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The Role of Phonemic Awareness in Reading Development in the Primary Grades

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THE ROLE OF PHONEMIC AWARENESS IN READING DEVELOPMENT IN THE PRIMARY GRADES

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Abstract

Reading is a multifaceted skill, which requires careful and explicit instruction. The majority of students do not acquire the skill of reading naturally. The teaching of reading is important so students do not become struggling readers. Phonemic awareness is a research-based skill to grow early literacy development. The literature review researched if phonemic awareness would assist students in the early stages of learning to read, the involvement phonemic awareness has with assisting struggling readers, and the effects of small group interventions in phonemic awareness. A total of 30 studies were reviewed with focus on phonemic awareness, interventions, early reading development and struggling readers in the primary grades. The research findings highlighted the importance for direct and explicit phonemic awareness in primary grades (Allor, 2002). Assessment results from the studies showed continuous positive effects in skills directly related to phonemic awareness. Findings also suggested struggling readers benefited from small group interventions in phonemic awareness (Elbro & Peterson, 2004). The literature review confirmed educators can make the journey of learning to read a bit easier by teaching phonemic awareness in the primary grades.

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CHAPTER 1

Context

Reading is a fundamental skill. People must read to understand and learn new information. The skill of reading has been used for centuries. The Bible references reading in John 1:1, which says "In the beginning was the Word, and the Word was with God, and the Word was God." God's people were and are still being called in His name to read to understand His righteous path. Reading is also explored in Nehemiah 8:8, which says "They read from the book, from the law of God, translating to give the sense so that they understood the reading." Since the early stages of our history, people have read to understand and develop knowledge.

Fast-forward to the 1700's and 1800's, students were taught the alphabet, practiced with sound-letter correspondences, and completed spelling tests to ensure the skill of reading was achieved (Richardson, 1997). The history of reading has evolved over time, yet the importance for students to read has remained top priority. Students enter elementary school with a range of abilities and backgrounds, yet students are required to apply the skills of reading as soon as kindergarten. Primary educators have the important job of ensuring students learn early literacy skills.

According to the United States Department of Education, only one-third of fourth-graders have the reading needed to be considered proficient (Sohn, 2020). The majority of students need to be taught how to be better readers. Research-based instructional approaches need to be used in the classroom to support reading development in students. The National Early Literacy Panel (2008) found kindergarten students who fell behind their peers in literacy tasks struggled with reading skills, such as comprehension, in third grade. The lack of reading skills in students as early as kindergarten has a direct impact in their future education journey. Students who have

performed poorly in early reading skills frequently exhibit low academic measures throughout their education career (Nancollis et al., 2005). Since reading is a skill that takes time and effort, it is important to look at the positive attributes towards being a successful reader.

Reading Debate. School stakeholders question the best practices in teaching students to read. There are many skills required in learning to read. Phonics, alphabetic principle, phonological awareness and decoding skills have all been debated among professional educators on which is the most important skill in learning to read (Williams, 1980). However, phonemic awareness is one particular skill that builds students awareness of sounds in words to develop their reading skills. Phonemic awareness is the ability to manipulate sounds within a given word (Snow et al., 1998). The skill has been debated among school stakeholders on the effectiveness in learning to read. The historical evaluation of phonemic awareness has been researched on early reading success, as well as determining if the skill helps struggling readers. Phonemic awareness is a specific skill that has been researched by many university professors, professional educators, and reading specialists to understand the effects of the skill on early reading.

Theoretical Framework

A student's ability to read involves many moving parts. In 1997, Congress sought to assess those moving parts and further understand research-based knowledge, including the effectiveness of teaching students to read (Langenberg, 2000). The National Reading Panel was created and charged with providing a report on school readiness and student understanding in reading. Since then, the panel has reported on best practices in reading to congress and educational stakeholders. After research and analysis of data, The National Reading Panel identified phonemic awareness and letter knowledge as the two best school-entry predictors of how well students will learn to read during their first two years in school (Langenberg, 2000).

The report on phonemic awareness created interest among teachers, principals, and publishers in programs to support the growth in early reading skills (Langenberg, 2000). The importance of phonemic awareness is examined based on 30 research studies to understand the early reading skill in the primary grades.

Hollis Scarborough, an American psychologist and literacy expert, created a visual called The Reading Rope. The Reading Rope serves as a visual representation of the many strands of learning to read (VanHekken, 2021). Reading involves many components and Scarborough was able to create a visual to demonstrate the strands of learning to read. The rope is divided into two parts, focusing on language comprehension and word recognition. The word recognition strand involves phonological awareness, decoding, and sight recognition (VanHekken, 2021). When a student struggles to decode words automatically, a teacher is able to identify the area of weakness and refer to Scarborough's rope. Interventions and instruction would focus on foundational reading skills such as phonemic awareness and phonics. The Scarborough's rope confirms the importance of phonemic awareness as a key strand in learning to read.

One particular skill in learning to read involves phonological awareness, which is part of the strand in Scarborough's rope of learning to read. Phonological awareness is a thought process for individuals to understand sound arrangements of language (Juel, 1988). Phonological awareness is an umbrella term for multiple components of language development. Words in sentences, syllables, onset-rime, alliteration and phonemic awareness are all under the term of phonological awareness (Nation & Hulme, 1997). Professionals within education have examined the specific role of phonemic awareness in learning to read. Research has suggested phonemic awareness has a strong predictive factor in learning to read (Hoien et al., 1995; Muter et al., 1998; Nation & Hulme, 1997; Snow et al., 1998). The Simple View of Reading, a scientific

theory, states a student's ability to understand written words depends on how well they sound out the words and understand the meaning of those words (Farrell et al., 2019). The ability to sound out words directly correlates to the skill of phonemic awareness, since decoding words is done by identifying and knowing individual phonemes. The literature review examined research studies in the area of phonemic awareness to determine the relationship, if any, with early reading success.

Research has shown the correlation between constructivism and early reading skills, such as phonemic awareness. Constructivism, a theory in education, recognizes the importance of a child's prior knowledge in order to construct new learning and understanding (Richardson, 1997). Reading is a multifaceted skill that builds on prior knowledge of literacy skills. Phonemic awareness requires prior knowledge of sentence segmentation, syllable segmentation, and onset-rime blending to become aware of individual phonemes (Bradley & Bryant, 1991). The constructivist theory provides evidence that learning to read is layered and requires background knowledge of skills to build on another new set of skills.

Rationale

The skill of reading is complex and difficult for many elementary-aged children. It is estimated around 10 million students struggle with reading (Sohn, 2020). However, many students can overcome reading difficulty if skills are being taught at early stages of their education. The literature review examined early reading and specific skills that supported the art of learning to read. Phonemic awareness, the ability to recognize sounds within a given word, has been researched extensively to understand the role the skill has on early reading (Snow, Burns, & Griffin, 1998). Through explicit, direct instruction and small group interventions, teachers can ensure their students are successful in phonemic awareness. Phonemic awareness is

a research-based skill to ensure students are successful in reading (Allor, 2002; Ashby et al., 2013; Castle & Riach, 1994; Melby-Lervåg et al., 2012). Educators make the journey of learning to read a bit easier by teaching phonemic awareness through explicit and direct instruction.

Research has discovered students who lack the skill of phonemic awareness in their primary years will be more likely to be poor readers in the future (Byrne & Fielding-Barnsley, 1990; Hulme et al., 2002; Juel, 1988). Being a poor reader only worsens the skill set of students, which brings the importance for teaching research-based skills to aide in the growth of reading. In other research findings, it has been found a student's ability to grasp phonemic awareness leads to better predictors of learning to read than large phonological tasks, like onset-rime and syllables (Hoien et al., 1995; Muter et al., 1998; Nation & Hulme, 1997). Research has discovered the positive relationship between phonemic awareness and early reading skills.

Since phonemic awareness has been researched to positively affect early reading skills, the literature review examined phonemic awareness further to understand the correlation with reading. Many students struggle in their ability to read, which follows the students throughout their learning. Phonemic awareness is examined to understand the affect on struggling readers. The skill of reading matters to everyone as the skill allows students to learn across content matter and become successful individuals. School stakeholders need to understand the skills that develop a child's reading ability. Phonemic awareness is a skill that greatly predicts successful reading habits in primary students.

Definition of Terms

To better understand the terms of the literature review, clear definitions are provided. Phonological awareness is a thought process skill for the sound structures of language that includes the following tasks: words in sentences, syllables, onset-rime, alliteration and phonemic

awareness (Juel, 1988; Nation & Hulme, 1997). Since phonemic awareness is under the umbrella of phonological awareness, it is important to understand the components of the term. Phonemic awareness is the ability to manipulate sounds in a given word (Snow et al., 1998). The review examined phonemic awareness extensively as research showed the skill as a direct link to the ability to read.

Struggling readers or reading disabilities are referenced in the review. Both terms refer to a student who is a low achiever in the field of reading ("Teaching Children to Read", 2000). The term intervention is explored in the review, which refers to a student receiving additional support in a specific set of skills (Ryder et al., 2008). Lastly, Response to Intervention is a multi-tiered approach to learning, which provides prevention and early intervention for students lacking certain skills (Graner et al., 2005). Response to Intervention is discussed as the approach is explored in research to determine effectiveness in teaching phonemic awareness.

Research Focus

The literature review began to look at the components of research-based literacy instruction. Research pointed to guided reading, phonics and phonological awareness instruction in the primary grades as being effective practices in learning to read. However, after further review of best reading practices, phonemic awareness instruction was highlighted in multiple study results. The research pointed to the positive correlation between phonemic awareness and early reading success in the primary grades. After reviewing the research studies, phonemic awareness was a clear predictor of early reading success in elementary-aged students (Allor, 2002; Ashby et al., 2013; Melby-Lervåg et al., 2012). The studies uncovered the positive relationship between reading and phonemic awareness.

The research was driven by three key concepts that included phonemic awareness and early reading instruction. First, studies were examined to uncover evidence of the relationship between phonemic awareness and early reading skills in primary students. Second, research was explored to understand phonemic awareness as a skill to help struggling readers. Lastly, effective instruction to help struggling readers learn phonemic awareness was investigated. The specific research questions included “does phonemic awareness assist students in the early stages of learning to read,” “what involvement does phonemic awareness have with assisting struggling readers” and “does the implementation of small group interventions grow students’ skills in phonemic awareness?"

Research Studies

The literature study incorporated articles from 1980 through 2020. The articles dated in the 1980’s and 1990’s demonstrate the importance of phonemic awareness in a historical context. Phonemic awareness was examined in the early 1980’s as an effective skill for early reading skills, while research in the present day still demonstrate the same importance for phonemic awareness and early reading success. The broad scoop of dates provides evidence of the positive effects of phonemic awareness on early reading skills from the past to present day.

CHAPTER 2: LITERATURE REVIEW

Literature Search Procedures

Chapter Two addresses the published literature on phonemic awareness. In order to identify the role of learning how to read through phonemic awareness, searches from Academic Search Premier, Education Journals, ERIC, Google Scholar, and EBSCO MegaFILE were conducted with publications of 1980-2020. The articles were narrowed by reviewing published empirical studies from peer-reviewed journals with particular focus on “phonemic awareness”, “phonemic awareness and interventions” and “phonemic awareness and reading”.

Phonemic Awareness and Reading

The relationship between phonemic awareness and reading has long been looked at for children in the primary grades. Phonemic awareness, the ability to manipulate sounds in a given word, has a strong predictive factor in learning to read (Snow et al., 1998). Since reading is a skill that takes time and effort, it is important to look at the positive attributes towards being a successful reader. Further research has discovered students who lack an awareness to phoneme segmentation and blending in the primary grades are likely to be struggling readers in the future (Juel, 1988). The positive relationship between phonemic awareness and reading skills will be explored. The review will reinforce the need for phonemic awareness in reading instruction and provide evidence to incorporate phonemic awareness for struggling readers. Research will highlight the positive effects of phonemic awareness interventions in the primary grades to ensure growth is made for students struggling in a tier one instructional setting. Lastly, phonemic awareness instruction will be encouraged through speech language pathologists in collaboration with general education teachers.

Reading Success Through Phonemes. Yeh and Connell (2008) set out to find if phonemic awareness was best taught through phoneme segmentation and blending, vocabulary or rhyming. Although research strongly indicates teaching segmentation and blending to develop a child's phonemic awareness development, there are supporting research for the inclusion of vocabulary development and rhyme awareness to grow one's ability in phonemic awareness (Bradley & Bryant, 1991; Bryant et al., 1990). Their study was completed in 16 Head Start classrooms in Boston, Massachusetts. Students ranged from four to five years old and were largely minorities from economically disadvantaged areas (Yeh & Connell, 2008). Students were selected through a willingness to participate and the classes were randomly assigned to phoneme segmentation, rhyming or vocabulary development treatment.

Each treatment group were instructed from the classroom teacher. The phoneme segmentation group provided a preplanned curriculum, while the other two groups provided exposure through story-reading and invented spelling activities as supported by the National Reading Panel (Yeh & Connell, 2008). All teachers received a two-hour workshop at the beginning of the instruction and four weeks later for their treatment group. During the 14-week period of instruction, children were in groups of eight for 20-25 minutes twice per week. Classroom teachers were observed and participated in a five-minute debrief of the lesson. The effects of all treatment groups were analyzed from the post-test scores minus pre-test scores.

Results from each treatment group displayed positive scores based on their specific treatment instruction. The segmentation group resulted in noteworthy advances in the area of phonemic awareness and letter-sound measures (Yeh & Connell, 2008). The rhyme and vocabulary group also showed growth in their respected treatments, reassuring the treatments were implemented as planned.

Throughout the trial, instruction of phoneme segmentation and blending were done with explicit, systematic instruction, resulting in positive assessment results. The analysis of treatment groups and assessment scores highlighted the importance for instruction emphasizing phoneme segmentation and blending, when compared to rhyme or vocabulary emphasis (Yeh & Connell, 2008). It is also to be noted that young children can begin to learn phoneme segmentation and blending as early as four-years-old (Yeh & Connell, 2008). The assessments in phoneme segmentation, deletion, blending, and substitution resulted in a validation of the importance for phonemic awareness instruction in order to gain the necessary reading skills (Yeh & Connell, 2008). Although rhyming and vocabulary have a place in promoting phonemic awareness instruction, a more explicit format, like phoneme segmentation and blending, is required to gain the necessary skills for later reading ability.

Hulme et al. (2002) set out to determine if measures in phonemic awareness were the best predictors of reading skills when compared to onset-rime. They attempted to measure the student's reading ability using a variety of phonological assessments. Their research was conducted in four schools in England. The schools were located in the City of York and Cambridge. Two of the four schools were located in rural communities. A total of 72 primary students, with the mean age of 5.6 years old, participated in the study (Hulme et al., 2002). The short-term study saw students twice, with the first occasion spread out over a seven-month period. The assessment covered four stages of phonological awareness, which consisted of onsets, rimes, initial and final consonants. The second test was administered between 7 to 14 months after the initial tests were completed.

The results of the assessments revealed phonemic awareness as an excellent predictor of early reading success, while onset-rime awareness falling short on being a strong predictor of

reading abilities. Through analysis of the assessment data, it was clear that the more skilled readers were stronger in the initial phoneme awareness area, as well as the final phoneme and onset-rime awareness. The findings from the study support phonological training for struggling readers, with specific focus on training phoneme-level skills (Hulme et al., 2002). Again, the relationship between phonemic awareness and early reading skills should be implemented during instruction to benefit the journey of learning to read.

Ouellette and Haley (2013) set out to evaluate the possible source of differences in explicit instructional periods of phonological awareness. To narrow the focus, the authors examined the influences of oral vocabulary and alphabetic knowledge to phonemic awareness acquisition. The study placed focus on analytic phonemic awareness skills, which included phoneme segmentation, the ability to separate a word into the individual sounds (Ouellette & Haley, 2013). The research study also examined phoneme synthesis, the ability to blend or combine sounds to make a larger segment, such as a word or syllable (Ouellette & Haley, 2013). Their research included students at the age of five who lived in Eastern Canada. A total of three schools participated in the study. Students participated in the study based on the consent from each family. During the start of the study a total of 75 children were assessed, 60 of the 75 were present for a second assessment. All students spoke English as their primary language.

All students in the study were individually assessed, lasting a total of 25 to 40 minutes per session, in an unobtrusive room at their own school for the assessment periods (Ouellette & Haley, 2013). The assessment tasks were administered in a fixed order to allow for a developmental order of skills to be presented to the children. Students were assessed in the area of oral vocabulary, alphabetic knowledge, phonological awareness, larger segment of phonological awareness, and phonemic awareness (analytic and synthetic).

The main objective of the study was to find the factors that influenced phonemic awareness instruction. The results shared multiple means of information to advance the skills of reading. First, the results shined a light on the importance of different processes to explicit, smaller segment awareness. The study found the skill of sound blending successful only when prior phonological awareness was taught to students (Ouellette & Haley, 2013). An important note from the research was the progressive phase for a role of vocabulary or alphabetic knowledge in phonemic awareness acquisition with respect to age of the students. The developmental stage of each student is important to take notice when teaching early reading skills. Lastly, prior phonological awareness and oral vocabulary projected successful acquisition of explicit phoneme knowledge into first grade (Ouellette & Haley, 2013).

Byrne and Fielding-Barnsley (1990) set out to examine two components of phonemic awareness in regard to the influence of the alphabetic principle in primary students. The study looked at phoneme identity throughout words and recognition of phonemic segmentation in words. They examined the importance around the knowledge of segmentation and phoneme identity in relation to alphabetic strength in children. They completed several experiments in the research, testing segmentation and identity separately with different groups of students. To gain insight in their research, they implemented instructional procedures to ensure the students would come to understand aspects of phonemic structure, either segmentation or phoneme identity.

In experiment one, the question of interest was whether the students, who were taught how to identify individual sounds, would show growth in the alphabetic principle. There were 16 preschool students involved in the study. In this experiment, students were verbalized items and told the first or final sound of the word. After several repeats, the children were then asked to verbalize the items three times (Byrne & Fielding-Barnsley, 1990). The assessment then

followed the activity immediately after, which consisted of showing two pictures and giving a targeted phoneme. The student had to select the correct visual based on the phoneme.

In experiment two, they examined the segmentation of words. Again, there were 16 preschoolers who were taught using a variety of tools consisting of a frog puppet and photographs. The students used the photographs to segment the words. A total of six trials were completed, each resulted in four days of lessons and the fifth day reserved for assessments (Byrne & Fielding-Barnsley, 1990). In experiment three, the research focus was on the explicit instruction of phonemic awareness, specifically the initial and final phonemes in words and if it would improve the transfer performance. Three groups of preschoolers were taught the sounds /s/, /o/, and /m/. In the training stage, the first group (15 children) were trained only in fist sounds, one group (17 children) with final sounds, and one group (16 children) with both first and final sounds (Byrne & Fielding-Barnsley, 1990). The first four days were spent learning the sounds, as well as the specific placement of sounds within words. On day four, students were taught word-final items. Lastly, experiments four, five, and six were conducted as the final three experiments. All three experiments were on the teaching and assessing of phoneme identity using the procedures of experiments one and three.

The results from the experiments show that phoneme identity can promote acquisition of the alphabetic principle. As discussed by previous research, phonemic awareness reinforces the acquisition of the alphabetic principle and further developing early reading skills (Bradley & Bryant, 1983; Byrne & Fielding-Barnsley, 1989; Juel et al., 1986; Tunmer et al., 1988). Results from the study demonstrated how primary students can be taught to recognize the individual phonemes in words, both consonants and vowels. Lastly, the researchers favored phoneme identity over segmentation as it was easier to teach and identity served as a more reliable basis

for the application of the alphabetic principle (Byrne & Fielding-Barnsley, 1990). Based on these studies, phonemic awareness is a key strategy in early reading.

Learning to Read. Castle et al. (1994) explored the instruction of early reading with the aim to determine whether instruction in phonemic awareness would assist students further in the area of reading and spelling within a whole language curriculum. After reviewing and studying related research on phonemic awareness, they sought to replicate previous research in the preschool setting on the connection between phonemic awareness and literacy skills. For example, Bradley and Bryant completed a study in 1983, where students trained in phonemic awareness for a period of one year, outperformed a similar sample in reading and spelling skills for two years. Castle et al. (1994) held two experiments, the first experiment set out to determine if instruction in phonemic awareness would have a greater effect on learning spelling compared to a regular writing curriculum. The second experiment examined the effect of phonemic awareness in regard to early reading skills. Both experiments took place in suburban primary schools in New Zealand with middle-to-low socioeconomic status.

Experiment one consisted of 30 students at the beginning of the school year (Castle et al., 1994). The experimental group of 15 students were taught two lessons per week for 10 weeks in phonemic awareness. The lessons involved specific topics and skills meant to increase phonemic awareness. Students were assessed using the Roper's measure of phonemic awareness, Wide Range Achievement Test of Spelling, as well as an experimental spelling test. The second group of 15 students were trained in "process writing," which served as the writing curriculum (Castle et al., 1994, p. 350). All students were selected based on a phonemic awareness assessment. Students scoring higher than 20 were eliminated from the study to ensure students were limited in their phonemic awareness abilities. The mean age was five and all students spoke English.

Experiment two involved 51 primary students in five schools. An experimental group of 17 students were taught for 15 weeks in phoneme analysis and synthesis skills, as well as letter-sound instruction. The group focused on segmentation and blending skills, which consisted of a specific word. Two control groups that totaled 34 students were also involved in the study. One control group was instructed with the same instructional resources, but most of the activities involved little phoneme analysis. The focus of the group was on word meaning, not phonemic skills. The other control group received no instruction in phonemic awareness. All students were selected for the study because of low phonemic awareness abilities.

The results of both experiments show positive effects from phonemic awareness instruction as part of reading instruction. The authors place focus on experiment one as training in phonemic awareness resulted in growth of spelling skills because of the instruction in phoneme-grapheme rules. Experiment two also showed positive effects from phonemic awareness instruction based on the phonemic awareness assessment. Also important from experiment two was the groups growth in reading nonsense words, based on the Bryant Test of Basic Decoding Skills. From both experiments, the results demonstrate the importance for phonemic awareness instruction to ensure growth in reading and spelling skills.

Allor (2002) completed a literature search in the area of phonemic awareness, rapid naming, and reading. The review's purpose was to draw a conclusion on the contributions of phonemic awareness and rapid naming on the development of learning how to read. All studies the author reviewed included multivariate analysis to detect a variable that may attribute to differences in phonological awareness and rapid naming. The article searches resulted in a total of 16 articles, five were large-scale, longitudinal studies. Allor asked three guiding questions, which were "does phonemic awareness account for a proportion of the variance in reading

development that is not accounted for by rapid naming," "does rapid naming account for a proportion of the variance not accounted for by phonemic awareness", and "do phonemic awareness and rapid naming contribute differently to various sub skills of reading development?" (Allor, p. 47, 2002). The questions were developed to create inquiry in the subject matter of phonemic awareness and rapid naming in connection with reading development.

The research review resulted in the findings that phonemic awareness has a clear role in reading development, which was concluded in all studies, except Ellis (1990). There are three questions that were answered based on the findings from the studies reviewed. First, phonemic awareness increased word recognition from kindergarten through fifth grade (Torgesen & Davis, 1996). Secondly, rapid naming had a positive relationship with reading development (Allor, 2002). Lastly, phonemic awareness contributed to significant measures of word reading that assessed word identification, timed word identification, word attack, and comprehension (Ackerman & Dykman, 1993; Badian, 1993; Torgesen & Davis, 1996). Analysis of the research clearly showed the positive effects of phonemic awareness on early reading skills, specifically the growth in word reading in the elementary grades (Torgesen & Davis, 1996). Allor (2002) closed the research review with the fact that phonemic awareness can improve overall reading instruction for students, including students with reading disabilities.

Melby-Lervåg et al. (2012) studied the effects of phonemic awareness, rime awareness, and verbal short-term memory on student's word reading skills. They examined meta-analysis studies using several formats. The first round of studies reviewed students with dyslexia to a control group with strong skills in early reading. The measure of phonemic awareness, rime awareness, and verbal short-term memory were completed for the groups. They went further by examining the relationship in unselected groups of students between word reading skills and

measures of phonemic awareness, rime awareness, and verbal short-term memory. The phonological skills of phonemic awareness, rime awareness, and verbal short-term memory have been linked to influence overall word reading abilities (Melby-Lervåg et al., 2012). The goal of the study was to examine the relationship further, while clarifying the importance for phonemic awareness instruction.

The majority of studies were reviewed through forest plots to examine the effect size and identify any potential outliers (Melby-Lervag et al., 2012). A total of 235 studies were included in the research review and 995 effect sizes were calculated. Of the total amount of studies, 88 independent comparisons were made in phonemic awareness in students with dyslexia. The studies involved 2,652 students with dyslexia and 3,163 students as a control group. The average age of the students were 5.6 years old. After careful review of the research, they found an important result, which concluded that phonemic awareness had a significant effect size of overall reading abilities. The children with dyslexia who performed poorly on phonemic awareness compared to the control group, had significant difficulty in word development. The research review results demonstrated the correlation between measures of phonemic awareness and student's word reading skills. The authors reiterate throughout their results the moderate to strong predictors of later reading abilities through the instruction of phonemic awareness. The meta-analytic review clarified the importance of phonemic awareness, as the skill allows students the opportunity to grow in their early stages of learning to read through explicit instruction in phonemic skills.

Ashby et al. (2013) from Central Michigan University set out to uncover the relationship between phonemic awareness and text reading fluency. As discovered in the previous research review by Melby-Lervag et al. (2012), phonemic awareness has a significant factor in early

decoding skills and word recognition for primary students. To further explore the role of phonemic awareness, Ashby et al. (2013) developed a longitudinal study investigating the eye movements during picture matching skills and during silent reading of ten students in second grade.

Several experimental trials were completed in phonemic awareness, receptive spelling, silent reading, and oral reading (Ashby et al., 2013). The phonemic awareness trials consisted of six experiments where students matched pictures with the same first sound, as well as the last sound. There were 12 receptive spelling trials targeting high and low-frequency words that consisted of three-sound words. The silent reading portion of the trials displayed sentences with six to nine words, with yes or no comprehension questions. Lastly, the oral reading trials were administered from the Easy Curriculum Based Measure where students read three passages and the number of words per minute were recorded for assessment results. The students in the study averaged 7.7 years old, all had 20/20 vision, spoke English as a first language, and were not identified as having a reading disability.

The results from the trials suggest the complex association between phonemic awareness and silent reading fluency. After reviewing the data, Ashby et al. (2013) discovered that "poor phonological processing efficiency consistently predicted slower silent reading, but very good phonological processing efficiency did not always correspond with good reading fluency" (p. 166). The results suggest the role of phonemic awareness is vital in the early stages of reading development. From prior research studies, the data is clear that the influence of phonemic awareness declines as reading develops (Ashby et al., 2013; Felton et al., 1987; Korhonen, 1995; Meyer et al., 1998). With the development of a student in mind, it is critical that primary students receive instruction of phonemic awareness to ensure growth in early reading skills. Ashby et al.

(2013) noted in the results that phonemic awareness skills of segmentation and blending of words were used to complete the tasks of the trials and the skills contributed greatly to fluency development as late as third grade. They further suggest the need for phonemic awareness interventions in order to provide the skills necessary to increase reading fluency and word knowledge for students in primary grades.

Byrne and Fielding-Barnsley (1991) set out to value a new program aimed to teach primary students about phonological structure, with a particular focus on recognition of phonemes across words. A total of 128 students from four different preschools participated in the study. The experimental group consisted of 64 preschoolers who were trained in Sound Foundations for 12 weeks. The control group consisted of 62 preschoolers, while being exposed to the same materials but no instruction on phonemes. The students were placed randomly in either group. Pretests were completed for all students, which consisted of print knowledge, letter and sound recognition, rhyme recognition, as well as four phoneme identity assessments.

The experimental group consisted of subgroups of four to six students. The first 11 training sessions ran for approximately 30 minutes, once per week. For each session, the teacher taught one phoneme. The lesson format began with a short song or poem, introduction of the phoneme and discussion of how the sound is made by the mouth, and then a poster was presented to the students for the specific phoneme being taught. Students had to locate an object in the poster beginning or ending with a specific sound. The small group format allowed individual student performances to be monitored closely and gave students opportunities for additional help in locating a picture from the poster with the specific phoneme. Lastly, a worksheet was presented to the students and they were encouraged to identify and color the pictures with the phoneme taught. The control group were also trained in a small group format, consisting of four

to six students in each group. Each small group lesson started with a read aloud, followed by students identifying beginning and ending sounds on a poster and completion of a worksheet. Both the experimental and control group were devoted the same amount of instruction time, with the only difference being the control group had no instruction on phoneme training.

The posttests consisted of four phoneme identity assessments, as well as letter sounds. A new test was also administered that involved reading ten words on a single card, which consisted of common consonant-vowel-consonant words. After analysis of the data, the posttest results distinctively establish the recognition of phoneme identity can be taught to preschool students. Preschool students, with the mean age of 4.5, can accurately judge phoneme identity for sounds in words. Based on the analysis of the results, Byrne and Fielding-Barnsley (1991) strongly suggest students four to five years of age need to be taught explicit phonemic awareness skills to establish acquisition of the alphabetic principle, as well as the introduction to early reading skills.

Byrne and Fielding-Barnsley (1991) findings from their research also highlighted the importance of skill and drill, as well as meta-level instruction to achieve growth in phonemic awareness for primary students. Research presented by Cunningham (1990) described both instructional techniques in greater depth. Skill and drill instruction is the teaching of specific skills such as segmentation or blending, where the meta-level approach places emphasis on both the teaching of skills and the application of phonemic awareness in reading (Cunningham, 1990). Both groups in the trials experienced positive growth in reading achievement, but the greatest gains in early literacy skills were made by the experimental group who were given meta-level instruction (Byrne & Fielding-Barnsley, 1991). Both explicit instruction on skills, as well as how to use the skills in reading are positive factors in reading development (Cunningham, 1990). The results completed by Byrne and Fielding-Barnsley (1991) demonstrated the positive role that

phonemic awareness has on early reading skills for primary students, while highlighting the findings that students as young as four can be taught phonemic awareness skills.

Williams (1980) set out to determine the effectiveness of basic decoding skills in learning-disabled students. The role of phonemic awareness in early reading skills were explored based on educational research, the advancement of an instructional program and observation of student learning. Decoding, which serves as a priority in early literacy progression, involves the ability to isolate phonemes in words (Williams, 1980). The skill of isolating phonemes can be difficult to learn, as noted by several research studies (Gleitman & Rozin, 1973; Williams, 1980). Learning-disabled students exhibit a common difficulty with many other students in the classroom, which is the skill of learning to read (Williams, 1980).

Williams (1980) selected the reading curriculum titled, ABDs of Reading, which takes the approach of a structured and explicit format for teaching the skills of decoding to learning-disabled students, as well as slow learners in general. The program highlighted the concept that words are broken up into parts, or individual phonemes. The curriculum taught syllables, phoneme analysis, combinations of phonemes, and then blending consonant-vowel-consonant words. The curriculum pulled together auditory analysis and synthesis, as well as letter recognition and letter-sound correspondences. The instruction was organized into 12 units and each unit involved a story to be read that involved the skill being taught, followed by a teacher scripted lesson.

The research consisted of a two-year study, with the first year focus on the effectiveness of the program, as well as the potential refinement based on observations and data results. A total of 157 students in 21 classrooms were pretested before the experiment began in New York City. Of the 157 pretested, 11 students were taken out of the study due to poor assessment results.

Williams (1980) only selected students who would likely profit from the program. There were 63 students eventually involved, which resulted in 11 groups of four students, four groups of three students, one group of two students, and one group of five students. The pretest was also administered to a control group of 178 students, resulting in 16 groups. The experimental groups were given 20 minutes per session of instruction, and the teachers were observed once a week, with an observation and interview completed per week between the teacher and researcher. Assessments were completed in January, which created results based on the testing scores. After the initial phase of the study, the research began to underline the summative results of the evaluations and the overall efficiency of the program based on assessment results, observations and teacher interviews.

The experimental group assessment results displayed upward growth in the area of phoneme development, specifically final-sound phonemes in words. As the primary focus of the first year was to determine the effectiveness of the program, the review explained general decisions made to ensure the program was presented to best fit the students. The program was adjusted to minimize teacher scripts, reduce the introductory material and involve more hands on learning activities, like learning games. Overall, evidence from the instructional program proved to be effective in teaching phonemic awareness skills. After analysis of the results, Williams (1980) went further in the research to determine next steps of instruction. Williams (1980) wanted to understand if students, after instruction on decoding, could decode new combinations of the same letters. She completed the research during unit seven by administering assessments, which consisted of 24 items with various letter combinations.

The results show evidence of growth from the experimental group in learning to decode unfamiliar words, when compared to the control group. The assessment results from year one

and year two show significant differences in abilities. The experimental group assessed far greater in decoding words compared to the control group. The findings suggest the implementation of a phonemic awareness program will result in positive growth of learning to decode words for both students with learning disabilities or students who are slower to learning. Williams (1980) reported the necessity for an early emphasis on instruction of phonemic awareness in order to grow the skills needed to read.

Daly et al. (2004) set out to examine blending and segmenting of phonemes that students learn to combine to produce whole words. The research was completed due to the findings from the National Reading Panel (2000), which reported students who "cannot readily manipulate the 44 individual phoneme sounds that form the basis for the English language are at significant risk for reading failure" (p. 165). Daly et al. (2004) investigated the instruction of segmentation and blending through an experimental group, which focused on phoneme blending. They expected the students to read more actual words than sight words because of the phoneme blending instruction. The participants were two males in first grade in a Midwestern urban school district. The instruction was completed in a school during the summer months.

The sessions were completed with an A/B/A/B design. One student was taught using the sequence of sight word/phoneme blending/sight word/phoneme blending, while the other student was instructed using the opposite sequence. The phoneme blending sessions focused on words with three to four phonemes. During the sessions, students were taught four words using the skill of sounding out phonemes. Students blended the sounds so they could read the nonsense words. Each session consisted of 10 to 15 minutes long and were taught four times each week. Students were assessed on their performance of reading real words by reading 12 generalized words. A continuous screening format was used throughout the study to identify unknown words for

inclusion in the assessment results. The purpose of the assessment was to keep a running record of unknown words. The assessment results were looked at for sight words, mastered word recognition and phoneme blending for real words.

Daly et al. (2004) reported the results for both students as greater success in phoneme blending rather than sight word recognition. The study brings to light the importance of teaching phonemic awareness by blending phonemes to read words, as students are more likely to build their reading skills through phonemes rather than memorization of sight words. The results also show the importance of instructing students to sound out words, as the student will be more likely to sound out other words not taught or introduced in reading instruction. The study was not to demonstrate that phoneme blending instruction is superior to sight word instruction, but to develop a greater understanding of the importance of instructing students to sound out phonemes in words. The results confirm the instruction of phonemic awareness produces positive results in learning to read.

Yeung et al. (2020) examined the developmental trajectory of phonemic awareness of kindergarten students in Hong Kong for a total of one year. The researchers investigated whether early levels of growth in phonemic awareness were predictors of future spelling skills. The students were approximately six years of age. The students were Chinese learning the English language. Since phonemic awareness is one of the most well researched predictors of student's spelling skills, Yeung et al. (2020) wanted to research if teaching phonemic awareness would improve the beginning spelling skills of Chinese students learning English as a second language.

A total of 141 students were recruited from six kindergarten classrooms in Hong Kong. These students were selected for the study since they received English language instruction at an early age. Students were taught English around 60 to 90 minutes each week. All students were

assessed in phonemic awareness four times, at three-monthly intervals during the study. At the end of the study, students were assessed one last time in oral language skills, phonemic awareness, letter knowledge, English word reading and spelling.

The study examined the growth trajectory of the students after the last assessment period was completed. The data revealed the growth of phonemic awareness were significant predictors of the spelling for the students learning English (Yeung et al., 2020). The student's development in phonological awareness was linked to the explicit instruction provided by the classroom teachers. The study highlighted the important role phonemic awareness serves on spelling acquisition for young Chinese ESL students. A student's knowledge in phonemic awareness directly correlated with later spelling acquisition, even when other critical language and print-related skills were taken into account. Phonemic awareness instruction served as an important aspect on early literacy skills, even for students with different linguistic backgrounds.

Snider (2001) examined the relationship between phonemic awareness and reading achievement in primary students. The author described phonemic awareness as part of a "hierarchy of metalinguistic skills that begins with the conscious awareness that sentences are made up of words and culminates in an awareness that words are make up of phonemes, those small units of sound that roughly correspond to individual letters" (Snider, 2001, p. 203). The study was to develop a deeper understanding of phonemic awareness and how it forms a bridge to later reading skills. Study one first began to examine student understanding of phonemic awareness in kindergarten. The researchers then followed up with the students towards the end of second grade to determine reading achievement for each student. Study two was a qualitative analysis of a three-year follow up of the students who scored in the lowest quartile from study one.

The students in the first study were in kindergarten in a small rural community in Iowa. A total of 73 participated in the first study with the mean age of 6.6. Students were assessed individually on phonemic awareness measures. Snider (2001) created five subtests with 10 items each ranging from rhyme, oddity, segmentation, and deletion tasks. Students were reassessed one week later to determine reliability in the assessment data. The assessment results were analyzed and ranked according to the mean. Students were placed into quartiles based on their assessment results from low (below 25th percentile), average (25th to 75th percentile), and high (above 75th percentile). Researchers conducted multiple assessment checks to determine how well the total score of each individual student predicted reading achievement as measured by both Word Analysis subtest and the Reading Comprehension subtest (Snider, 2001). Study two completed the research on 12 of the original 18 students in the lower quartile three years after study one was completed. The students were retested in the area of phonemic awareness, while also reading a third-grade passage from the Gray Oral Reading Inventory (Snider, 2001).

The results from both studies show a strong predictive value in phonemic awareness to later reading development. Snider (2001) reported three subtest scores, phoneme segmentation, strip initial consonant, and substitute initial consonant, were closely related to later reading achievement in students from study one. A cause-effect relationship was determined after reviewing the data as students with high scores resulted in better reading skills in third grade. As phonemic awareness comprises a variety of components, the assessment data showed students who were in the low quartile of segmentation and manipulation began to show reading difficulties in the future grades. The research results proved phonemic awareness was a key predictor of later reading success and laid the foundation for early reading skills for primary students.

Lack of Phonemic Awareness Contributes to Struggling Readers

Phonemic awareness is a contributing factor in the process of learning to read. However, many students struggle in their ability to read ("Teaching Children to Read", 2000). In a 2009 study completed by Ukainetz et al., a research trial was completed to investigate the curriculum procedures of phonemic awareness with students in kindergarten who had the potential to be labeled as future struggling readers. The study examined students who would benefit more from a direct, explicit instruction in phonemic awareness. Students were split into two groups during the study. A direct and explicit phonemic awareness treatment schedule was compared to a dispersed schedule. The group size and quality of instruction remained the same. The primary focus was to study the short, intense instruction in phonemic awareness followed by a phase of no treatment for the students.

A total of 41 kindergarten students participated in the study. Students who were at-risk for reading difficulties were enrolled, which was based from a pretest from DIBELS in September (Ukainetz et al., 2009). DIBELS assessments measured initial sound fluency, letter naming fluency, last phoneme isolation, and phoneme segmentation fluency for each student. Students were then placed in small groups and the experimental group were taught explicitly on first and last phoneme isolation, phoneme blending, and segmentation. A total of 20 teaching sessions were completed, with each session lasting for 30 minutes. The experimental group received instruction based on a 3-session unit. The sessions consisted of sound talk on names and rhyming books, a session on sound talk and three card/object activities, and one session of sound talk around names, as well as embedded in shared writing. The other treatment group received vocabulary instruction through repetition to better understand and use words in a meaningful format (Ukainetz et al., 2009).

The study resulted in several conclusions based off the assessment results from DIBELS. Ukainetz et al. (2009) report the treatment was beneficial for growth in phonemic awareness, with the primary benefit occurring for last-sound isolation and blending skills. Greater intensity of interventions for students created more difference for learners with moderate deficits in reading when compared to students with mild deficits. Immediate effects from the explicit small group instruction were seen in the experimental group. Also, a more promising result was the large, maintained gains in phonemic awareness from the treatment instruction. The results provide evidence to support a concentration of instruction for phonemic awareness for at-risk kindergarteners.

Compton (2002) examined the relationship between phonological and orthographic processing skills in students with and without reading disabilities. Orthographic processing enables students to understand and recognize words that contain correct or incorrect spelling. Students who experience difficulty in orthographic processing often experience trouble with reading fluency since they are unable to recognize words or phonemes within words (Compton, 2002). Based on the findings from Compton's prior research (2002), deficiencies in phonemic awareness hinders knowledge in the area of orthographic in struggling readers and can lead to students comprehending less while reading. The study examined the performance on measures of phonemic awareness, orthographic processing, and print exposure in fifth and sixth grade students with reading disabilities, while comparing the results with three different control groups without reading disabilities.

Compton's (2002) research further investigated a reading-level-match design to compare a variety of group dynamics, specifically the performance of four groups of readers. Participants for the study were selected from one specific public school district. A total of 64 students were

selected, with four groups of 16. A group consisted of students with reading difficulties, two reading-level-matched groups, and a group of age-matched students who were average in their grade-level benchmark assessments. Students were assessed two separate times, each lasting approximately 20 minutes. The measures were completed through the Raven's Standard Progressive Matrices, Test of Auditory Analysis Skills, Title Recognition Test, and the Word-Attack subtest through WJ-R (Compton, 2002).

The scores were examined based on individuality, as well as group score comparisons. The results support the claim that poor readers are unable to develop orthographic-phonological connections that are considered crucial for reading due to a lack of phonological processing (Compton, 2002). The study confirmed the importance for phonological processes in the development of a child's reading skills. In the study, students with reading disabilities depended more on print exposure than phonemic awareness skills when completing the assessments. The lack of phonemic skills in students with reading disabilities limited the growth of word-specific representations while reading, which contributed to a lower level of independent reading and print exposure. The study highlighted the strong importance between phonological and orthographic processing for all students, including those with potential reading difficulties.

De Groot et al. (2017) studied the relationship between reading disabilities and attention-deficit hyperactivity disorder (ADHD) to two types of phonological processing skills, which were phonemic awareness and rapid automatized naming (RAN). The study placed focus on students with reading disabilities, as well as students with ADHD as research has reported overlap between reading disabilities and ADHD (Willcutt & Pennington, 2000). The research attempted to clarify the relationship between students with reading disabilities and ADHD, as well as to understand the relationship between phonemic awareness and rapid naming.

De Groot et al. (2017) created a study that involved a total of 1,262 Dutch students aged eight to 13 years old. The research contained a group of students with reading disabilities, an ADHD only group, a combined group of students with reading disabilities and ADHD, and a large control group of typically developing students without reading disabilities or ADHD. Students were placed in groups according to the results of a word reading performance assessment, which measured real words and nonsense words. Students who scored below the population mean were placed in the reading disability group. Students were placed in the ADHD groups based on external psychiatric evaluation from a clinical diagnosis. After completion of groups, students were assessed in phonemic awareness through a Dutch test, which consisted of phoneme isolation and substitution. Rapid naming was assessed through a subtest called Letters and Digits of a Dutch standard test.

The results show significant differences between the control and experimental groups. The experimental groups showed strong similarities between the reading disabilities only and the combined groups (ADHD plus reading disabilities), which showed high and significant impairment in phonemic awareness and rapid naming (De Groot et al., 2017). The assessment results highlighted the non-reading related functions pose a negative impact to phonemic awareness skills. The ADHD only and combined groups exhibited negative phonemic awareness performances based on analysis of results. The phonemic awareness and rapid naming skills contributed to better word reading skills, as measured through the word reading assessment. Students with reading disabilities indicated a drastic lack of understanding in phonemic awareness and rapid naming skills.

Goldstein et al. (2017) set out to investigate a supplemental curriculum for students who displayed signs of delays in phonological awareness and alphabetic principle. The National Early

Literacy Panel (2008) report students who fail to develop early literacy skills, especially phonological awareness and alphabet principle, prior to entering kindergarten are at risk for reading difficulties. Through the study, researchers assessed the effectiveness of a supplemental phonemic awareness curriculum when taught by teachers in a preschool classroom (Goldstein et al., 2017). The study took place in three states, which were Ohio, Kansas, and Florida. All of the schools were located in urban classrooms serving proportions of minority students. A total of 561 students participated in the initial screening process. From the screening process, 113 students were enrolled in the study after testing criteria, behavior issues and students leaving the school were analyzed. The students were split into two groups, with 20 classrooms and 60 students participated in the Path to Literacy intervention. A total of 19 classrooms and 53 students participated in the Story Friends intervention. Researchers used a cluster randomized design to compare the results of Path to Literacy and the Story Friends intervention on student knowledge of phonemic awareness.

Teachers conducted interventions in a small group format in their classrooms during the study phase. Sessions were held three to five times a week, with each session lasting about 10 minutes. There were approximately 29 sessions for the Path to Literacy group and 35 sessions for the Story Friends group. The study completed multiple assessments in phonemic awareness and language measures throughout the time period. Immediately following the interventions, students were assessed using posttest measures. Students were assessed through DIBELS in the areas of First Sound Fluency and Word Part Fluency. The researchers also used First Sound IGDI, Sound ID IGDI, and the Phonological Awareness and Print Knowledge subtests to further assess student progress after the intervention sessions.

Goldstein et al. (2017) reported students obtained phonemic awareness skills best when taught via PAth to Literacy. Through analysis of the interventions, PAth to Literacy proved to be a positive source for growing student's phonemic awareness skills due to the explicit nature of the interventions. The study also confirmed students who had been identified with reading disabilities were weak in the area of phonemic awareness. Through the use of small group instruction, teachers were able to significantly grow the DIBELS First Sound Fluency assessment, which required the students to respond at the phonemic level. Students demonstrated greater gains on the DIBELS First Sound Fluency and Word Parts Fluency measures due to the interventions. The majority of students who demonstrated early literacy delays before kindergarten benefited from supplemental phonological awareness curriculum to prevent potential reading difficulties as students transitioned to kindergarten.

Iacono and Cupples (2004) studied the importance of phonemic awareness skills and investigated the correlation between phonemic awareness and single-word reading in adults with complex communication needs. The study examined the relationship between phonemic awareness and reading as a contributing factor to reading success with or without a reading disability. Researchers selected participants from two large Australian cities from nongovernmental organizations. A total of 40 adults with disabilities were selected for the research. Cerebral palsy was listed for the majority of participants as the major disability. A sequence of reading, phonemic awareness, and listening comprehension assessments were administered. The original scores were tracked for all of the assessments. For each assessment, mean scores, standard deviations, and ranges were acquired for the entire sample of the 40 participants.

The assessment results proved a prediction from Iacono and Cupples (2004) in gaining high scores in phonemic awareness. “The blending tasks in the assessments required the synthesis of phonemes into real words and nonwords, while the phoneme analysis and phoneme counting tasks required the analysis of real words into phoneme segmentation” (Iacono & Cupples, 2004, p. 444). The prediction clarified the underlying variables of phonological synthesis and analysis in learning to read. Multiple sequences were completed in a fixed format to investigate the predictive relationship between phonemic awareness and reading tasks. Results showed phonemic awareness tasks were closely related to every reading task in the assessments. Phonemic awareness had a clear role in the ability or inability to read words for the adults. The participants who had strong phonemic awareness knowledge also displayed strong single-word reading skills resulting in a positive relationship together. Also, the adults with poor phonemic awareness skills demonstrated poor reading performances. The results suggested the instruction of phonemic awareness skills in order to prevent reading disabilities.

To further explore the relationship between phonemic awareness and struggling readers, Elbro and Peterson (2004) investigated the long-term effects of phonemic awareness and letter sound training with students who were at-risk for dyslexia. The connection between phonemic awareness and phonological recoding in reading is of particular interest to research on dyslexia. The National Reading Panel (2000) contributes dyslexia as a specific learning disability resulting from the inability to decode words, which reflects the inability in phonological processing. Gains in phonemic awareness have been documented to be crucial in order to acquire phonological recoding for early reading skills (“Teaching Children to Read”, 2000). Elbro and Peterson (2004) researched the subject further by examining phonemic awareness instruction and test potential intervention strategies for students at-risk for dyslexia.

A total of 35 at-risk students were selected at random for intensive phonemic awareness training administered by their classroom teachers. Another 47 at-risk students were selected for the condition group and 38 students who were not at-risk for dyslexia were selected to monitor. A total of three groups were observed during the study. The experimental group received a training program that was written and tailored to meet the needs of students with poor language skills. The program lasted approximately 30 minutes every day during a 17-week period in the kindergarten classes. The control groups received training in rhymes and other linguistic units. After the 17-week period, all students were assessed using letter naming, word decoding, phoneme deletion and identification, syllable deletion, picture naming and short-term memory. The students were seen again in first, second, third, and seventh grade to complete assessment follow-ups.

The effects of phonemic awareness instruction were analyzed from the assessment data (Elbro & Peterson, 2004). The at-risk students in the experimental group significantly varied in gains from phoneme awareness instruction when compared to the two control groups. The results from the study indicated phonemic awareness training had a very long-lasting, positive effect on the students. Noteworthy effects were found several years after the completion of the instruction program for students with high risk of reading difficulties. Improvement in students decoding accuracy while reading was of greatest evidence after the study. The assessment results for the poorest of readers in the experimental group showed positive effects of phonemic awareness instruction when they entered seventh grade. The results confirmed the positive correlation between improvements in phonemic awareness to improvements in reading gains. Students who were at-risk for reading disabilities improved in their overall reading ability from the phonemic awareness program.

Interventions on Phonemic Awareness. Ryder et al. (2008) set out to study a specific intervention strategy for students with early signs of reading disabilities. The study examined the direct instruction in phonemic awareness and phonemically based decoding skills by classroom teachers. In prior research, students who encountered difficulty in the ability to understand patterns and connections between speech and print benefited immensely from explicit instruction in phonemic awareness and alphabetic coding skills (Shankweiler & Fowler, 2004; Snow & Juel, 2005). Phonemic awareness skills have shown to be positive in early reading development. Ryder et al. (2008) completed a study in New Zealand to develop a greater understanding of the role of phonemic awareness interventions on students with early reading disabilities.

The study was comprised of 24 students who displayed poor performance on classroom reading tasks and placed in the lower quartile of the Burt assessment, which was administered by classroom teachers (Ryder et al., 2008). The students were six to seven years old. All participants were randomly placed in the intervention or control group. The intervention program lasted for approximately 24 weeks during the school year. All students were assessed prior and immediately after the study. The assessments designated for the study included measures of phonemic awareness, phonological decoding ability, context free word recognition ability, accuracy recognizing words in connected text, and reading comprehension. All of the assessment measures were administered before and immediately after the study.

The intervention program used on the experimental groups contained 56 highly sequenced, semi scripted lessons in phonemic awareness and phonologically based decoding strategies (Ryder et al., 2008). Each group received four lessons per week that lasted around 25 minutes. The lessons focused on three components, which were phonemic awareness warm-ups, the main lesson focus on grapheme-phoneme correspondences, and a closing activity to reinforce

the lesson being introduced. The phonemic awareness warm-ups were predominantly oral activities looking at rhyme identification, syllable counting, phoneme isolation, and phoneme segmentation and blending.

Ryder et al. (2008) reported gains in all groups, but the intervention groups outperformed the control groups. The assessment results confirmed the intervention program achieved the goal of improving the phonological awareness skills, decoding ability, and word recognition skills of students with reading difficulties. Researchers completed a follow-up from data obtained several years after the completion of the intervention program. The intervention group continued to display high marks on assessments when compared to the control group, which indicated the positive long-term effects from the intervention program. The students were able to maintain phonemic awareness skills and apply the skills into word recognition accuracy. The data depicted success for students who received an explicit and systematic instruction in phonemic awareness. The study proved the positive correlation between phonemic awareness skills and a structured intervention program to assist students who displayed early stages of poor reading ability (Ryder et al., 2008). A small-group format for teaching phonemic awareness skills to students resulted in positive outcomes when done within a systematic and explicit format.

Hall and Burns (2018) evaluated multiple research studies to assess the effects of targeted small-group reading intervention and to identify the most effective small-group instruction format. Many teachers utilize small-group reading interventions, but many procedures that surround small-group reading interventions are still debated between professionals. Hall and Burns (2018) performed electronic searches from ERIC and PsycINFO on phonemic awareness, reading, literacy, fluency, decoding, and intervention. The search results revealed a total of 122 articles to further explore on small-group interventions. After reviewing the 122 articles

appropriate for the meta-analysis, 27 articles met the inclusion criteria. The research articles were reviewed and analyzed for targeted interventions, intervention variables, intervention dose and duration, intervention group size, participant variables, control groups and intervention programs.

The research studies included students who were in primary and secondary schools (Hall & Burns, 2018). Intervention group size was searched continuously for the total number of students in each group. A total of 15 studies performed targeted interventions in the areas of phonemic awareness, reading fluency, vocabulary, reading comprehension, and phonics. The remaining studies used a combination of targeted skills. The outcome measures were examined through standardized measures on intervention effectiveness. Standardized measures consisted of Test of Word Reading Efficiency and informal measures were curriculum-based or researcher-developed measures. A total of eight studies used standardized measures, nine used informal measures, and 10 used a combination of the two.

The results from the meta-analysis suggested that small-group reading interventions were moderately effective, specifically interventions that were targeted to a single reading skill (Hall & Burns, 2018). The review found consistent student growth of reading skills when teachers assessed the student to identify their needs and provided the student with targeted interventions. Interestingly, interventions provided to primary students resulted in an effect size that was over three times as large as the one for secondary students. The results confirmed the importance for early literacy instruction by small-group interventions for students displaying signs of reading difficulties. The analysis of results showed positive correlation between phonemic awareness skills and small-group instruction. Students benefited from targeted skills in phonemic awareness during the small-group sessions. Group size had an 11 percent variance, which produced a

medium effect size to the overall effectiveness of the intervention. Group size ranged from three to 11 in the studies reviewed, but four to six students per group were seen to produce the best outcomes. The study captured the importance for small-group reading interventions, while providing explicit skills in areas of specific need for students.

In a 2016 study completed by Suggate, a meta-analysis was completed to look at the long-term effects of phonemic awareness, phonics, fluency, and reading comprehension interventions. A previous study completed by Suggate (2010) showed reading interventions being an effective means to improving student's reading skills in short-term. The study found phonemic awareness skills, specifically phonetic-decoding interventions, more effective for students in kindergarten and first grade. Suggate (2016) felt like a more comprehensive meta-analysis was needed to determine the long-term effects of reading interventions.

To reduce potential publication bias, both published peer-reviewed and non-published studies were considered. The search was completed through ERIC and PsycINFO with search terms of reading, reading ability, reading strategies, reading intervention, reading education, reading comprehension, and reading recovery. Suggate (2016) identified 557 studies between 1980 and 2010. Once abstracts were checked, the total count of studies went to 21. To expand search results, a second search was completed using terms of phonics, phonological awareness, early reading, fluency, and peer tutoring. The second search resulted in 880 abstracts, but after review, 134 studies were selected. To further narrow down the criteria of the studies, Suggate (2016) only selected peer-reviewed studies that involved an intervention, experimental group, and a control group, which resulted in 16 studies from both sets of searches.

The 16 studies measured student reading skills through pre-reading, phonological awareness, phonemic awareness, letter naming, sounding out letters, and nonsense words. Test of

Phonological Processing, phonemic segmentation fluency, letter-sound identification, letter naming fluency, and Woodcock Word Attack were used in the studies to pre and post assess students. The mean trial period of the studies were 11.17 months long, with the average grade of participants at 1.18. The average number of students per teacher was five. The intervention types consisted of explicit phonemic awareness, phonics, fluency, and reading comprehension skills. The mean session period lasted 12.5 minutes. The follow-up to determine long-term effects were assessed on average two years later.

The results indicated phonemic awareness and comprehension interventions caused the largest effect size during follow-up data. Literacy instruction that directly combined links between sounds in letters or words were most effective during the intervention periods. The study concluded a positive advantage for phonemic awareness interventions when students entered second and third grade. The overall effectiveness of phonemic awareness interventions appeared better than phonics. Comprehension skill interventions were effective, especially for older students in the studies. Suggate (2016) concluded, based on analysis of the studies, preschool and kindergarten interventions should primarily target phonemic awareness skills. Decoding skills and fluency are best taught to students during first and second grade. A mix of interventions, including reading comprehension, should be completed for third grade and beyond.

Allor et al. (2006) examined the use of Dynamic Indicators of Basic Early Literacy Skills (DIBELS) to monitor the progress and provide interventions to six kindergarten students who experienced difficulty with phonemic awareness. They utilized the Stop and Go game, a blending and segmentation intervention to support student skills in phonemic awareness. Prior research demonstrated direct teaching of phonemic awareness to young students caused them to

respond more rapidly to beginning reading instruction and resulted in improved reading development (“Teaching Children to Read”, 2000).

Allor et al. (2006) evaluated the effectiveness of a research-based phonemic awareness intervention that was proven to be straightforward and easy to apply. The intervention format was a game that seemed to motivate students to complete the learning objectives. All participants selected for the research study were identified using DIBELS screening measures and were selected for being below established benchmarks in the middle of the kindergarten year. Six kindergarten students were selected based on low scores from DIBELS. The six students began progress monitoring in phoneme segmentation fluency and nonsense word fluency once per week. To ensure the adult could work closely with the students, the support was provided outside of the classroom twice a day. The pull-out service was completed in the morning and another session in the afternoon. Each session lasted approximately 15 minutes long.

The Stop and Go game was taught individually, with one student and one adult tutor per lesson. The lesson started with a few minutes of warm-up on letters and common sounds. Then the tutor would begin the game by shuffling the letter cards and creating a stack of cards on the game board. The student and tutor took turns to draw a card and make the appropriate sound. The card was then placed on the green or red traffic signal, signifying the go sound (sounds that can be held over time) or stop sound (sounds that cannot be held over time). The game would change when enough letters were face up to make a common word. The tutor would say, “Look, I see a word we can build here. Help me sound it out” (Allor et al., 2006, p. 26). The tutor would then move the cards to form the word and the student would stretch the sounds to say the word. Movement along the board game occurred as long as the student said the correct response. The game continued until the student moved the rubber piece to the finish line.

Every student who participated in the intervention game experienced increased growth in their ability to segment phonemes in spoken words as measured by increases in phoneme segmentation fluency scores (Allor et al., 2006). The intervention sessions were explicit, which provided several occasions for model, self-direction and immediate feedback. The Stop and Go game demonstrated effectiveness in teaching the phonemic awareness skill of phoneme segmentation. The study successfully provided explicit and intensive instruction in the area of need for six students, which provided growth in the area of decoding. The strength of linking interventions with formative assessments allowed students the opportunity to grow in a specific area of weakness and help develop early reading skills. The intervention was successful in providing growth of phonemic awareness for the students.

Nancollis et al. (2005) examined the skill of phonological awareness in students who were provided interventions that focused on syllable and rhyme awareness. The intervention was completed to help increase the growth of literacy and the development of phonological skills. They compared two groups of students with disadvantaged socioeconomic backgrounds and signs of early reading disabilities in the United Kingdom. The first group were taught using a program of phonological awareness intervention and the control group did not receive any type of intervention. Although phonemic awareness was not part of the study, an interesting result surfaced after the assessment results were examined. The control group performed better in the area of phoneme segmentation and blending than the students who had received intervention in rhyme and syllable awareness. The phonological awareness intervention that focused on enhancing syllable and rhyme awareness proved to have little effect on the students reading development. The research discovered the intervention may have even interfered with the

acquisition of phonemic awareness. To understand the results further, the method and procedure of the study must be examined.

The experimental group consisted of 99 students and the control group consisted of 114 students. The age of participants ranged between four to five years old. All students were selected based on their enrollment in the public school with low socioeconomic status and signs of early reading disabilities. The experimental group received a nine-week program of phonological awareness intervention in the summer months. All sessions were carried out by speech language pathologist. All of the sessions lasted approximately 45 minutes and were conducted in the students' classrooms. The sessions covered the skills of syllable, rhyme, and initial phoneme discrimination through visual materials, games, activities and scripted written plans. Students were assessed by the speech language pathologists on measures of phonological awareness and language. Assessments were performed both in a group and individual format. The experimental group was assessed prior to the trials, after the trials, and two years after the intervention period. The control group were assessed during the school year one year after the experimental group trial.

The results indicated students who received phonological awareness intervention performed better on a rhyme awareness task in comparison to the control group (Nancollis et al., 2005). An important outcome from the study showed that phonological awareness intervention that placed importance on rhyme awareness and syllable segmentation resulted in little to no effect on future literacy acquisition of the students who received the intervention. The study results suggested that intervention focusing on syllable and rhyme awareness did not increase reading development, which confirmed the importance of phonemic awareness interventions for students with early reading disabilities.

Response to Intervention in Phonemic Awareness. The response to intervention (RTI) model provides students a personalized learning experience who are considered to be at-risk in a specific academic area. The model ensures students are being assessed in order to apply evidence-based interventions in specific areas of need (Graner et al., 2005). The multi-tiered approach to learning model provides prevention and early intervention for students lacking certain skills. The first tier of RTI involves classroom instruction using evidence-based methods for instruction of the majority of students. The second tier involves assessing and providing students with intense interventions in areas of weakness. The third tier is reserved for students who do not respond to intense instruction methods in tier two, which usually results in a special education evaluation. Kerins et al. (2010) examined the effects of tier two interventions on first grade students. One group received explicit phonemic awareness skills with the speech-language pathologist and the other group received multi-sensory reading instruction. Phonemic awareness was reviewed in the study since the skill indicated the best predictor of reading performance in the first two years of school ("Teaching Children to Read", 2000).

Kerins et al. (2010) designed an experimental group that consisted of small-group interventions using systematic, explicit instruction in phonemic awareness for students at-risk for reading disabilities. The study involved 23 first grade students in a suburban public school in Maryland. Students were selected based on assessment results, which showed students at-risk for learning to read. Students were assessed using the Individual Language Assessment, running records, the Test of Word Reading Efficiency and a subtest of Language Development Primary. Once students were selected for the study, they were randomly placed into two groups. The first group received whole group classroom instruction in reading. The other group of students received the same daily classroom instruction in reading with an additional 60 to 90 minutes of

interventions from the speech-language pathologists (SLP). The experimental group were taught by speech-language pathologists since the teachers were highly qualified to assess and provide direct instruction in phonemes.

Kerins et al. (2010) reported the experimental group received 16 sessions, totaling 16.5 hours of tier two instruction. The sessions were sequenced the same for each lesson, which involved a poster of the letter, oral practice of the letter, formation of the letter, and blending phonemes from left to right. Students also worked on segmenting nonsense words and using one-to-one correspondences with blocks. The students were then assessed immediately following the end of the tier two interventions, using the same assessments from before.

All students in the study, regardless of group placement, experienced significant gains over the course of the treatment period (Kerins et al., 2010). The tier two intervention group performed significantly better when a review was completed on the scores of blending, segmenting, and decoding at the end of the study. All students in the study who performed well in the phonemic awareness skills showed strong growth in the reading subtests on decoding and fluency. The results confirmed the importance of tier two instruction for students displaying early reading disabilities. The tier two instruction gave explicit reinforcement of certain skills students lacked and allowed students additional time to master phonemic awareness skills. The assessment data demonstrated the positive role of extensive phonemic awareness and phonics instruction for young students in the process of learning to read, especially for struggling readers (Kerins et al., 2010). Tier two instruction allowed lacking skills to be taught and reinforced for students who would have otherwise fallen behind when compared to their peers.

A study completed by Koutsoftas et al. (2009) examined the efficiency of a tier two small group intervention format intended to grow student skills in phonemic awareness. The students

were selected from a low-income preschool that taught Early Reading First in the classrooms. The purpose of the response to intervention was to identify students who were not making consistent growth in the regular education setting and provide more intense, individualized intervention to target grade-level benchmark goals (Koutsoftas et al., 2009). Phonemic awareness, specifically first sound fluency, was the targeted skill in the intervention sessions since the skill was the weakest for all of the students.

The study took place in three public schools and two Head Start classrooms. The classrooms were all located in Tempe, Arizona. The participants in the study were three and four year-old students from low-income families. The average class size was approximately 22 students. Based on the response to intervention model, the students received tier two interventions that were scheduled twice per week for a total of six weeks. All of the sessions were taught in the classroom and lasted about 20 minutes. There were 13 groups of students, with three to four students in each group. The intervention was scripted and taught by a licensed teacher or speech language pathologist. The sessions involved eight core components, which were objective, anticipatory set, purpose, input, modeling, checking for understanding, guided practice, and closure. The sessions focused on letter sounds, beginning sound fluency, consonant vowel consonant words, and review of phonemes being taught. Trophies Pre-K Beginning Sound Awareness and DIBELS were used to assess student progress during and after the intervention period. The assessments measured students' skills in first sound fluency and letter sounds.

Intervention in a tier two format proved to be effective for a large majority of students in the study (Koutsoftas et al., 2009). Students who were placed in the intervention program resulted in medium to large effect size in their skill of identifying the first sound in a given word. Also, the findings indicated the intervention effect was sustained through kindergarten in the

majority of students in the intervention program. The study found younger students experiencing difficulty learning in larger classroom environments when compared to older students. However, primary students in the study were able to learn the skill better when provided with additional practice in a small group setting. The tier two intervention sessions were able to increase the phonemic awareness scores of the low-income preschools. The first sound fluency scores for the majority of the students in the study increased to significant value. Students placed in the small group format of intervention showed significant growth when compared to a whole classroom instruction format.

Kamps et al. (2007) studied tier two intervention in reading instruction for 318 first and second grade students from six elementary schools in Kansas. Of the 318 students, 170 were English language learners (ELL) and 148 were English-only students. English language learner refers to a student who is learning the English language in addition to their native language (Kamps et al., 2007). All schools in the study served high numbers of ELL students in urban and suburban communities. There were an estimated 5 million English language learners in the United States as of 2017 ("English Language Learners", 2020). Kamps et al. (2007) investigated tier two evidence-based instruction on targeted skills. The skills involved were phonological and phonemic awareness, letter-sound recognition, alphabet decoding, fluency, and comprehension. For ELL students, the tier two interventions provided the opportunity to supplement whole group lessons to better meet the academic needs of each student.

The researchers wanted to study a large body of participants so they included 16 schools. Of the 16 schools, 10 schools were placed in the experimental group and six schools in the control group. The study took place during a five-year period. Students were selected from the schools based on parent consent and enrollment in a school with ELL students. The primary

languages of the students included Somalian, Sudanese, and Vietnamese. The experimental and control groups were involved in a secondary literacy intervention that differed both in curriculum and grouping size. The experimental group were taught using a balanced literacy approach through direct, small group instruction, which consisted of three to seven students. The experimental group students would then be pulled into a tier two intervention structure if skills were worsening. The experimental group were taught through the curriculums of Reading Mastery, Early Interventions in Reading, and Read Well. The control groups received components of guided reading with group size of five to 12 students, but no students were pulled into a tier two intervention group. The control groups were taught through the same curriculum as the experimental groups. All students were assessed before, during and after the trials using DIBLES and the Woodcock Reading Mastery Test.

The ELL students placed in the experimental group showed greater success, specifically those who participated in tier two interventions that provided direct instruction in a small group format. All students grew in their phonemic awareness skills based on the DIBELS assessments in nonsense word fluency and first sound fluency. Findings suggested the tier two interventions were very successful in teaching early reading skills, specifically phonemic awareness, for first and second grade ELL students. The tier two interventions allowed licensed teachers to address deficits in reading skills of ELL students and provided support for them in order to grow in their reading abilities. Students who participated in tier two interventions significantly grew in their skills in phonemic awareness and reading comprehension compared to the students who did not receive tier two instruction and were at the same starting academic position. Overall, tier two interventions proved to be successful in growing ELL students in their academic goals.

Coyne et al. (2018) evaluated the effects of tier two intervention for students in first, second and third grade who showed signs of being struggling readers. The study took place in several elementary schools within four different school districts. The school districts were selected to participate in a state MTSS initiative. The study was completed in conjunction of research that showed a strong and positive relationship between small group reading interventions and literacy outcomes for primary children (National Early Reading Panel, 2008). All students in the study were assessed in the beginning of the school year using benchmark measures from DIBELS. Students were selected to receive tier two reading interventions using the scores from DIBELS who showed risk for reading difficulties. The study included 205 students who received tier two intervention and 195 students who received classroom instruction only.

Reading interventionists were hired for the study to teach the tier two intervention students (Coyne et al., 2018). Proactive Early Interventions in Reading was selected as the supplemental tier two intervention curriculum. The curriculum included a comprehensive coverage of reading skills, materials for students, and the instruction was explicit and direct. There were 120 lessons per level, depending on student skill level. Each lesson was scripted, focusing on a specific early reading skill such as phonemic awareness, reading comprehension, fluency and phonics. The sessions were completed four days per week, each for 30 to 40 minutes. Group size was three to four students. All students were assessed in phonemic awareness, word decoding, oral reading fluency, and reading comprehension before, during, and after the trial.

The tier two intervention framework proved to be effective as data showed growth in students' phonemic awareness and decoding outcomes. There were larger effects on phonemic

awareness and word decoding in the students who received intervention support. Results of the study suggested that increased instructional intensity resulted in positive gains in phonemic awareness for students with below average skills in early reading. Students who were instructed in the tier two intervention format enhanced their skills in phonemic awareness by over 15 percentile points based on assessment results. The researchers concluded the students scored around 14 percentile points beyond what their performance would have been if they had only received tier one classroom instruction (Coyne et al., 2018). Analysis of assessment data revealed the significant support for tier two intervention for students at-risk of reading disabilities.

The Role of Speech Language Pathologists and Phonemic Awareness

Spencer et al. (2008) analyzed the phonemic awareness knowledge of several groups of educators. The authors included speech-language pathologists, kindergarten teachers, first-grade teachers, reading teachers, and special education teachers in their study. The purpose behind the study was to determine who could provide effective phonemic awareness instruction for students with reading difficulty, since the ability to instruct students relies on sufficient knowledge and skill. The study included 541 professional educators. The data was gathered across multiple schools for a period of five years. A paper-pencil assessment was facilitated to measure the educators' phonemic awareness knowledge. The assessment included three tasks, which were phoneme segmentation, phoneme identification, and phoneme isolation. The assessments explored the educators' skills of explicit phonemic awareness skills. Observations of each educator during instructional time was also conducted by the researchers.

Spencer et al. (2008) reported results that indicated speech-language pathologists had better phonemic awareness skills as compared to other educators. The speech-language

pathologists were effective in the structure of speech and language, which was associated with better performance. Teaching with strong phonemic awareness skill proved to allow more direct instruction in phonemes based on teacher observations. The other groups of educators showed similar phonemic awareness proficiency. The results highlighted the importance for the educational team to share and collaborate early literacy instruction. Speech-language pathologists were shown to have particular strength in phonemic awareness, which the authors noted to be of high importance. The study captured the need for all school stakeholders to collaborate with other educators in order to provide effective instruction and intervention for students. The following study examined phonemic awareness interventions further, with the assistance of speech-language pathologists.

Pokorni et al. (2004) explored the relative effectiveness of three programs, Fast ForWord, Earobics, and LiPs, to determine growth in phonemic awareness and other reading related skills in students with reading deficits. They set out to determine if a specific intervention program would grow students' skills in phonemic awareness, which is a fundamental element for reading acquisition (Pokorni et al., 2004). The participants were selected from a school district of approximately 135,000 students with 42 percent of students receiving free or reduced lunches. Speech language pathologists selected students who were seven to nine years of age, receiving school-based speech language services, and were one year below grade level for reading skills. A total of 60 students from 34 schools within the district were selected for the study.

Pokorni et al. (2004) completed the study during the summer months with a 20-day trial period. The summer program ran five hours a day, with three one-hour intervention periods per day for all students. Intervention groups, Fast ForWord, Earobics, and LiPS, were instructed in isolated places. No other instruction in reading were completed during the summer sessions.

Students who received Fast ForWord intervention were assigned to a computer and completed a series of computer-based, adaptive, interactive exercises that used acoustically processed speech sounds. Participants in the Earobics intervention were also assigned to a computer and completed five interactive games, with 600 levels of play. Both Fast ForWord and Earobics interventions consisted of playing computer games designed to develop phonemic awareness skills. Lastly, the LiPS intervention group was assigned to a group of three to four students. Each group was assigned to a speech-language pathologist that conducted the program during the intervention period.

Assessments were completed four to six weeks before the intervention began, six to eight weeks after the intervention ended, and 11 months after the intervention for follow-up data. All students were assessed in phonemic awareness, language-based skills, and reading-related skills. The analysis of the assessment results found significant effect in phonemic awareness skills only (Pokorni et al., 2004). The researchers compared the three intervention groups together and found the LiPS intervention format to provide the largest improvement in students' ability to blend phonemes. Pokorni et al. (2004) believed the significant growth difference in the LiPS group resulted in the speech-language pathologist instruction, rather than the computer-based instruction. All intervention groups gained skills in phonemic awareness. However, there was no significant gain in segmentation or reading related subtests for the Fast ForWord or Earobics groups. Overall, the assessment data revealed the positive growth in students' phonemic awareness skills based on the interventions provided.

CHAPTER 3: DISCUSSION AND CONCLUSION

Summary of Literature

The objective of this study was to understand the relationship between phonemic awareness and early reading skills of primary students. The literature review reinforced the need for phonemic awareness in reading instruction and provided evidence to incorporate explicit interventions in phonemic awareness for struggling readers. Research confirmed that a student's development in phonemic awareness is a clear predictor of future reading success (Byrne & Fielding-Barnsley, 1990; Hulme et al., 2002; Ouellette & Haley, 2013; Yeh & Connell, 2008). Incorporating phonemic awareness skills, such as segmentation and blending, in the primary classroom will ensure future reading success in students. The evidence clearly demonstrated phonemic awareness skills are better predictors of reading success than syllable awareness or onset-rime skills (Byrne & Fielding-Barnsley, 1990; Hulme et al., 2002; Yeh & Connell, 2008). The literature review highlighted the importance for teachers to provide direct instruction in phonemic awareness to assist students' ability to hear and manipulate individual phonemes.

Research explored the role of phonemic awareness and learning to read. Small gains in phonemic awareness resulted in a large effect size on later reading and spelling progress (Allor, 2002; Ashby et al., 2013; Castle & Riach, 1994; Melby-Lervåg et al., 2012). A strong, positive association between early reading skills and phonemic awareness were displayed in multiple studies. Results often showed that children who could not manipulate the 44 individual phoneme sounds were at significant risk for reading failure (Byrne & Fielding-Barnsley, 1991; Daly et al., 2004; Snider, 1997; Williams, 1980). The research also consistently demonstrated the importance for phonemic awareness skills to ensure success in learning to read. Primary students who developed an awareness that words are made up of individual phonemes experienced

positive growth in their early reading skills based on assessment data results (Ashby et al., 2013; Castle & Riach, 1994; Melby-Lervåg et al., 2012; Snider, 1997; Yeh & Connell, 2008). The literature review confirmed the statement that phonemic awareness contributes to early reading success.

The ability to read is a learned skill that takes time. Long-term studies showed that poor phonemic awareness resulted in future reading difficulties (Compton, 2002; De Groot et al., 2017; Ukrainetz et al., 2009). Phonemic awareness has a direct role in a student's ability or inability to read in the future. Students who understood the skills of phoneme segmentation and nonsense word fluency showed future success in reading acquisition (Compton, 2002; De Groot et al., 2017; Ukrainetz et al., 2009; Yeung et al., 2020). The direct instruction of phoneme segmentation provides growth opportunities for primary students. The study completed by Spencer et al. (2008) highlighted the importance for teacher knowledge and collaboration in the skill of phonemic awareness. The greater the understanding and knowledge of phonemic awareness, the more the teacher applied the skills into lessons for the students (Spencer et al., 2008). The research results showed the importance for teacher understanding and collaboration in early literacy skills, such as phonemic awareness, to ensure students are receiving adequate instruction.

Small group interventions in phonemic awareness were examined in the studies. The small group intervention format proved to significantly increase students' phonemic awareness and decoding abilities when compared to a whole group instruction format (Coyne et al., 2018; Kamps et al., 2007; Koutsoftas et al., 2009; Suggate, 2016). The advantage for phonemic awareness small group instruction resulted in positive gains in students with reading abilities. Small group interventions that focused on phonemic awareness skills showed enhanced

acquisition of early reading skills for students with reading disabilities (Allor et al., 2006; Hall & Burns, 2018; Kerins et al., 2010; Nancollis et al., 2005). Research studies completed follow-up data to determine effects of small group interventions on struggling readers. Multiple data reviews showed positive effects of interventions in phonemic awareness that resulted in years of maintained gains in identifying, segmenting, and blending phonemes for students with early signs of reading difficulties (Nancollis et al., 2005; Pokorni et al., 2004; Ryder et al., 2008). Phonemic awareness proved to be a successful skill to instruct in a small group format for all students.

The research findings consistently demonstrated the importance for phonemic awareness instruction to enhance early reading development in primary students (Allor, 2002; Byrne & Fielding-Barnsley, 1991; Castle & Riach, 1994; Daly et al., 2004; Snider, 1997). The literature review reaffirmed the importance for teaching phonemic awareness to school-aged students. Explicit instruction in phoneme level skills were the best predictor of reading skills, as well as a critical skill to support poor readers (Allor, 2002; Byrne & Fielding-Barnsley, 1990; Hulme & Others, 2002; Ouellette & Haley, 2013; Yeh & Connell, 2008). All teachers want what is best for their students. A best practice of literacy instruction is phonemic awareness, since it is a critical skill to teach our primary students in learning to read (Byrne & Fielding-Barnsley, 1990; Hulme & Others, 2002; Yeh & Connell, 2008). Reading can become easier for students if phonemic awareness instruction would be provided in the elementary schools.

Limitations of the Research

The literature review involved research articles in phonological awareness, specifically phonemic awareness. Phonemic awareness, the ability to identify and manipulate individual sounds, was reviewed on the overall effectiveness of instruction in the elementary setting. The

pool of research was limited to solely focus on explicit, direct instruction in phonemic awareness, how the skill benefited struggling readers, and the promotion of interventions in phonemic awareness. Other phonological awareness skills were not included in the study as the focus was exclusively on phonemic awareness. Professional development for educators in the area of phonemic awareness was not discussed in the literature review.

The research began to look at the benefits of guided reading in the primary grades. Searches were completed in guided reading, fluency, early reading skills, and small group instruction. However, due to limited research in the subject matter, review of the initial search of articles was completed again. Phonemic awareness instruction was highlighted during all search periods. The research shifted from guided reading to phonemic awareness since there was a large body of research supporting the skill in the primary grades, as well as the many benefits phonemic awareness had on young readers.

Implications for Future Research

Future research in the area of phonemic awareness should focus on professional development for primary teachers. The research study results showed the positive growth in early reading skills when instruction was focused on the development of phonemic awareness (Compton, 2002; De Groot et al., 2017; Goldstein et al., 2017; Iacono & Cupples, 2004; Ukrainetz et al., 2009). Primary teachers have the obligation to instruct research-based pedagogy in the area of phonemic awareness. Future research should focus on best practices of phonemic awareness and how to effectively instruct students in the primary grades in order to grow their skills in identifying individual phonemes in words. Teacher training courses should be reviewed to see success rates between teacher training and student assessments in phonemic awareness.

Research should investigate the instructional approaches of primary teachers to ensure students are receiving the best practices in the area of phonemic awareness.

Phonemic awareness is a powerful skill to propel the early reading skills of students. Research should review the assessment tools of phonemic awareness in greater depth. Progress monitoring allows teachers to accurately adjust instruction based on student assessment results, which brings the importance for accurate and clear assessment programs. For example, future research should review DIBELS, Quick Phonological Awareness Screening, and Renaissance Star Testing in order to identify the most effective program to assess students in phonemic awareness. Teachers depend on assessment programs to adjust their instruction to best fit the needs of their students. It is important to review programs to understand the effectiveness and accuracy in the assessment results.

Professional Application

Reading is a fundamental skill that is required to be successful in life. Reading allows students to dive deeper into content and to think critically. Without the ability to read, a student will go through school with little success. As a kindergarten teacher, I strive to lay the foundations of early reading skills for my students. In my experience, many students struggle in their ability to understand phonemic awareness, which has been identified as a critical skill in early reading success (Allor, 2002; Ashby et al., 2013; Castle & Riach, 1994; Melby-Lervåg et al., 2012). Practice and direct instruction are required for students who struggle with phonemic awareness. The literature review unearthed the importance for early reading skills, specifically phonemic awareness, to be incorporated into the daily schedule for all primary students.

The research highlighted the importance of direct, explicit instruction in phonemic awareness, specifically the skills of segmentation and blending, to help students grow in their

early reading skills (Compton, 2002; De Groot et al., 2017; Ukrainetz et al., 2009). I plan to incorporate additional phonemic awareness curriculum into my daily lessons to ensure students receive direct instruction of the skill. I will continue to monitor students' progress to ensure they are reaching benchmark goals in letter naming, phoneme segmentation and nonsense word fluency. The data from progress monitoring will allow me to adjust instruction or provide intensive interventions in phonemic awareness for struggling students. Intensive interventions in phonemic awareness showed enhanced acquisition of early reading skills for students with reading disabilities (Allor et al., 2006; Hall & Burns, 2018; Kerins et al., 2010; Nancollis et al., 2005). It will be important to incorporate phonemic awareness interventions into my schedule for students who lack the skill.

I believe phonemic awareness is one of the most important literacy skills for students to grasp in their kindergarten and first-grade journey. I plan to work with my colleagues to ensure phonemic awareness curriculums, like Heggerty, are instructed with fidelity to ensure a rigorous instruction of the skill. Grade level teams need to work together to create and implement research-based phonemic awareness activities for students to complete and master. Center activities, whole group instruction, small group work, and partner activities should consist of phonemic awareness skills. Quick and efficient phonemic awareness activities, like the Stop and Go game discussed in the previous research study on interventions, resulted in positive growth in the area of phonemic awareness for students (Allor et al., 2006). I plan to research additional games and activities to improve my students' phonemic awareness skills.

The literature review process allowed deep reflection of my own literacy instruction, specifically phonemic awareness. Before completing the research, I did not place a high importance on phonemic awareness. However, after reviewing the studies, I understand the

importance of the skill on my students' ability to read. It has been documented that phonemic awareness contributes to growth in word reading skills from kindergarten through at least fifth grade (Allor, 2002; Snider, 1997; Williams, 1980). I will now place a higher level of importance on direct phonemic awareness skills to ensure my students are successful. I have implemented intensive intervention sessions with three of my students to increase their phoneme segmentation and nonsense word fluency scores. Research results showed intervention groups significantly outperformed control groups on phonemic awareness through small-group instruction (Kamps et al., 2007; Ryder et al., 2008; Spencer et al., 2008). Based on the research I have conducted, I plan to continue to increase student scores in phonemic awareness through explicit and direct instruction, as well as by providing small group interventions for students displaying difficulty in phonemic awareness.

Conclusion

The literature review examined the relationship between phonemic awareness and early reading skills for children in the primary grades. Phonemic awareness, the ability to manipulate sounds within a given word, has a strong predictive factor in learning to read (Snow, Burns, & Griffin, 1998). Reading is a skill requiring hard work and a progression in multiple skills. Phonemic awareness has a direct effect on early reading success in primary students (Allor, 2002; Melby-Lervåg et al., 2012; Pokorni et al., 2004; Snider, 1997). The literature review results demonstrated the importance of phonemic awareness instruction for all students.

Phonemic awareness is a key ingredient in learning to read. Through explicit, direct instruction and small group interventions, teachers can ensure their students are successful in phonemic awareness. The obligation of all primary educators is to teach early reading skills so students can be successful. Phonemic awareness is a research-based skill to ensure students are

successful in reading (Allor, 2002; Ashby et al., 2013; Castle & Riach, 1994; Melby-Lervåg et al., 2012). Learning to read is challenging for many students. Teachers can make the journey of learning to read a bit easier by teaching phonemic awareness through explicit and direct instruction.

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