the independent variable or control of the study setting, but rarely have randomization” (p. 245). In this investigation, there was no randomization of participants. While true experimental designs yield the most valid results, quasi-experimental designs can still show a correlation between the independent and dependent variables. The specific type of quasi-experimental design was a cohort study. There were three independent variable groups as described below. The dependent variable is the measure of reading and phonemic awareness for each group.

Participants

Three groups of first grade students were selected for this study. These students were enrolled in a rural public elementary school in Northwest Ohio. There are two classes per grade in the school with approximately 50 students in each group. The first group of first grade
students were in first grade during the 2010-2011 school year. This group did not receive instruction in Wilson’s Fundations Program. The second group was in the first grade during the 2011-2012 school year. The entire program was administered in one semester rather than over the course of the academic year. During the administration the students were taught three syllable patterns rather than just the one pattern taught during the fall semester. This group received half a year of the program. The third group of first grade students is currently in first grade. This final group will receive a full year of the program. First grade students were chosen because the most gains in reading skills are typically found in this grade level. (Chall, 1983)

Confidentiality of the participants’ scores was maintained by only using the scores without any connection to the student. Any charts, graphs, or prose used to display or refer to the study will only indicate the particular scores of each first grade group rather than to the individual students.

The two first grade teachers at the school in Northwest Ohio employed the Wilson’s Fundations Program in their classrooms during the 2012-2013 school year. These teachers also participated in the pilot program during the second half of the 2011-2012 school year in their classrooms.

Treatment

The treatment used in this study was Wilson’s Fundations Program. According to Fundations’ website (http://fundations.com, 2011) Wilson Fundations for K-3 is a phonological/phonemic awareness, phonics and spelling program that was designed for the general education classroom. Fundations, which is based upon the Wilson Reading System: a program designed for one-on-one or small groups, serves as a prevention program to help reduce reading and spelling failure.
Fundations provide the research-validated strategies that complement core language arts program to meet federal standards and serve the needs of all children. Each day teachers integrate a 30-minute daily Fundations lesson into their language arts classroom instruction. Fundations lessons focus on carefully sequenced skills that encompass print knowledge, alphabet awareness, phonological awareness, phonemic awareness, decoding, vocabulary, fluency, and spelling are carefully focused on in Fundations’ lessons. Story time activities apply the use of critical thinking, speaking and listening skills. The Fundations lessons teach skills that build upon previously taught skills and are cumulative from year to year. Each level consists of a manual with a scripted daily lesson. Teachers follow the script to ensure fidelity in the program. A double dose of Fundations is provided in small intervention groups for in the lowest 30th percentile.

**Instrumentation**

The instrumentation used for this quasi-experimental study included AIMSweb assessments (2011), which were given by the researcher and the two first grade teachers. These assessments are given three times a year. They are benchmark assessments given in September, January, and May. The AIMSweb website (http://aimsweb.com/, 2011), states:

AIMSweb is a web-based assessment, data management, and reporting system that provides the framework for Response to Intervention (RTI) and multi-tiered instruction. Designed specifically to universally screen and progress monitor, AIMSweb uses brief, valid, and reliable General Outcome Measures of reading and math performance for Grades K-8 that can be used with any curriculum. (para. 1)

Some of the first grade assessments in AIMSweb change from the beginning of the year till the end of the year. In September all first grade students are given four assessments: Letter
Name Fluency, Letter Sound Fluency, Phoneme Segmentation Fluency, and Nonsense Word Fluency. These assessments are timed for one minute each. In January the first grade students are given the Phoneme Segmentation Fluency and the Nonsense Word Fluency assessments. In addition, they are also given the Oral Reading Fluency assessment. In May, the first grade students take the same three assessments given in January. All of these assessments are given in a one-on-one situation. For purposes of this study only two of the assessments will be considered: Phoneme Segmentation Fluency and Nonsense Word Fluency.

During the Phoneme Segmentation Fluency assessment, the teacher tells the students a word and then asks the student to say all the sounds in a word. For example, if the teacher says mop, the student should say /m/ /o/ /p/. This test is timed for one minute. The next assessment is Nonsense Word Fluency. On this assessment a student looks at a sheet with a list of two to three letter pseudo words. The student is directed to look at the “make-believe” words and tell either the sound of each letter or read the whole word. This assessment is also administered for one minute.

Procedures

Permission has been granted from an elementary school in Northwest Ohio to use the scores from the three groups of first grade students from this year and the previous two years. According to HRSB permission was not needed from the parents or students because no individual student’s scores were used. The scores of the whole were utilized.

The benchmark scores from September were used as the pre-test for two assessments: Phoneme Segmentation Fluency and Nonsense Word Fluency. The May benchmark scores for both assessments were considered the post-test. The pre-test and post-test scores for each group of first grade students were compared.
Data Collection

Formal data collection will include pre- and post-testing of the current group of first grade students. The data from the previous groups were collected from past records of scores. A Title I Reading Teacher at the school in Northwest Ohio is in charge of maintaining the database of AIMSweb scores and reports. The reports are in different formats according to the AIMSweb website (2011). Class reports can be listed in a chart, line graph, or bar graph, depending on what is being looked at. For example, a line graph can show the progress of the class or grade on a specific assessment.

The initial pre-tests measure phonological awareness, which encompasses phonemic awareness and phonics. The post-tests were administered to determine reading growth in those areas. Students’ oral reading fluency data will be collected to demonstrate the application of phonemic awareness skills to word recognition.

Informally, the researcher examined the progress of the students using teacher made tests and overall reading grades. These results are mentioned in the discussion.

Data Analysis

Each of the AIMSweb assessments were scored according to the test manual directions. Each student’s pretest and posttest results for each of the three AIMSweb assessments were recorded on the AIMSweb website; this assessment feature shows the growth for each student and/or class. These scores were then placed in a chart by group and the differences between the pre and post test scores were calculated using the mean. Then the mean scores were analyzed to determine whether there had been any growth in reading skills, particularly phonological awareness, reading accuracy and fluency as a result of the intervention program. Finally each
group’s data was compared to determine if there was a difference between the three treatment
groups and the different levels of intervention.

The statistical test used to see if there was a significant difference between the groups for
each assessment was a repeated measures ANOVA. These results are displayed in a bar graph.

Summary

The purpose of this study was to determine whether the Wilson’s Fundations Program
impacted the reading growth of first grade students. The formal instrument used for the pre- and
post-tests will be the AIMSweb assessments: Phoneme Segmentation Fluency and Nonsense
Word Fluency. The data collected from the pre- and post-tests of each first grade group were
compared to draw conclusions about whether or not implementing the Fundations program in the
first grade classrooms impacted the reading growth of first grade students. Informal assessments
will be the scores from the teacher made tests and report card grades for reading. These will be
described in the discussion section.
CHAPTER IV. RESULTS AND DISCUSSION OF RESULTS

The purpose of this study was to examine how the implementation of the Wilson’s Fundations Program in first grade classrooms impacted reading growth, and more specifically, the growth of phonological awareness and fluency of first grade students. In this study, reading growth was defined as the ability to segment phonemes and decode pseudo words. This investigation examined the past three years of AIMSweb results for first grade students for one building in a rural school district in Northwest Ohio. The test results were obtained from the elementary principal for the building. The scores on the following test elements were analyzed: Phoneme Segmentation Fluency (PSF), Nonsense Word Fluency (NWF), and Oral Reading Fluency (ORF). This investigation addressed the following research questions: Does employing the Wilson’s Fundations Program, impact the phonological growth and skills of first grade students? Does the length of the intervention impact student success in the program? Chapter IV includes the results of the study and then a discussion of the results to answer the research questions. The chapter concludes with a summary.

Results

The researcher compared and analyzed the fall and spring tests results for Phoneme Segmentation Fluency (PSF), and Nonsense Word Fluency (NWF), as well as the winter and spring results for Oral Reading Fluency (ORF) for first grade students for the years 2010-2011, 2011-2012, and 2012-2013. These results were analyzed using the means of each test, which are represented in Table 1, to complete a repeated measures ANOVA, which compares the three groups over time.
Table 1

*Means of Each AIMSweb Test by Year and Assessment*

<table>
<thead>
<tr>
<th>Year</th>
<th>n</th>
<th>PSF-F</th>
<th>PSF-S</th>
<th>NWF-F</th>
<th>NWF-S</th>
<th>ORF-W</th>
<th>ORF-S</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>34</td>
<td>48.59</td>
<td>51.59</td>
<td>40.74</td>
<td>63.97</td>
<td>30.85</td>
<td>50.91</td>
</tr>
<tr>
<td>2</td>
<td>34</td>
<td>48.29</td>
<td>67.76</td>
<td>48.50</td>
<td>70.50</td>
<td>53.59</td>
<td>70.65</td>
</tr>
<tr>
<td>3</td>
<td>41</td>
<td>45.95</td>
<td>76.56</td>
<td>51.61</td>
<td>82.83</td>
<td>48.59</td>
<td>73.59</td>
</tr>
</tbody>
</table>

*Phoneme Segmentation Fluency*

In the area of Phoneme Segmentation Fluency (PSF), the difference between PSF fall scores and PSF spring scores were significant for both years two and three: for year two, $t(33) = -9.92, p < .0001$ and for year three, $t(40) = -16.54, p < .0001$. Year one was not significant. The PSF scores for spring were analyzed using a repeated measures ANOVA. The ANOVA revealed the three years did differ on PSF-S scores: $F(2, 106) = 60.37, p < .0001$. The effect size (eta-squared) = .53, which is considered moderate. The PSF scores for the fall (PSF-F) were also analyzed using a repeated measures ANOVA. The ANOVA revealed the three years did not significantly differ on PSF-F scores: $F(2, 106) = .63, p = .54$.

*Nonsense Word Fluency*

In the area of Nonsense Word Fluency (NWF), the difference between NWF fall (NWF-F) scores and NWF spring (NWF-S) scores were significant for all three years: for year one, $t(33) = -9.08, p < .0001$, for year two, $t(33) = -7.55, p < .0001$ and for year three, $t(40) = -8.55, p < .0001$. The NWF scores for spring were analyzed using a repeated measures ANOVA. The ANOVA revealed the three years did differ on NWF-S scores: $F(2, 106) = 4.12, p = .0189$. The effect size (eta-squared) = .07, which is considered small. The NWF scores for fall were also
analyzed using a repeated measures ANOVA. The ANOVA revealed the three years did differ on NWF-F scores: $F(2, 106) = 4.43, p = .0142$. The effect size (eta-squared) = .08, which is considered small.

**Oral Reading Fluency**

In the area of Oral Reading Fluency (ORF), the difference between the ORF winter (ORF-W) scores and the ORF spring (ORF-S) were significant for all three years: for year one, $t(33) = -10.63, p < .0001$, for year two, $t(33) = -9.35, p < .0001$ and for year three, $t(40) = -11.97, p < .0001$. The ORF scores for spring were analyzed using a repeated measures ANOVA. The ANOVA revealed the three years did differ on ORF-S scores: $F(2, 106) = 4.69, p = .0112$. The effect size (eta-squared) = .08, which is considered small. The ORF scores for winter were also analyzed using a repeated-measures ANOVA. The ANOVA revealed the three years did differ on ORF-W scores: $F(2, 106) = 5.81, p = .004$. The effect size (eta-squared) = .10, which is considered small.

**Discussion of Results**

To answer the first research question (“Does employing the Wilson’s Fundations Program, impact the phonological growth and skills of first grade students?”), each test of the AIMSweb assessments was analyzed. According to the data, there was a significant difference between the pre- (fall or winter) and post-test scores (spring) for the three years, There was also a difference each year on the post test for all three AIMSweb screeners. According to the results listed on Table 1, the means for each of the post-tests (PSF-S, NWF-S, & ORF-S) increased each year. The largest significant difference appears to be between years one and two. Employing the Wilson’s Fundations program to first grade students does appear to impact their phonological
growth and skills. The impact appears to be positive. There were also significant differences between years two and three.

The findings from this investigation suggest the answer to the second research question, Does the length of the intervention impact student success in the program? These findings support the notion that the length of the intervention seems to impact the phonological growth of first grade students.

These findings further suggest that implementing the Wilson’s Fundations program, which is a multisensory phonics program, in the first grade classroom may increase the AIMSweb scores for phoneme segmentation fluency, nonsense word fluency, and oral reading fluency. All of those factors have been linked with a student’s overall reading skills. As previously mentioned, the National Reading Panel (NRP) reported that phonemic awareness, phonics, reading fluency, vocabulary development, and comprehension strategies are the five essential components of reading (International Reading Association, 2002). The AIMSweb screeners assess students’ phonemic awareness, phonics, and reading fluency.

Summary

This investigation examined the past three years of AIMSweb results for first grade students. By analyzing the test scores from the Phoneme Segmentation Fluency (PSF), Nonsense Word Fluency (NWF), and Oral Reading Fluency (ORF), the following research questions were able to be answered: Does employing the Wilson’s Fundations Program, impact the phonological growth and skills of first grade students? Does the length of the intervention impact student success in the program?

The data indication employing the Wilson’s Fundations program to first grade students appears to impact their phonological growth and skills in a positive manner. These data also
indicate the length of the intervention seems to impact the phonological growth of first grade students. Conclusions and implications of these findings will be discussed in Chapter V.
CHAPTER V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

During the kindergarten and first grade years, according to Denton, West, and Walston (2003), students attain the skills and knowledge in reading that will prepare them for their upcoming education and life. Dierking (1991) explains that people learn in different ways or have different learning styles. Therefore it makes sense to use a multi-sensory approach to teach reading skills during the early years, kindergarten and first grade, which is where the most impact can be made.

The purpose of this study was to examine how the implementation of the Wilson’s Fundations Program in first grade classrooms impacted reading growth, and more specifically, the growth of phonological awareness and fluency of first grade students. This investigation addressed the following research questions: Does employing the Wilson’s Fundations Program, impact the phonological growth and skills of first grade students? Does the length of the intervention impact student success in the program? Chapter V summarizes the investigation, draws conclusions from the results, and provides recommendations based on the data collected.

Summary

There are many facets to the process of learning to read. In the early years the process of decoding involves many steps. An area where many students struggle is understanding the relationship between letters and sounds. The Wilson Fundations Program (2011) focuses on teaching phonemic awareness and phonics skills through the use of a multisensory approach. According to Chall’s (1983) six stages of reading development, Stage 1 is where children begin to identify letters and their corresponding sounds. She classifies Stage 1 as students being in first and second grade. In the Wilson’s Fundations Program (2011) children are able to have this process slowed down and involve the majority of their senses to adapt to any child’s learning
style. In this program, students use their sense of sight, hearing, and touch to learn phonetic and phonic skills. The VAK (Visual, Auditory and, Kinesthetic) approach developed by Grace Fernald (1921) allows students to put the principals of phonics and phonemes into their memory and use that their memory to write and read words. Wilson’s Fundations implements the VAK-T approach. The use of movement in tracing, skywriting, and tapping letters and words adds the kinesthetic factor. But tapping and tracing also add touch or a tactile factor. As Fernald and Keller (1921) discovered, students who had become fluent readers performed better than those students who did not implement the use of kinesthetic strategies. While the students studied had delays in learning to read, including the proper kinesthetic content enabled them to normalize and improve their reading ability.

The purpose of this study was to examine how the implementation of the Wilson’s Fundations Program in first grade classrooms impacted reading growth, and more specifically, the growth of phonological awareness and fluency of first grade students. In this study, reading growth was defined as the ability to segment phonemes and decode pseudo words. This investigation examined the past three years of AIMSweb results for first grade students for one building in a rural school district in Northwest Ohio. The test results were obtained from the elementary principal for the building. The scores on the following test elements were analyzed: Phoneme Segmentation Fluency (PSF), Nonsense Word Fluency (NWF), and Oral Reading Fluency (ORF). The data indicate employing the Wilson’s Fundations program to first grade students appears to impact their phonological growth and skills in a positive manner. These data also indicate the length of the intervention seems to impact the phonological growth of first grade students.
Conclusions

The findings from this study show that there was a significant relationship between the students’ phonological abilities and their instruction in the Wilsons’s Fundations program (2002). Specifically, phonemic awareness was measured using the AIMSweb assessment, phoneme segmentation fluency. According to Share, Jorm, Maclean, and Matthews (1984) phonemic awareness was one of the best predictors, along with letter knowledge, of reading achievement. The teaching of phonemic awareness provides children with an understanding of our alphabetic structure, which is the relationship between letters and sounds in written and spoken words.

The results of this study correspond with similar findings in the study completed in the Lynn Public School System in 2002. There were noticeable gains made on each subtest in the Woodcock Reading Mastery. When the groups were the combined, the data analysis showed significant differences between the pre and post-tests. Having significant gains would suggest that the Wilson Reading System and Fundations Program would be beneficial for students in the early years to learn phonological awareness. Because most of the studies, this one included, did not have randomized samples, generalizability will be unlikely.

While the findings from this study yielded similar results to other studies of the Wilson Reading System (Stebbins, Stormont, Lembke, Wilson, & Clippard, 2012, Joshi, Dahlgren, & Boulware-Gooden, 2002) there have not been many studies completed in this area of research.

Recommendations

Recommendations for Teachers

With all of the changes in education, teachers need to ensure that they are up to date on the latest teaching methods and materials while not forgetting the staples, which will always be
important. Phonological knowledge has always been understood to be important for children to learn to read. Even during the whole language vs. phonics debate, having phonological knowledge was never totally dismissed. Educators understand even more now about the importance of balancing literacy instruction, just as they now know more about how learners learn. There are many methods available to teach phonological awareness, but only a handful that offer a multisensory approach. Because educators have discovered that each child has his or her own way of learning and that using multiple modes is beneficial to all learners, having teachers trained in Wilson’s Fundations or similar programs will be useful to all students in the early years of school (Henry, 1998).

Even if teachers are not formally training in Wilson’s Fundations or similar multisensory reading program, then it would behoove them to incorporate movement and touch into their phonics programs. For example, if they are learning how to segment a word or blend a word, the students could tap each part of their forearm as they say each sound and blend the word together. They could also incorporate the tapping that is used in Wilson’s Fundations. There is also skywriting, table writing, or any type of movement used to learn letters, sounds, and eventually words. As research has shown (Rowe, 2005) integrating movement into a lesson improves the rate of learning.

Recommendations for Teacher Educators

Based on the information presented in this research, teacher educators should include methods of teaching students using a multisensory approach; specifically, pertaining to early childhood teachers. Teachers in the early childhood programs will be learning about phonics and phonemic awareness. When these teachers are being trained, it would be beneficial to include the different styles or modes of learning. The pre-service teachers should also be exposed to
various ways to integrate the different senses while instructing and modeling. This is important, not only for the general education learner, but also the students in special education programs, especially those students with dyslexia. It is important for teacher educators to stay abreast of the current pedagogy to incorporate it into the training of pre-service teachers. With the new emphasis on dyslexia, teacher educators need to be prepared to convey this information to future teachers to ensure the needs of all students are being met.

For Future Research

While true experimental designs are not normally possible in a school setting and would seem unethical, quasi-experimental designs can still show a correlation between the independent and dependent variables. Because this program is relatively new, the number of research studies is limited. Further research needs to be completed for the results to be considered applicable to more situations or students. Research involving larger populations with different demographics and socio-economic status will allow the results to be more generalizable.

An encouraging sign is that many of the school districts in Northern Ohio are adding the Wilson’s Fundations Program to their general and Title classrooms’ academics. It is being used with Tier 1 and Tier 2 students, while a few of the districts are implementing the Wilson Reading System to their Tier 3 students in special education.

Summary

In conclusion, while there is no one answer to teaching students phonological awareness, this research has appeared to demonstrate the importance of adding multisensory techniques into their phonics and phonemic awareness instruction. There were significant differences between the years where first grade students did not have any Wilson’s Fundations instruction and those who received an accelerated year or a full year. There were also significant differences between
the first grade students who received the accelerated program and those who completed a full year. These results appear to support the research questions that were the focus of this investigation. Other contemporary research studies have also found similar results that support those findings. While this approach may not be the answer for all students, it appears to be effective for most typical first grade students.
REFERENCES


Retrieved from Northern Arizona University website:
http://jan.ucc.nau.edu/~jar/Reading_Wars.html


APPENDIX A.

HUMAN SUBJECTS REVIEW BOARD LETTER
IRBNet Board Document Published

Hillary Harms <no-reply@irbnet.org>

Wed 12/19/2012 3:17 PM

To: Mrs. Heidi Kay Oglesbee <hoglesbe@bgsu.edu>; Cindy Hendricks <cindygs@bgsu.edu>

Please note that Bowling Green State University Human Subjects Review Board has published the following Board Document on IRBNet:

Project Title: [385538-2] Does employing the Wilson’s Fundations Program, which is a multisensory approach to teaching reading, impact the phonemic awareness growth of first-grade students?
Principal Investigator: Heidi Oglesbee, BS Early Childhood Psychology/Elementary Education Certification/ K-12 Reading Endorsement

Submission Type: Revision
Date Submitted: December 7, 2012

Document Type: No Approval Needed Letter
Document Description: No Approval Needed Letter
Publish Date: December 19, 2012

Should you have any questions you may contact Hillary Harms at hmorgan@bgsu.edu.

Thank you,
The IRBNet Support Team

www.irbnet.org