Phonics Instruction for At-Risk Third Graders:

Does it Produce Higher Achievement on the OAA?

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Abstract

The increasing demand for improved student performance within significant time constraints using diminishing resources puts considerable stress on educators and administrators to find innovative strategies to promote literacy acquisition. This research examines the relationship between systematic phonics instruction and the academic achievement of at-risk third grade students on the reading portion of the Ohio Achievement Assessment (OAA). Results indicate a significant relationship between continued phonics instruction and success on the OAA for two out of five years, and demonstrate the positive effect of explicit, systematic phonics instruction on reading achievement.
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Teaching students to read is a complex task. While most children start school speaking their language with competence, they usually have little knowledge about how to read and write. The purpose of literacy instruction is to help students master the challenges of complex written language. Teaching phonics involves pointing out those complexities and offering ways for students to deal with them. Phonics is a tool used to unlock words, just as a hammer is a tool used to build a house. The point of using a hammer is to build a strong house, not to become proficient at hammering. In the same way, the point of phonics instruction is to help students become better readers, not better phonics users.

**Review of the Literature**

**Phonics Defined**

Phonics is a way of teaching reading and spelling that stresses symbol-sound relationships (Harris & Hodges, 1995). It involves the teaching of which sound is associated with a particular letter or combination of letters. In order to assign meaning to words, sentences, and texts, individual words must be decoded. Consider the word *bath*. The first sound /b/ and the ending sound /th/ each stand for single, distinct sounds. Because the vowel *a* stands alone within a closed-syllable, it takes on its short sound. Children need to understand these relationships, and be given ample opportunities to practice new understandings in order to read and write. Phonics instruction allows children to explore, internalize, and apply new knowledge so they can gradually achieve greater facility and independence with reading and writing.

The primary objective of all reading instruction is for students to become independent, enthusiastic readers and writers, empowered to think critically about text. Toward this end, it is essential that students recognize frequently-encountered words accurately and instantly.
Nonfluent readers read slowly, often with hesitations and miscues, and devote so much mental energy to decoding and word solving that comprehension is interrupted and diminished. Those students who cannot decode at least 90 percent of the words they encounter in text will have difficulty gaining appropriate meaning from what they read (Zimmerman, Padak, & Rasinski, 2008). Findings of a meta-analysis by Ehri, Nunes, Stahl, and Willow (2001) confirmed that for beginners (kindergartners and first graders), phonics instruction benefited reading miscellaneous words and decoding pseudowords. Further, phonics was found to benefit reading comprehension not only in beginning readers, but for older students with reading disabilities. These results confirm the contribution of phonics instruction to text reading.

According to Chall’s Stages of Reading Development (Henry, 2010), first and second graders learn the alphabetic code and recognize sight words in Stage 1. During Stage 2, second and third graders gain fluency and pay less attention directly to spelling-sound relationships. In second grade, children need exposure to common patterns of syllable division, compound words, and frequently-used prefixes and suffixes. Third grade is a transition year in which more multisyllabic words are introduced. These words are not necessarily harder to read once children know the common prefixes and suffixes. Unfortunately, many schools no longer offer phonics instruction in third grade.

This study will focus on struggling readers in third grade, and the importance of continued instruction in phonics throughout this critical year.

**History of Phonics Instruction**

Phonics has been taught from the time of the ancient Greeks to make written language more accessible. The first widely-used reader in the United States was *The New England Primer*, which used alphabetic rhymes, pictures, and religious content (Henry, 2010). Through the 1800s,
Noah Webster’s *American Spelling Book* was the most popular, emphasizing the sounding out of words. McGuffey’s Readers were popular between 1836 and 1920, and focused on the alphabetic/phonetic method (Corinth, 2009). In the 1930s, William S. Gray’s *Dick and Jane* series introduced the whole-word method, with controlled vocabulary, word recognition, and an emphasis on comprehension. This was later the basis for whole language instruction, with phonics instruction embedded in real, predictable texts.

Phonics as an instructional method has been controversial for decades, moving in and out of favor. It is found at the center of public debates, as much political as educational, and often so intense it has been referred to as “the reading wars” (Rycik & Rycik, 2007).

In her position paper prepared for the Secretary of Education, world-renowned reading expert and psychologist Jean Chall (1989) synthesized the research evidence from 1910 to 1965, with an update through 1983. The evidence pointed to the importance of teaching beginning readers to decode words. She suggested embracing “what works” and avoiding programs based on shaky assumptions with little evidence of success.

In 1955, Rudolph Flesch published his influential book, *Why Johnny Can’t Read*. It caused a sensation in educational circles by contending that Johnny can’t read because he was not taught phonics (Rycik & Rycik, 2007). The book was a critique of the trendy practice of teaching reading by sight, often called the *look-say* method, in which students begin to read by studying how common words look rather than by connecting letters with sounds. Flesch advocated a revival of the phonics method, such as that used by Dr. Samuel Orton in the 1920s (Campbell, Helf, & Cooke, 2008). *Why Johnny Can’t Read* became a bestseller and launched the “reading wars” that have continued ever since.
By 1967, Chall attempted to settle the war over phonics with her book, “Learning to Read: The Great Debate.” In her updated meta-analysis, she concluded that an emphasis on phonics, or decoding, was essential. According to Chall (1967), “An initial code emphasis produces better readers and spellers. Knowledge of letters and their sound values does not assure success in reading, but it does appear to be a necessary condition for success” (p. 84). She found a significant relationship between an ability to recognize letters and identify the sounds they represent, with reading achievement.

The same year, Bond and Dykstra (1967) compiled The First Grade Studies, which examined various methods of teaching beginning reading. After reviewing instructional practices in first-grade classrooms across the United States, the authors concluded that phonics was effective in teaching word identification, and found that good teachers were more important than the methods and materials used.

In the late 1960s and early 1970s, some reading experts began questioning whether schools were emphasizing phonics at the expense of comprehension. Some studies found that students taught using phonics produced more nonword mistakes than students who were taught using basal readers emphasizing the meaning of stories (Barr, 1972; Norton & Hubert, 1977). When readers made mistakes that were not real words, it was assumed they were more concerned with connecting letters with sounds than with making sense of what they were reading. Students taught with meaning-based approaches still made mistakes, but those mistakes were more likely to make sense.

During the Back-to-Basics movement of the 1980s, advocates claimed that phonics instruction would raise student achievement (Haycock, 2001). New studies revealed a correlation between decoding ability and comprehension. Rudolf Flesch published his sequel, Why Johnny
Still Can’t Read (1981), observing that children were continuing to proceed through school functionally illiterate, due to the use of unproven reading techniques in primary classrooms. His book was also an indictment of the relationship between large publishing companies and the public school system. Flesch reiterated his support of phonics instruction, specifically lauding the Orton-Gillingham method. “The outstanding characteristic of the Orton-Gillingham system is that it works. It’s based on a multisensory approach, teaching penmanship, reading, and spelling together” (p.128). It became the most widely used intervention for students with dyslexia and other reading disabilities.

Lesgold and Resnick (1982) found that decoding skill accurately predicted later reading comprehension. In a longitudinal study, Juel (1988) followed a group of 54 students over several years. She discovered that good readers at every grade level had considerably better decoding skills than poor readers.

The 1990s brought the whole language approach, based on the principle that reading is as natural a process as speaking and should be taught in meaningful whole contexts (Goodman, 1986). A number of studies compared children in whole language classrooms with those in traditional ones. Sacks and Mergendollar (1997) found that the reading achievement of lower-scoring children improved more in kindergarten whole language classrooms than in phonics-oriented classrooms. Adams (1990) countered this claim in her influential book, Beginning to Read: Thinking and Learning about Print. She favored developing decoding and other word-recognition skills during authentic reading and writing activities.

In 1995, California students who had been part of a literature-based language arts framework since 1987, scored next to last in reading proficiency among 39 states taking the National Assessment of Educational Progress Test (Rycik & Rycik, 2007). State legislators
reacted by passing laws requiring that phonics be incorporated into reading instruction in the state.

Whole language faced even more crises when the National Institute of Child Health and Human Development (NICHD) attacked the concept that reading is a natural process, and supported direct instruction in phonemic awareness and phonics (Lyon, 1998).

Some educators argued that phonics and whole language were not really opposite approaches. Eventually, some reading teachers stopped using the term whole language to avoid arguments and the term balanced literacy was suggested to describe a whole-part-whole framework (Rycik & Rycik, 2007). The goal of such programs was to develop independent readers and writers by balancing direct skills instruction with opportunities for authentic reading and writing.

To help resolve the bitter battle between advocates of phonics instruction and proponents of whole language, the International Reading Association (IRA, 1997) issued a position paper asserting “the teaching of phonics is an important aspect of beginning reading”, but cautioned that effective phonics instruction must be embedded in the context of a total reading/language arts program (p. 2).

In 1997, the NICHD, in consultation with the U.S. Secretary of Education, convened the National Reading Panel (NRP), a team of leading educators, reading researchers, teachers, educational administrators, and parents. In 2000, the National Institute for Literacy issued a report of the NRP on teaching beginning reading. The report examined scientific research on reading instruction published since 1970. The NRP reported five essential skills for learning to read: vocabulary, fluency, comprehension, phonemic awareness, and phonics (National Reading Panel, 2000). Not surprisingly, the section of the report dealing with phonics was the most
Phonics Instruction

Because the panel accepted only formal experimental studies with control groups, conclusions were based on only 38 research studies with a total of 66 comparison groups (Rycik & Rycik, 2007). The panel concluded that phonics instruction makes a significant contribution to children’s growth in reading and is a key ingredient of a successful reading program. The NRP’s emphasis on scientifically-based research had a profound impact on new legislation, and would change the way schools operated across the country. In 2001, President Bush introduced the No Child Left Behind (NCLB) Act, designed to provide more flexibility for parents, increase accountability, and emphasizes reading instruction (Taylor, Stecher, O'Day, Naftel, & Le Floch, 2010). As a result, states designed reading standards for all grade levels that became the basis of high-stakes tests. NCLB legislation required that phonics be explicitly taught to students. Its goal of closing the achievement gap has provided an important challenge for educators.

Currently, school ratings are dependent upon every child learning to read. Supplemental services and school choice are parental options if a school fails to meet certain benchmarks (Donat, 2006). The recent adoption of the Common Core State Standards (CCSS) by 46 states and the District of Columbia has caused anxiety among educators. The new standards require as much early emphasis on decoding and fluency as in NCLB (Shanahan, 2012).

Most reading educators now agree with the research that all children need phonics in order to learn how to read (Diller, 2007). However, with many districts struggling financially and forced to spread their resources thinly, this critical instruction is often dropped too soon in the reading curriculum.

The Case for Phonics Instruction beyond Second Grade

Many researchers have demonstrated the importance for young children to gain accurate and fluent word-level skills (Blachman et al., 2004). Yet, the National Reading Panel (2000)
Phonics Instruction

recommends that phonics be taught in the early grades. It is their opinion that two years of phonics instruction should be sufficient for most children. Following this advice, many schools only provide phonics instruction in first and second grades. In other schools, instruction is limited to kindergarten and first grade. Unfortunately, most phonics instruction neglects syllable and morpheme patterns that are important for upper-grade success. These techniques are only useful for the longer words found in literature and subject matter beyond 2nd grade, at which point decoding instruction becomes virtually nonexistent in most schools (Henry, 2010; Vadasay, Sanders, & Tudor, 2007). A meta-analysis by Jeynes (2008) found support for emphasizing phonics to raise reading outcomes for students, especially minority students, in second through sixth grades.

Supported by legislation, Presidents Bill Clinton and George W. Bush set the goal that all students would read at grade level by third grade. They assumed, like the NRP, that all of the necessary skills can be taught by third grade. In actuality, students are required to read few words beyond two syllables in the early grades and are often without the skills required to decode content area words in 3rd grade and beyond (Zimmerman, Padak, & Rasinski, 2008).

The Ohio Department of Education’s Third Grade Reading Guarantee changes the way Ohio schools approach the goal set forth by the Presidents. The plan prescribes interventions for K-2 students not on track to succeed, and retention for 3rd graders who don’t meet the required cut scores on the Ohio Achievement Assessment (Ohio Department of Education, 2013). While a reading improvement plan will be tailored to the child’s specific needs, the intervention services must include intensive, explicit, and systematic phonics instruction. In a similar program in Florida, phonics instruction was on the short list of research-based interventions (Florida
Department of Education, 2009). Ohio may find many districts that fail to provide the needed instruction in phonics will be arranging for phonics interventions instead.

**Students with Disabilities**

Over half of the children in the US are struggling to read and would benefit from reading interventions (Begeny, Krouse, & Mitchell, 2009). Students identified with reading deficits generally have difficulty with phonological processing, using sound-spelling relationships to decode unfamiliar words, reading fluently, and using strategies to comprehend text (Taylor et al., 2010).

Epidemiological data indicate that if students’ reading skills haven’t improved by the end of third grade, these children will have considerable difficulty overcoming their slow and unsuccessful start in reading (Lyon, 1998). In fact, 74% of children who were poor readers at the end of third grade were likely to be poor readers at the end of ninth grade. Negative economic and emotional consequences often follow poor readers into adulthood.

For children in the second and third grades who are at-risk for reading failure, explicit and systematic reading instruction that emphasizes the phonologic and orthographic connections in words is especially important (Lyon & Fletcher, 2001). There is little evidence, however, that such instruction is routinely provided. Many children, despite limited reading skills, are not getting the help they need at the time they could most profit from such help because schools are hesitant to label younger children with learning disabilities. Children who have not yet met the required discrepancy between IQ and achievement must continue to “wait-to-fail,” falling even further behind before getting assistance (Stuebing, Fletcher, LeDoux, Lyon, Shaywitz, & Shaywitz, 2002).
Those second- and third-grade students with identified reading disabilities responded to interventions incorporating both explicit skill-based phonics instruction and frequent opportunities for text-based reading (Blachman et al., 2004; Ehri, Nunes, Stahl, & Willows, 2001). At posttest, children in the intervention group showed significantly greater gains than children in the control group in real word and nonword reading, reading rate, passage reading, and spelling and maintained their gains at a one-year follow-up. The intervention resulted in an accelerated growth trajectory for those receiving the intervention compared with the control, providing additional evidence that when struggling readers receive explicit and systematic instruction in the alphabetic principle, and frequent opportunities for text-based reading, they learn at a faster rate than children getting standard school-based treatments. The rate of growth of children receiving intervention slowed one year after they returned to standard instruction. The challenge in translating the research to practice is to alter standard instruction so that an accelerated growth trajectory is the norm, rather than the exception, for low-achieving children.

The need for a longer or more intense program was reinforced by the finding that lower-skilled children needed to complete more lessons devoted to lower level skills (e.g., learning to read simple closed syllables, such as sun) than higher-skilled children. Consequently, lower-skilled children were less likely than the higher-skilled children to complete the program and have exposure to all six syllable patterns in English. A longer or more intense program may be especially important for the lowest-achieving children (Blachman et al., 2004).

Systematic phonics instruction has been shown to produce significant effects among children with reading disabilities (Ehri, Nunes, Stahl, & Willow, 2001). Explicit instruction can improve not only the word reading and spelling skills of poor readers, but comprehension as well (RAND Reading Study Group, 2002; Williams et al., 2002).
One Local Format for Implementation

The No Child Left Behind Act requires schools to evidence adequate yearly progress (AYP) in reading (as well as math and science) for all students, including those with disabilities. (Browder, Wakeman, Spooner, Ahlgrim-Delzell, & Algozzine, 2006). Guided reading is a teaching approach that can be used with all readers, struggling or proficient. It is designed to meet the varying instructional needs of all the students in the classroom, to teach students to read increasingly difficult texts with understanding and fluency, and to promote the construction of meaning while using strategies to figure out unfamiliar words that deal with complex sentence structures (Abbott, Dornbush, Giddings, & Thomas, 2012).

Guided reading provides the necessary opportunities to explicitly teach reading skills targeting the student’s individual needs. It reinforces problem-solving, comprehension, and decoding, and provides opportunities to establish good reading habits and strategies. The most critical element is the skillful teaching that helps young readers learn the effective strategies they need to become independent readers (Iaquinta, 2006).

Guided reading is an important best practice, associated with today’s balanced literacy instruction. It has quickly become one of the most important contemporary reading instructional practices in the United States.

ABC Primary School began offering guided reading in a Book Club setting nine years ago. Each student in first through third grade is leveled using the Diagnostic Reading Assessment 2 (DRA2). Students are placed in small groups of 4-6 students based on their reading levels. Flexible and creative scheduling for small group instruction provides access to curricula emphasizing explicit instruction and uses data to monitor progress. Using running records, teachers can find patterns in the errors they observed and they can use this information to prepare
to drive further instruction (Clay, 2002). Groups last thirty-five to fifty minutes and are fluid, with high-performing students moving on to groups offering more challenging work, while struggling students may be moved into groups that will allow them more time to practice needed skills until mastery can be achieved.

In ABC’s program, the students in Tier 1 Book Clubs move to groups hosted by the general education teachers in their classrooms. Students in Tier 2 attend in the Title One room, with teachers trained in intervention and who are reading-endorsed. Tier 3 students attend their Book Clubs in a resource setting, under the guidance of special educators.

While ability grouping is a controversial instructional technique, researchers suggest that its use, in combination with differentiated curriculum and instruction, can result in significant gains in achievement (McCoach, O’Connell, & Levitt, 2006). Instruction in phonics encompasses the kinds of lessons that teachers present, the assignments they give, and the materials they use. In the first and second grade Book Clubs, phonics instruction is explicit and systematic, and is presented in every group, appropriate for their level. The Wilson Reading Program Fundations is used, providing direct instruction to students in each tier of a response-to-intervention program. Based on Orton-Gillingham principles, Fundations is a highly-structured remedial program that directly teaches the structure of the language to students who have been unable to learn with other teaching strategies, or who may require multisensory language instruction (Gorman, 1997). Given the word Jane, students learn that the J sounds like /j/, the n makes the sound /n/, and the a carries its long sound, because of the final silent e. Bradford, Shippen, Alberto, Houchins, and Flores (2006) found that students with moderate intellectual disabilities could make gains in phonics through using a direct instruction approach to decoding (Ganz & Flores, 2009; Browder, 2012).
Lessons are designed to actively engage children and to invoke multisensory learning. Teachers emphasize application of decoding skills beyond the lessons. They repeatedly model the decoding strategies for students, allowing them to internalize them. An at-home component is used to promote generalization of skills, and to encourage parental awareness and involvement. Students receive multiple opportunities to practice new skills using high-quality literature.

Book Clubs in third grade are the exception. At the request of the classroom teachers, the top-performing half of each class remains in their homeroom for Tier 1 instruction. Their resulting groups can include Basic, Proficient, Accelerated, and Advanced readers. The groupings are determined by the classroom teachers, with DRA and Ohio Achievement Assessment (OAA) data to be considered. While their peers in Tiers 2 and 3 are receiving guided instruction with a strong phonics component, the Tier 1 students do not receive explicit, systematic instruction in phonics. Each teacher has flexibility in creating the type of instruction used. Third grade Tier 1 teachers did not use the Fundations Program, or any phonics program, in any of the years reviewed.

As found in the literature reviewed, an emphasis on phonics produces better readers and, in fact, raises overall student achievement. Data from past years shows that excluding phonics from a daily reading curriculum is not the best practice for at-risk third grade students. In fact, the analysis finds that students continuing to receive phonics instruction have greater average gains on the Ohio Achievement Assessment than their peers whose instruction lacks a phonics component.
Method

Location

ABC Primary is located in a rural Ohio district that serves 1,240 students. There are 59 students enrolled in the primary school, which includes kindergarten through 5th grades. Students are primarily white (93%), and 42.8% are enrolled in the free and reduced lunch program. The district spends approximately $8,126 per pupil and 11.5% of students receive special education services. In 2012, more than 75% of ABC’s third grade students passed the reading portion of the OAA for the first time.

Participants

All third grade students at ABC Primary were considered. An attempt was made to select students of similar reading ability. Based on their fall Developmental Reading Assessment (DRA2), students were ranked by their reading levels, fluency scores, and comprehension scores. Students with diagnosed disabilities, and those reading at the lowest levels were not considered. Most of these students received Tier 3 reading instruction. Students reading at the highest levels and those identified as talented and gifted (TAG) were not considered. These students received Tier 1 instruction in the classrooms, or with the TAG instructor.

The remaining students, considered at-risk and/or average readers, were split between the classrooms and the Title 1 reading lab for instruction. Table 1 provides an example of the ranking of ten readers, and how they were divided.
Table 1

*Ranking of Students and Assignment to Groups*

<table>
<thead>
<tr>
<th>Name</th>
<th>DRA Level</th>
<th>Fluency</th>
<th>Comprehension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allie</td>
<td>28</td>
<td>14/16</td>
<td>20/28</td>
</tr>
<tr>
<td>Bishop</td>
<td>28</td>
<td>12/16</td>
<td>23/28</td>
</tr>
<tr>
<td>Chris</td>
<td>28</td>
<td>13/16</td>
<td>20/28</td>
</tr>
<tr>
<td>Debbie</td>
<td>24</td>
<td>12/16</td>
<td>22/28</td>
</tr>
<tr>
<td>Elaine</td>
<td>24</td>
<td>10/16</td>
<td>23/28</td>
</tr>
<tr>
<td>Farah</td>
<td>24</td>
<td>11/16</td>
<td>21/28</td>
</tr>
<tr>
<td>Gwen</td>
<td>24</td>
<td>9/16</td>
<td>24/28</td>
</tr>
<tr>
<td>Hank</td>
<td>24</td>
<td>10/16</td>
<td>21/29</td>
</tr>
<tr>
<td>Izzy</td>
<td>24</td>
<td>11/16</td>
<td>19/28</td>
</tr>
<tr>
<td>Jack</td>
<td>24</td>
<td>11/16</td>
<td>21/28</td>
</tr>
</tbody>
</table>

The DRA recommendations state that students should score between 11-14 for instructional grouping for fluency, and 19-25 for comprehension. Those scoring beyond those parameters should be evaluated at the next level to assure students receive instruction at their “just right” reading level.

The five students in the top rows received reading instruction in the classrooms, while the five in the lower rows were chosen for Title 1 instruction. Any of these students could have received appropriate instruction in either location. They showed similarities in many areas, and
splitting them between the two instructional settings was difficult each year. Input was sought from interventionists, classroom teachers, and reading-endorsed Title 1 teachers to make placement decisions.

Table 2 shows the number of students chosen for the research, compared to the number of students in the entire third grade class each year. Due to the room size and number of teachers, Title 1 accepts approximately 24 students per grade level per year. An attempt was made to balance the number of students in each group.

Table 2

*Number of Participants by Year*

<table>
<thead>
<tr>
<th>YEAR</th>
<th>Participants</th>
<th>Entire Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>22</td>
<td>111</td>
</tr>
<tr>
<td>2</td>
<td>24</td>
<td>88</td>
</tr>
<tr>
<td>3</td>
<td>17</td>
<td>86</td>
</tr>
<tr>
<td>4</td>
<td>24</td>
<td>120</td>
</tr>
<tr>
<td>5</td>
<td>20</td>
<td>70</td>
</tr>
</tbody>
</table>

Once assigned, students received small-group reading instruction four days a week for the entire school year in their designated locations. Session length varied from year to year depending on the schedule, but ranged from 35 to 50 minutes.

In choosing participants for this research, at-risk/average readers with the most similar fall reading levels and scores were considered. In other words, students close to each side of the dotted line in Table 1 were included. Prior to 2007, the data was inconsistent or nonexistent, so participants were chosen from each school year from 2007-2008 to 2011-2012. Years are labeled 1 through 5 instead of by the actual year, and are not necessarily in chronological order. This was done to protect the identities of the participants.
Instrumentation

Student data was retrieved from Book Club folders. Folders were made for each student at ABC Primary during their kindergarten year, or from the point they moved into the district. Folders contained information such as Kindergarten Readiness Assessment – Literacy (KRA-L) scores, DRA scores and tests, Book Club levels, guided reading book lists, benchmark tests, Wilson phonics assessments, and work samples. Folders were kept in the Title 1 reading lab, or in office file cabinets. All teachers had access to the folders, and often used folder data when students were tested for special education services. In a few cases a student folder was missing, so the student was not eligible for this study. Students moving into or out of the district were also omitted.

Scores from the third grade fall and spring Ohio Achievement Assessment (OAA) were obtained from ABC Primary. The reports were generated from the Ohio Department of Education for district use, and were used with written permission from the Special Programs Coordinator.

Procedures/Intervention

After the initial evaluation of students for placement in reading groups, reading instruction began. Students received small-group reading instruction based on their reading strengths and needs. Students were given the Ohio Achievement Assessment (Reading portion) in the fall, and scores were recorded, serving as a baseline measure for each student.

Instruction in the Title 1 room was provided by three teachers, each with a small-group at separate tables. Instruction included direct, explicit, systematic phonics presented using Wilson Fundations, providing research-validated strategies for daily reading instruction. Lessons focused on carefully sequenced skills such as decoding, vocabulary, spelling, and fluency. Instruction was multisensory, actively engaging students. Critical thinking, speaking, and listening skills
were practiced as well. Accompanying guided reading mini-lessons allowed students multiple opportunities to practice new skills and promoted generalization to other settings.

Instruction in the classrooms included research-based best practices, but the format was left up to highly-qualified teachers. The implementation of reading instruction was not monitored, but teachers did submit current student reading levels every nine weeks. Some teachers provided book lists and lessons plans used in guided reading. Each spring, students took the OAA again, and the scores were recorded.

**Data Analysis**

For the purposes of data analysis, each class/year was presented separately. Every year in education presents an array of variables. Teachers are hired and retire, educational initiatives come into and out of fashion, professional development occurs, and research reveals new strategies and methods. Most importantly, the entire population of students changes from year to year. It was important to find whether, amid all other changes, the instruction of phonics would continue to contribute to student achievement.

For each class, raw gains were calculated by subtracting every student’s fall score from their spring score, and a percentage gain/loss was determined. An independent t-test was used to compare the means of each class type for each year, since the data was from two unrelated groups. For each test, the null hypothesis was that the means were equal.

Both the Title 1 and classroom groups received high-quality instruction, and progressed typically through the third grade curriculum.
Results

Based on an analysis of five years of reading scores for 107 students overall, the results indicate that at-risk third graders benefit from phonics reading instruction.

Year One

For year 1 (see Table 3), this study involved 11 students that received Title 1 services. Their mean gain was 33.36 ($\sigma=20.466$) and the mean percent gain was 9.03% ($\sigma=.05981$). Also included in year 1 were 10 students that received classroom instruction. These students had a mean gain of .80 ($\sigma=14.258$) and a mean percent gain of .23% ($\sigma=.03612$).

Table 3

Descriptive Statistics by Group for Year 1

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Title</td>
<td>11</td>
<td>33.36</td>
<td>20.466</td>
</tr>
<tr>
<td>Classroom</td>
<td>10</td>
<td>.80</td>
<td>14.258</td>
</tr>
<tr>
<td>Percent Change</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Title</td>
<td>11</td>
<td>.0903</td>
<td>.05981</td>
</tr>
<tr>
<td>Classroom</td>
<td>10</td>
<td>.0023</td>
<td>.03612</td>
</tr>
</tbody>
</table>

An independent sample t test between the Title 1 group and the classroom group resulted in a t-score of 4.261, a p-value less than .001, and a 95% confidence interval that the difference between the true average gains of the two groups is between 16.499 and 48.628. For percent gain, the independent t-test resulted in a t-score of 4.123, a p-value of .001, and a 95% confidence interval that the difference between the true average percent gains of the two groups is between 4.29% and 13.31%. Using $\alpha = .05$, the year 1 results statistically significant for raw gains and percent gains; and reject the null hypothesis that the two groups had equal means (see Table 4).
Table 4

*Independent Samples Test, Year 1*

<table>
<thead>
<tr>
<th></th>
<th>t-test for Equality of Means</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>t</td>
<td>df</td>
<td>Sig. (2-tailed)</td>
<td>Mean Difference</td>
</tr>
<tr>
<td>Gain</td>
<td>Equal variances not assumed</td>
<td>4.261</td>
<td>17.869</td>
<td>.000</td>
<td>32.564</td>
</tr>
<tr>
<td>Percent Gain</td>
<td>Equal variances not assumed</td>
<td>4.123</td>
<td>16.656</td>
<td>.001</td>
<td>0.08801</td>
</tr>
</tbody>
</table>

**Year Two**

For year 2 (see Table 5), there were 24 students, half receiving Title 1 services, and half receiving instruction in the classroom. The mean gain of the Title 1 students was 25.50 ($\sigma=20.456$), with a mean percent gain was 7.19% ($\sigma=.06211$). In the classroom, students showed a mean gain of 12.50 ($\sigma=11.619$) and a mean percent gain of 3.20% ($\sigma=.02945$).

Table 5

*Descriptive Statistics by Group for Year 2*

<table>
<thead>
<tr>
<th></th>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gain</td>
<td>Title</td>
<td>12</td>
<td>25.50</td>
<td>20.456</td>
</tr>
<tr>
<td></td>
<td>Classroom</td>
<td>12</td>
<td>12.50</td>
<td>11.619</td>
</tr>
<tr>
<td>Percent Change</td>
<td>Title</td>
<td>12</td>
<td>.0719</td>
<td>.06211</td>
</tr>
<tr>
<td></td>
<td>Classroom</td>
<td>12</td>
<td>.0320</td>
<td>.02945</td>
</tr>
</tbody>
</table>

The independent sample t-test between the two groups resulted in a t-score of 1.914, a p-value of .072, and a 95% confidence interval that the difference between the true average gains of the two groups is between -1.302 and 27.302. For percent gain, the independent t-test resulted in
a t-score of 2.014, a p-value of .061, and a 95% confidence interval that the difference between the true average percent gains of the two groups is between .216% and 8.21%. Using $\alpha = .05$, the year 2 results are not statistically significant for raw gains and percent gains, and the null hypothesis is not rejected (see Table 6).

Table 6

*Independent Samples Test, Year 2*

<table>
<thead>
<tr>
<th></th>
<th>t-test for Equality of Means</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>t</td>
</tr>
<tr>
<td>Gain</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.914</td>
</tr>
<tr>
<td>Percent Gain</td>
<td>2.014</td>
</tr>
</tbody>
</table>

**Year Three**

The year 3 study (see Table 7) involved eight Title 1 students with a mean gain of 39.50 ($\sigma=14.081$) and the mean percent gain was 10.64% ($\sigma=.04371$). Year 3 included nine students that received classroom instruction. These students had a mean gain of 10.11 ($\sigma=18.765$) and a mean percent gain of 2.55% ($\sigma=.04615$).
Table 7

*Descriptive Statistics by Group for Year 3*

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Title</td>
<td>8</td>
<td>39.50</td>
<td>14.081</td>
</tr>
<tr>
<td>Classroom</td>
<td>9</td>
<td>10.11</td>
<td>18.765</td>
</tr>
<tr>
<td>Percent Change</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Title</td>
<td>8</td>
<td>.1064</td>
<td>.04371</td>
</tr>
<tr>
<td>Classroom</td>
<td>9</td>
<td>.0255</td>
<td>.04615</td>
</tr>
</tbody>
</table>

The t-test between the Title 1 group and the classroom group resulted in a t-score of 3.676, a p-value of .002, and a 95% confidence interval that the difference between the true average gains of the two groups is between 12.312 and 46.466 (see Table 8). For percent gain, the independent t-test resulted in a t-score of 3.708, a p-value of .002, and a 95% confidence interval that the difference between the true average percent gains of the two groups is between 3.436% and 12.736%. Using $\alpha = .05$, the year 3 results are statistically significant for both raw gains and percent gains; and reject the null hypothesis that the two groups had equal means.

Table 8

*Independent Samples Test, Year 3*

<table>
<thead>
<tr>
<th></th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
<th>Mean Difference</th>
<th>Std. Error Difference</th>
<th>95% C.I. of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gain</td>
<td>3.676</td>
<td>14.635</td>
<td>.002</td>
<td>29.389</td>
<td>7.994</td>
<td>12.312 46.466</td>
</tr>
<tr>
<td>Percent Gain</td>
<td>3.708</td>
<td>14.924</td>
<td>.002</td>
<td>.08086</td>
<td>.02181</td>
<td>.03436 .12736</td>
</tr>
</tbody>
</table>
Year Four

In year 4 (see Table 9), this study involved 14 students that received Title 1 services. Their mean gain was 16.29 ($\bar{\sigma}=11.698$) and the mean percent gain was 4.23% ($\bar{\sigma}=0.03072$). Ten students in year 4 were included, and they showed a mean gain of 14.20 ($\bar{\sigma}=10.644$) and a mean percent gain of 3.54% ($\bar{\sigma}=0.02732$).

Table 9

Descriptive Statistics by Group for Year 4

<table>
<thead>
<tr>
<th>Gain</th>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>14</td>
<td>16.29</td>
<td>11.698</td>
<td></td>
</tr>
<tr>
<td>Classroom</td>
<td>10</td>
<td>14.20</td>
<td>10.644</td>
<td></td>
</tr>
<tr>
<td>Percent Change</td>
<td>Title</td>
<td>14</td>
<td>0.0423</td>
<td>0.03072</td>
</tr>
<tr>
<td></td>
<td>Classroom</td>
<td>10</td>
<td>0.0354</td>
<td>0.02732</td>
</tr>
</tbody>
</table>

An independent sample t-test between the Title 1 group and the classroom group resulted in a t-score of .454, a p-value less of .655, and a 95% confidence interval that the difference between the true average gains of the two groups is between -7.479 and 11.650. For percent gain, the independent t-test resulted in a t-score of .574, a p-value of .572, and a 95% confidence interval that the difference between the true average percent gains of the two groups is between -1.796% and 3.164%. Using $\alpha = 0.05$, the year 4 results are not statistically significant for raw gains and percent gains, and the null hypothesis is not rejected (see Table 10).
Table 10

*Independent Samples Test, Year 4*

<table>
<thead>
<tr>
<th></th>
<th>t-test for Equality of Means</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>t</td>
<td>df</td>
<td>Sig. (2-tailed)</td>
<td>Mean Difference</td>
<td>Std. Error Difference</td>
</tr>
<tr>
<td>Percent Gain</td>
<td>.574</td>
<td>20.835</td>
<td>.572</td>
<td>.00684</td>
<td>.01192</td>
</tr>
</tbody>
</table>

**Year Five**

For year 5 (see Table 11), the study included 12 Title 1 students. Their mean gain was 23.67 (σ=13.459) and the mean percent gain was 6.03% (σ=.03458). Eight students reading in the classroom had a mean gain of 18.63 (σ=7.308) and a mean percent gain of 4.60% (σ=.01868).

Table 11

*Descriptive Statistics by Group for Year 5*

<table>
<thead>
<tr>
<th></th>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gain</td>
<td>Title</td>
<td>12</td>
<td>23.67</td>
<td>13.459</td>
</tr>
<tr>
<td></td>
<td>Classroom</td>
<td>8</td>
<td>18.63</td>
<td>7.308</td>
</tr>
<tr>
<td>Percent Change</td>
<td>Title</td>
<td>12</td>
<td>.0603</td>
<td>.03458</td>
</tr>
<tr>
<td></td>
<td>Classroom</td>
<td>8</td>
<td>.0460</td>
<td>.01868</td>
</tr>
</tbody>
</table>

The independent sample t-test between the Title 1 group and the classroom group resulted in a t-score of 1.080, a p-value of .295, and a 95% confidence interval that the difference between the true average gains of the two groups is between -4.781 and 14.865. For percent gain, the
independent t-test resulted in a t-score of 1.195, a p-value of .248, and a 95% confidence interval that the difference between the true average percent gains of the two groups is between -1.09% and 3.95%. Using $\alpha = .05$, the year 5 results are not statistically significant for raw gains and percent gains, and the null hypothesis is not rejected (see Table 12).

Table 12

*Independent Samples Test, Year 5*

<table>
<thead>
<tr>
<th></th>
<th>t-test for Equality of Means</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>t</td>
</tr>
<tr>
<td>Gain</td>
<td></td>
</tr>
<tr>
<td>Equal variances</td>
<td></td>
</tr>
<tr>
<td>not assumed</td>
<td>1.080</td>
</tr>
<tr>
<td>Percent Gain</td>
<td></td>
</tr>
<tr>
<td>Equal variances</td>
<td></td>
</tr>
<tr>
<td>not assumed</td>
<td>1.195</td>
</tr>
</tbody>
</table>

This analysis reveals that continuing to teach phonics in a third grade reading curriculum yielded statistically significant results in two of five years. Raw gains were higher for Title 1 students every year (see Table 13).

Table 13

*Average Raw Gain Scores*

<table>
<thead>
<tr>
<th>Year</th>
<th>Title 1 Students</th>
<th>Classroom Students</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>33.36</td>
<td>.80</td>
<td>32.56</td>
</tr>
<tr>
<td>2</td>
<td>25.50</td>
<td>12.50</td>
<td>13.00</td>
</tr>
<tr>
<td>3</td>
<td>39.50</td>
<td>10.11</td>
<td>29.39</td>
</tr>
<tr>
<td>4</td>
<td>16.29</td>
<td>14.20</td>
<td>2.09</td>
</tr>
<tr>
<td>5</td>
<td>23.67</td>
<td>18.63</td>
<td>5.04</td>
</tr>
</tbody>
</table>
Discussion

This research sought to determine if there was a relationship between the performance of students receiving intensive and systematic phonics instruction and their performance on the Reading portion of the OAA between fall and spring. The results indicate that third grade students benefit when direct phonics instruction (intervention group) is incorporated into a reading program beyond second grade as compared to students receiving regular classroom reading instruction (control group). While the hypothesis was supported by the data for only two of the five years, the raw gains were higher for the Title 1 students every year. Based on a review of the current literature, professionals agree that an emphasis on phonics is a necessary condition for reading success (Chall, 1967). This study adds to the existing, though sparse, evidence that supports the use of phonics beyond second grade for at-risk readers.

Supporting previous studies (Blachman et al., 2004; Diller, 2007; Ehri, Nunes, Stahl, & Willows, 2001; Henry, 2010; Juel, 1988; Lesgold & Resnick, 1982; Lyon & Fletcher, 2001; Vandasay, Sanders, & Tudor, 2007), the above findings show that when students receive quality phonics instruction, delivered systematically, sequentially, and with integrity, their performance improves. Participants in this research actually performed better than their peers not receiving phonics, even when those peers were slightly more accomplished readers. This research demonstrates the superiority of a reading curriculum incorporating a phonics component, as previously shown by Lyon and Fletcher (2001). In a review of programs for struggling readers across all categories of programs, almost all successful programs had a strong emphasis on phonics (Slavin, Lake, Davis, & Madden, 2011). The authors suggest that Tier 1 teachers (classroom) can enhance the learning of low achievers by adopting structured phonetic small-group instruction.
The finding that Title 1 students in the treatment group outperformed students in the control group is striking given that all third graders were provided with small-group guided reading instruction as part of the general curriculum. This highlights the fact that well-structured reading programs can deliver the kind of systematic, intensive phonics instruction required for at-risk readers.

Certain limitations should be taken into consideration in any attempt to generalize these results. First, the sample size did not necessarily represent the general population.

A second limitation was the variation in reading expertise and instructional support provided by the different general education teachers in the study. While it was observed that all Title 1 students received systematic phonics instruction in guided reading, it was impossible to discern whether the classroom teachers implemented guided reading consistently. Because teachers were from four different classrooms, it is not known if they used 100% of the class time for guided reading instruction. The quality of instruction is not in question, it was just not observed. Therefore, variable teacher characteristics may have impacted the reading achievement of some students.

Finally, as previously explained, the years are not listed chronologically, and the research does not attempt to reveal trends over time.

**Recommendations**

Although the hypothesis was not supported by statistical significance for every year of available data, these results do not contradict the hypothesis. Title 1 students outperformed the slightly more proficient classroom readers every year. Further research should include a longitudinal approach to test the hypothesis that participating students can maintain improved reading achievement beyond the third grade OAA.
Implications for Practice

These results have implications for the design and implementation of reading programs that incorporate phonics instruction as a key piece of the instructional framework.

The Wilson Fundations Program is not unique in its impact on student achievement. In a comparison of seven specific programs to teach systematic phonics, the programs did not differ statistically in their effectiveness, with all producing a significant advantage in reading (Ehri, Nunes, Stahl, & Willow, 2001). There are many research-based phonics programs from which to choose that would enhance the instruction of at-risk readers.

Teachers need to be armed with several methods of effective reading instruction in order to help students become proficient readers by third grade.

Conclusions

Quality classroom instruction is one line of defense against reading failure. Last year, ABC Primary celebrated their first year with more than 75% of students passing the third grade Reading OAA. This year, the phonics component for Title 1 students was discontinued. Given this research, a new hypothesis emerges - the OAA reading scores for at-risk readers will drop to below 75% passing for the current school year.

Overall, the findings offer evidence for continuing systematic phonics instruction. Administrators and teachers are compelled and encouraged to select a core reading curriculum that includes its systematic, explicit instruction. Teachers need a full repertoire of strategies in order to help students develop literacy.
References


doi:http://dx.doi.org.proxy.library.ohiou.edu/10.1007/s10803-008-0602-6


RAND Reading Study Group. (2002). Reading for understanding: Toward an R&D program in reading comprehension. Santa Monica, CA: RAND.


