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Ariel Markgraf
sorliea@csp.edu

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Closing the Literacy Gap in Reading Using Phonics and Fluency Interventions

Ariel Markgraf

Concordia University, St. Paul

Master of Arts in Education – Differentiated Instruction

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Professor Brian Boothe Ed. D.

Second Reader: Professor Phyllis Burger Ed. D.

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Abstract

Effective reading interventions are essential in closing the literacy gap. Many educators are unaware of what is considered best practice for struggling readers. This paper analyzed current research on several methods, including phonics, fluency, and mix-method reading interventions and their effects on students' reading abilities. The effectiveness and fidelity of teacher-led intervention strategies were examined as a causal means to an intervention's success. There was also a focus on using technology-based applications in various interventions. Research showed several intervention strategies could support struggling readers, including phonic analysis (word boxes), constant time delay, and repeated and continuous reading focusing on the dosage of words read. Research also indicated that educators were more successful when attempting to close the literacy gap if they provided interventions that suited students' needs and were willing to change the intervention if they did not show growth. Additionally, the research revealed that teacher efficacy was essential in an intervention's success, and educators must be competent in their instruction. These findings suggested a focus on selective intervention strategies and teacher efficacy as significant factors in closing the literacy gap.

Keywords: fluency, phonics, intervention, literacy gap

Closing the Literacy Gap in Reading Using Phonics and Fluency Interventions

Chapter One: Introduction

Teaching students to read is a complex and demanding task for educators worldwide. Literacy education takes diligence, evidence-based practice, and compassion to help students read fluently and comprehend what they have read. According to Kerns and Bryan (2020), “in a study of approximately 4,000 students, researchers found that nearly one in four students (23 percent) with “below basic” reading skills in third grade had not graduated high school by age 19” (para. 5). Educators have long been searching for ways to help students who have fallen behind and actively seek strategies to close this literacy gap. Students must gain more than a year’s worth of growth in reading each year to begin closing their literacy gaps. However, students are left behind and marked as unteachable or unable to reach their full potential in their academic abilities. Every student deserves the best possible education to grow into the best version of themselves. Therefore, it is imperative that educators close the reading gap in literacy education.

One of the most fundamental goals of reading is fluency and comprehension (Wagner & Espin, 2015). However, to comprehend a text, students must be able to read phonetically and fluently (Hammerschmidt-Snidarich, Maki, & Adams, 2019). Primary school educators have learned countless ways to help students who have fallen behind. These include using small groups with similarly abled students or working with students in interventions. Some educators will meet individually with students, while others prefer working with students in small groups. In some schools, students are pulled during reading instruction to work with other teachers one on one. Countless resources are given to districts, many changing every year, leaving educators unaware of what is best practice when working with students. The identification of best practice

or practices is crucial to help close the literacy gap in reading education for students in kindergarten through grade five. This paper will attempt to determine the most effective phonics, fluency, and mix-method interventions and if those interventions can close the literacy gap of struggling readers.

Scope of Research

Reading is an essential subject that students must learn to succeed in school and life. However, when students fall behind in reading, educators often do not know what resources, strategies, and interventions are most effective. The research in this paper reviewed phonics, fluency, and mix-method intervention strategies to determine what methods were proven to be most successful in closing the literacy gap. These categories were selected based on the most frequently used intervention strategies in the primary grade levels. Additionally, this paper examined teacher-led interventions' effectiveness and efficacy and their role in reading success. Subtopics were also analyzed, involving the inclusion of technology in interventions and whether it was most beneficial to work with students in whole groups, small groups, or individually. The research will be limited to primary school students.

Importance of the Study

Educators must identify what is considered best practice when it comes to closing the literacy gaps of struggling readers. Student success in the classroom is firmly based on comprehensive and fluent reading. Fluent readers sound effortless in their reading and can engage in insightful and intuitive conversations about what they have read. Wagner and Espin (2015) found that when students were dysfluent in their reading, they read less often, decreased their exposure to various forms of text, and often spent more time working inaccurately and incompletely on their schoolwork. Dysfluent readers also struggle with comprehensive reading

tasks. As students switch from learning to read to reading to learn, struggling readers begin to widen the gaps between themselves and their peers. By the time students reach middle and high school, dysfluent readers struggle immensely to keep up with the amount of reading material needed to succeed in other tasks (Wagner & Espin, 2015). Therefore, **educators must intervene as early as possible to close the literacy gap associated with low-performing readers to help students succeed in their school careers.**

When attempting to close literacy gaps, educators are often given various intervention strategies. However, many educators do not feel confident or know where to begin when working with struggling and dysfluent readers (Kim, Samson, Fitzgerald, & Hartry, 2010). Professional development can often lead educators in conflicting directions on the most effective intervention strategies. Educators must then pick and choose between several interventions that may or may not be effective, wasting valuable learning time if the intervention was unsuccessful. Educators need to determine what research-based interventions provide students with successful results to close students' literacy gaps.

Research Question

In light of what is known about differentiated instruction, what is considered **best practice when attempting to close the literacy gaps in reading using phonics, fluency, and mix-method intervention strategies in kindergarten through fifth grade?**

Definition of Terms

Literacy gap means a significant difference between what students are expected to learn in literacy-related tasks and what they have learned by a specific age or grade level (Scherer & Nilsen, 2019). The literacy gaps covered in this paper will involve the gaps in phonics and fluency noted between grade levels kindergarten through grade five.

Fluency intervention refers to teaching struggling readers to read with accuracy, speed, and appropriate expression (Bradley & Noell, 2018; Stevens, Walker, & Vaughn, 2017). Fluency interventions include repeated reading, or reading a text many times, and continuous reading, or reading continuously for a specific amount of time (Hammerschmidt-Snidarich et al., 2019).

Mixed-method literacy intervention means using various intervention strategies in fluency, vocabulary, and comprehension to improve low-performing readers' literacy skills (Kim et al., 2010). The mix-method intervention strategy can involve whole group, small group, and individual interventions.

Phonics intervention refers to teaching students struggling to read how to pronounce and read words. The phonics strategies involved include using letter sounds, syllables, blending and segmenting phonemes, and other phonics strategies (Bradley & Noell, 2018; Schmidgall & Joseph, 2007).

Summary

Educators understand the importance of teaching students to read. However, when a student falls behind, many educators are ill-equipped to help students catch up to their peers in reading. As reading with fluency is essential for every student, this paper is an attempt to determine the best methods in closing the literacy gap in reading using several different intervention strategies. This chapter introduced phonics, fluency, and mix-method interventions and their role in closing the literacy gap in reading. Teacher efficacy and effectiveness were also presented as factors in successful reading interventions. **To close the literacy gap of struggling readers, educators must determine the best practices for phonics and fluency reading interventions.**

Chapter 2 includes a literature review involving phonics, fluency, and mix-method intervention strategies. The effectiveness and fidelity of teacher-led interventions will be discussed. Chapter 2 will also examine the use of computer and tablet-based programs in interventions. Chapter 3 will discuss the insights and implications gained from the literature review. The importance of the research question and how it led to improved instruction in reading interventions will also be examined in the final chapter.

Chapter Two: Literature Review

This literature review will attempt to determine if educators can close the literacy gaps in reading using phonics, fluency, and mix-method intervention strategies. Chapter 2 will also explore the connections teacher fidelity and efficacy have in providing successful reading intervention results. Additionally, technology is discussed as a factor in reading intervention strategies.

The first section of the literature review will detail studies related to phonics interventions and their role in closing the literacy gaps in reading. This section also briefly reviews the use of technology in phonics interventions. Bradly and Noell (2018) and Schmidgall and Joseph (2007) examined phonics interventions involving constant time delay and word boxes. Van Norman, Nelson, and Parker (2018) investigated the methods used to collect intervention data and compared curriculum-based measurements and nonsense-word interventions. Finally, Larabee, Burns, and McComas (2014) determined if adding technology was beneficial to student success in phonics interventions.

The second part of the literature review will explore closing the literacy gap using fluency interventions. Hammerschmidt-Snidarich et al. (2019) and O'Connor, White, and Swanson's (2007) findings on what is considered best practice continuous or repeated reading

will be presented. Vadasy and Sanders (2009) examined a repeated reading fluency intervention called Quick Reads. The researchers also briefly explored teacher fidelity and its connection to success in interventions. Similar to Larabee et al. (2014) in the first portion of the literature review, Özbek and Girli (2017) explored the connection to technology and intervention success.

In the third section of the literature review, Manset-Williamson and Nelson (2005), Snyder and Golightly (2017), and Wagner and Espin (2015) examined various mixed-method literacy intervention strategies. The phonics, fluency, and comprehension intervention strategies were tested to determine best practice when working with struggling readers. Kim et al. (2010) also explored mixed-method intervention strategies, but unlike Manset-Williamson and Nelson (2005), Snyder and Golightly (2017), and Wagner and Espin (2015), these researchers examined READ 180, which is an individualized computer-assisted reading program.

In the fourth and final portion of the literature review, the fidelity and efficacy of teacher-led interventions are analyzed in Bianco (2010), Nese et al. (2019), and Solari, Denton, Petscher, and Haring (2018) studies. Additionally, Nese et al. (2019) examined a mixed-method reading intervention in their study. Solari et al. (2018) also explored Tier-1 and Tier-2 reading interventions and their effects on word reading, fluency, and comprehension.

Review of the Proposed Problem

In light of what is known about differentiated instruction, what is considered best practice when attempting to close the literacy gaps in reading using phonics, fluency, and mix-method intervention strategies in kindergarten through fifth grade?

Teaching students to read takes perseverance, efficacy in instruction, and a desire to help students become better readers. However, even with an educator's best intentions, some students still struggle with reading. These students fall behind their peers, and literacy gaps become

increasingly difficult to close as they progress through their educational careers. Educators are then provided countless resources, each claiming to support low achieving students and close their literacy gaps. These claims leave educators unaware of what is considered best practice when utilizing phonics, fluency, and mix-method interventions.

Review of the Importance of the Topic

The ability to read is necessary for all areas of student learning. Dysfluent reading creates many problems for students, including falling behind in schoolwork, inaccurately completing assignments, and causing a disdain for school-related activities (Wagner & Espin, 2015). A growing body of literature that will be detailed in this chapter recognized the importance of closing the literacy gap using phonics, fluency, and mix-method intervention strategies. According to Hammerschmidt-Snidarich et al. (2019), “to close the individual reading achievement gaps of struggling readers, practitioners must provide the correct intervention at the correct dosage” (p. 645). Therefore, educators must be aware of what is considered best practice when administering reading interventions.

Phonics Interventions

Phonics instruction demonstrates the relationship between sounds and their spellings from one word to another. Bradley and Noell (2018) stated, “Phonics instruction is superior to non-phonics reading instruction in preventing reading difficulties among at-risk students and help remediate difficulties among students with reading disabilities” (p. 881). Therefore, **phonics interventions are necessary for students struggling with word-reading skills**. In the following section, several studies were analyzed to determine the best practices for phonics interventions to close the literacy gap.

Bradly and Noell (2018) conducted a qualitative study on the effectiveness of a supplemental phonics intervention for struggling readers. In the study, teachers selected students based on testing that ranked them below average in word-blending skills. The researchers then used this data to select six first-grade students. Two of these students did not complete the intervention. The sample size was small in this study and posed a limitation in the research. Another limitation was that each phase only consisted of four sessions, which may not have been enough data to draw accurate conclusions. Sessions were conducted one on one with students in a vacant classroom at the students' school (Bradley & Noell, 2018). Constant time delay was used in this study as an explicit strategy that prompted students to identify words correctly. The researchers used constant time delay to increase students' response times in blending words in which they already knew the letter sounds.

At the beginning of the study, all participants' oral reading rates were very low, putting them severely behind their peers (Bradley & Noell, 2018). To increase students' reading rates, researchers used pseudowords to help students identify word blends. If students could correctly pronounce the pseudowords within five seconds, the word was marked correct. Bradley and Noell (2018) found that "students did not demonstrate increased learning with the addition of material reinforcement, suggesting that accuracy feedback and social reinforcement were sufficient for teaching phonics skills to beginning readers" (p. 890). The findings from this study also suggested that constant time delay resulted in substantial growth compared to the baseline.

Similarly, Schmidgall and Joseph (2007) conducted a qualitative study on the effectiveness and efficiency of phonic analysis and whole word-reading instruction. The researchers studied six first graders using interspersal training, phonic analysis (word boxes), and traditional drill and practice. The students in this study came from a school district in Central

Ohio and were selected based on who needed additional services in phonetic reading and word-reading skills. The purpose of this study was to examine the instructional effectiveness and efficiency of a phonic analysis (word boxes), interspersal training, and a traditional drill procedure on first graders' cumulative word-reading performance (Schmidgall & Joseph, 2007). These three strategies were provided to students in alternating order for twenty consecutive school days. A researcher timed each of the interventions, and six unknown words were taught to students each day in all three instructional ways. The researcher's goal was to determine the best phonics instruction and interventional method.

The phonic analysis consisted of students learning words using word boxes that broke apart the sounds in each word and taught students how to make letter-sound correspondence. The interspersal training used words that students knew and did not know and placed them on individual cards. The cards were then placed in the order of a known word and three unknown words. The traditional drill and practice gave students words they did not know on cards, and students practiced identifying the unfamiliar words. Researchers found that four of the six students' word-reading performance increased the most using the phonic analysis method. All students also improved their word-reading skills using the traditional drill and practice method (Schmidgall & Joseph, 2007). It was difficult to prove if students could use contextual clues to determine the word's correct pronunciation as students were not given the words to read in a sentence until the end of the study. The study also used word boxes, making it difficult to determine if other strategies could have been more time efficient as some of the intervention time was used to create the words in the boxes.

A quantitative study conducted by Van Norman et al. (2018) examined phonics intervention comparing nonsense word fluency and curriculum-based measurement. The study

examined 3,000 first-grade students from across the United States. Van Norman et al. (2018) measured students' growth in Tier-2 phonics interventions that focused on word-based decoding skills and oral reading rate. Students received one-on-one sessions lasting 20 minutes on phonics and fluency-based skills in connected texts or isolated word lists.

Van Norman et al. (2018) found that depending on whether student progress was monitored using curriculum-based measurements or nonsense-word fluency, educators may observe different improvement rates. Students' growth between the interventions was different in decoding skills, where nonsense-word measurements demonstrated slightly better sensitivity to growth (Van Norman et al., 2018). However, there were limitations to this study. Researchers did not differentiate the student-response strategy, which could include letter-by-letter, full-word, and partial blending strategies (Van Norman et al., 2018). The study also contained typical progress-monitoring practices in school. Therefore, the performance on both nonsense-word fluency and curriculum-based measurements differs depending on which intervention the student was receiving.

Technology could also be valuable when working with students on phonics interventions, as Larabee et al. (2014) found when researching the effects of an iPad-supported phonics intervention in their qualitative study. Researchers examined three first-grade students who lacked basic decoding skills in phonics. Similar to Schmidgall and Joseph (2007), Larabee et al. (2014) measured students' decoding skills using the word box phonics strategy. However, Larabee et al. (2014) compared standard intervention material to an equivalent iPad application and measured students' time-on-task.

Larabee et al. (2014) found no consistent pattern in decoding performance compared to the standard word box intervention. On-task engagement was high in both the iPad application

and standard intervention. Overall, the results showed small positive effects on the students' decoding skills and a similar amount of time spent on-task. However, like Bradly and Noell (2018), the small sample size was a considerable limitation to this study.

Fluency Interventions

Fluent reading is essential for students as it provides a bridge between word identification and comprehension. O'Connor et al. (2007) stated, "fluency comprises several features, including the rate of reading, prosody, and attention to punctuation, all of which intersect to bring words on a page to life" (p. 31). Therefore, **to nurture enjoyment and success in reading, proficient fluency is vital in closing struggling readers' literacy gaps.** The following section analyzes several studies involving fluency intervention strategies.

The qualitative study conducted by O'Connor et al. (2007) analyzed the difference between two fluency strategies: repeated reading and continuous reading. The researchers examined thirty-seven students between second and fourth grade. Students were split into two fluency groups and a control group. Students in the fluency groups practiced reading aloud using repeated reading or continuous reading in fifteen-minute sessions, three days a week for fourteen weeks. During this time, researchers focused on the rate students read aloud. This study was based on a one-to-one intervention, which was a limitation to the research.

O'Connor et al. (2007) found that students' reading abilities in the intervention groups grew significantly compared to students in the control group. They found no significant differences between continuous reading and repeated reading. Researchers found that practicing reading aloud with corrective feedback appeared to be more important than the specific practice model (O'Connor et al., 2007). Overall, O'Connor et al. (2007) found that "gains in fluency like those of average readers are unlikely to be achieved by poor readers without interventions

specifically aimed toward improving reading rate” (p. 44). Researchers also concluded that including general class instruction and special education instruction might benefit students who struggled with fluency.

Hammerschmidt-Snidarich et al. (2019) also examined the differences between repeated and continuous reading in their qualitative study. The study evaluated 40 participants in second and third grades from a public elementary school in a midsize midwestern city. Researchers split students into one repeated reading group and one continuous reading group that lasted for fifteen sessions over five weeks. Both repeated and continuous reading intervention groups used the same dosage of words read instead of basing their interventions on a specific time length.

After completing the interventions, researchers then compared post-test fluency and comprehension to students’ pretests, examined the quality of the interventions, and analyzed the differences in the students’ initial reading skills (Hammerschmidt-Snidarich et al., 2019). Researchers found growth in students from pretest to post-test in both repeated reading and continuous reading interventions using standardized dosages of words read. Repeated reading resulted in greater passage-specific comprehension, which supported students who were reading to understand a difficult concept. However, continuous reading provided students more exposure to a broader vocabulary range and appeared to be preferred by students (Hammerschmidt-Snidarich et al., 2019). This study agrees with O’Connor et al. (2007) that continuous reading may be the better option for students to increase their motivation to read, expand their vocabulary, and increase reading fluency. This study had its strengths; however, the sample size may have been too small to determine the statistical significance between repeated and continuous reading and its application to the broader population. Researchers also found that

some of the questions posed to students were substandard and could have affected the statistical analysis of growth.

Vadasy and Sanders (2009) performed a quantitative study to evaluate a supplemental repeated reading fluency intervention called Quick Reads and its success on reading outcomes. They also compared the difference between instruction given to students by educators and paraeducators. The researchers examined 98 treatment students and 104 control students from 13 urban elementary schools. The participants in this study were in second and third grade and had low to moderate fluency skills. Students were placed in dyads and tutored during school hours for 15 weeks. As the students were randomly assigned, these dyads went across classrooms. In a typical classroom setting, teachers would pair students within their classrooms, leading to a limitation in this research. Repeated reading was also not the only strategy used in the intervention. The intervention included scaffolding and word-letter instruction, which was another limitation of this study.

This study's findings suggested that the Quick Reads repeated reading instruction achieved substantial improvements in fluency and comprehension (Vadasy & Sanders, 2009). Researchers also found that students taught with fidelity by educators achieved a higher level of success in fluency than students who were taught by paraeducators. They found that students who read more complex words gained less in their fluency and comprehension abilities (Vadasy & Sanders, 2009). **Researchers also found that texts should be at a student's reading level to help students make greater fluency and comprehension gains.**

Fluency interventions that utilize technology were another facet to consider when working with students, as Özbek and Girli (2017) learned in their qualitative study on the effectiveness of a computer-aided program to improve reading fluency. Özbek and Girli (2017)

examined two boys and one girl in third and fourth grade who had a learning disability. The study was conducted for 13 sessions with Participant One and Two and 15 sessions with Participant Three. The repeated reading interventions were held once a week and lasted 20 minutes. Students went through pre-listening, repeated reading, performance feedback, and reward during this time. Özbek and Girli (2017) wanted to know if technological devices, such as tablet computers, mobile devices, mobile applications, and other software, can help develop students' reading fluency, especially students with reading difficulties.

Researchers found that computer-aided interventions improved students' reading fluency compared to the baseline. Although all three students increased their reading fluency, Participant One and Three grew significantly more than Participant Two. Özbek and Girli (2017) found that the reading fluency intervention with tablet computers did not offer significant benefits, as the findings only showed it was slightly effective. More research was needed to conclude if these findings were based on the specific program used or were the result of the technology. However, some limitations should be noted within this study. Two of the three participants only received four intervention sessions. Data was difficult to collect from such a small sample size. This was also a Turkish study. Therefore, fluently reading in a different language may not compare well with the American language.

Mixed-Method Literacy Interventions

Researchers Manset-Williamson and Nelson (2005) and Snyder and Golightly (2017) agree that several intervention strategies can and should be utilized to increase reading achievement and close the literacy gap. **These strategies include a mixture of phonemic, phonics, fluency, and comprehension interventions.** Detailed in this section are several studies involving balanced and mixed-method intervention strategies.

Manset-Williamson and Nelson (2005) conducted a qualitative study comparing two balanced and strategic reading instruction approaches. Researchers analyzed 21 students in grades four through eight who were at least two years below their expected grade-level in reading achievement. Manset-Williamson and Nelson (2005) included students from a public elementary school and an independent school for students with reading disorders. The study was conducted in 25 sessions over five weeks. Manset-Williamson and Nelson (2005) randomly assigned students to one of two intervention groups, either explicit comprehension or guided reading. Researchers wanted to compare the effects of two balanced strategic interventions on children with reading disorders and whether explicit teaching led to higher comprehension (Manset-Williamson & Nelson, 2005).

Researchers found that when using a balanced and strategic intervention, students with learning disabilities accelerated their learning in a short amount of time. The more explicit the instruction and comprehension strategy, the higher the likelihood that older children with reading disorders made significant reading comprehension gains (Manset-Williamson & Nelson, 2005). Students in both groups made significant gains in decoding, fluency, and comprehension. Manset-Williamson and Nelson (2005) stated, “practitioners should be aware of the need to examine whether elements of comprehensive treatments could be intensified depending on students’ reading skills and phonological processing profile” (p. 72). This study included two limitations. First, there was no control group, threatening the validity of the researcher’s conclusions. Researchers chose to use a contrast group instead. Second, when selecting the participants, there was the potential for bias. Researchers randomly assigned participants to treatments; however, all students who qualified and volunteered were allowed in the study.

The qualitative study by Wagner and Espin (2015) analyzed students' reading fluency and comprehension across various intervention approaches. Wagner and Espin (2015) examined 29 fifth and sixth-grade students from a suburban district in the Midwest. All students were struggling readers, with 12 receiving special education services. Researchers used four different intervention approaches when working with struggling students, including a word-oriented, fluency-oriented, comprehension-oriented, and multi-component approach in instructional and transfer passages. The four intervention approaches were then compared with a control group. The intervention was conducted within two weeks for a total of five sessions. The researchers had two goals in this study, to determine the effects of the various reading interventions and determine the best strategy for the comprehension of reading passages.

Wagner and Espin (2015) found that word-oriented, fluency-oriented, and multi-oriented interventions resulted in significantly higher reading fluency scores compared to the control. However, a limitation noted that fluency in this study was only measured as the number of words correct in one minute and did not include a broader range of standardized assessments. Additionally, researchers only used grade-level passages, whereas different instructional-level materials may have achieved a different result. The study showed that both the fluency-oriented and multi-component interventions significantly impacted the comprehension of both instructional and transfer passages (Wagner & Espin, 2015). For the transfer passages, only fluency-oriented and multi-component approaches resulted in significantly higher reading fluency scores compared to the control. In sum, Wagner and Espin (2015) concluded that their study's results supported a word-oriented approach with a dosage of a fluency-oriented or multi-component approach as essential to improving fluency and comprehension for struggling readers.

Snyder and Golightly (2017) examined the effectiveness of a balanced approach in their qualitative phonics-based reading intervention study. Snyder and Golightly researched a seven-year-old second-grader from a school in Pennsylvania. The student was selected based on their teacher's recommendation due to low reading achievement, articulation, and ability to attend instruction. Researchers implemented a phonics-based reading intervention and a sight-word reading program that worked on whole-language skills. The researcher's goals were to determine if a balanced approach to a phonics and sight word intervention would improve the basic reading skills and the reading comprehension of a struggling second-grade student.

After the seven-week intervention, researchers found a positive increase in all reading-related areas with the most significant gains in nonsense word decoding. This finding correlates to Van Norman et al.'s (2018) results that nonsense-word fluency demonstrated slightly better sensitivity to growth than curriculum-based measurement. Snyder and Golightly (2017) also found that the student's word identification, sight word recognition, and reading comprehension abilities increased dramatically. **When using both a phonics-based intervention and a sight word reading program, the participant had grown substantially compared to their baseline.** A significant limitation of this study was the use of only one participant. When comparing statistical data, it can be challenging to determine the reason for the child's reading success when it cannot be compared with other students.

In a quantitative study on a mixed-method reading intervention, Kim et al. (2010) analyzed the word reading efficiency, reading comprehension and vocabulary, and oral reading fluency in struggling readers. The researchers studied 294 children in grades four through six. Students that were selected came from three high-poverty elementary schools in Massachusetts. Kim et al. (2010) measured students using a mixed-method literacy intervention called READ

180. Half of the students were given the intervention during the school day, and half were in an after-school program. The READ 180 program was implemented for four days of the week in 20-minute sessions for 23 weeks.

According to Kim et al. (2010), students in READ 180 participated in computer-assisted reading instruction with leveled text, videos, word study activities, modeled and independent reading practice with leveled books, and teacher-directed reading lessons customized to the reading level of children in small groups. Students in the after-school program worked with teachers to improve their attendance in a 60-minute program where teachers selected 16 different enrichment activities (Kim et al., 2010). Students worked with teachers on literacy and non-literary tasks in the program. Teachers were given the flexibility to select activities that the students would be interested in and that they saw the most benefit. The researchers relied on teachers to self-report their interventions with students. Self-reporting was a limitation in this study as it can lead to errors based on the teachers' reliability.

Kim et al. (2010) found no significant statistical difference between students in READ 180 and the after-school program. There was a positive correlation between students who used the READ 180 intervention and increased oral reading fluency and attendance. The growth was only shown, however, in fourth grade. Overall, the study found that both programs increased students' reading ability but did not show a difference between either program.

Effectiveness and Fidelity of Teacher-led Intervention Strategies

When discussing intervention strategies, it is also imperative to examine the effectiveness and fidelity of teacher-led interventions. Bianco (2010) stated, "fidelity of implementation is the delivery of instruction in the way in which it was designed and intended to be delivered" (p. 6). When educators deliver instruction and interventions with fidelity using data-driven research-

based methods, students' success rates increase dramatically (Bianco, 2010; Nese et al., 2019). This section will discuss the studies and research involving the fidelity of teacher-led interventions and their implementations.

Nese et al. (2019) conducted a quantitative study on educator-reported instructional characteristics of teacher-led reading interventions. The study examined the interventions of 3,074 first-grade students from 71 different school districts in 16 states. Educators tested students for 60 seconds on how many letter sounds, single words, or words in a passage they could read. Students were then given progress monitoring and interventions based on their scores. The interventions used included guided and drill practice, corrective feedback on performance, explicit demonstration and modeling, and frequent cumulative review (Nese et al., 2019). Most of the interventions were between 15 and 30-minute sessions. Researchers then investigated the fidelity of these teacher-led reading interventions.

Nese et al. (2019) agreed with Kim et al. (2010) and found that teachers were familiar with many different interventions for students and were open to using them in the classroom as long as they felt confident with the intervention strategy. In Nese et al.'s (2019) study, many different strategies were used in interventions, and the most widely used was guided practice. The researchers also found that a student's intervention was likely to be changed at least once. Nese et al. (2019) stated the results of this study "set a path for future research regarding the efficacy of curricula, instructional strategies, and intensity for specific student profiles" (p. 108). There were limitations to consider in this study. One limitation was that educators voluntarily reported their data in the online assessment database. This optional reporting could have been different from the actual intervention in the classroom. Another limitation was that the teachers'

questions were open-ended, and therefore researchers could have been provided with inaccurate data.

Similarly, Solari et al. (2018) conducted a quantitative study on Tier-1 and Tier-2 reading intervention strategies and their effectiveness on word reading, fluency, and comprehension. The study examined eight elementary schools located in a large urban center of the southwest. Solari et al. (2018) used 21 first-grade teachers who selected four to five students from each of their classrooms to participate in this 98-student study. In this study, researchers had educators teach using Tier-1 instruction to the whole class for 15 minutes. At-risk students then received 30 additional minutes of Tier-2 instruction. The 30 minutes was broken down into ten minutes of word study, ten minutes of comprehension instruction, and ten minutes of connected text reading. Tier-1 and Tier-2 interventions in repeated reading and typical reading instruction were provided for four days each week for 17 weeks (Solari et al., 2018).

Solari et al. (2018) found teachers could implement a comprehensive Tier-1 and Tier-2 reading intervention in their classrooms with fidelity and positively impact at-risk readers' skill development. However, some teachers may provide more stability and fidelity in their interventions. These findings agree with Van Norman et al. (2018), who noted that when given correctly, Tier-2 phonics interventions also showed positive impacts on students who were identified as at-risk for academic difficulties. Measuring teachers' effectiveness was a limitation as researchers could not observe all teachers giving typical and repeated reading instruction.

Bianco (2010) also analyzed the fidelity of implementation and data-driven instruction of a response-to-intervention (RTI) strategy to improve students' learning outcomes in their qualitative study. Bianco (2010) examined how one school district in Southern New Jersey established an RTI model that addressed teacher fidelity in interventions. According to Bianco

(2010), “RTI is a system of educational redesign based on a hierarchy of interventions” (p. 4). This school district uses RTI as an intervention program for low-achieving students struggling with literacy.

The school district used several different strategies, including a student intervention tracking form, educator-made video clips, and reading coaches to help their educators apply research-based data-driven strategies when working with students in interventions. Bianco (2010) found that using these strategies, student outcomes improved in literacy, referral rates for special education declined, and educators provided positive feedback on their confidence level when leading the interventions. This study agrees with Kim et al.’s (2010) findings. However, one limitation to these findings was that educators’ confidence was a difficult concept to measure accurately.

Summary of the Main Points of the Literature Review

Research indicated there are many ways to increase a student’s reading ability, and it is important to analyze and assess the data provided on best practices for reading interventions. In this section, phonic, fluency, and mixed-method intervention research will be discussed and compared. The effectiveness of teacher-led interventions and technology connected to several intervention styles will also be addressed.

The studies of Bradley and Noell (2018) and Schmidgall and Joseph (2007) showed that there were many ways to teach students phonics skills including, constant time delay, phonic analysis (word boxes), interspersal training, and traditional drill procedure. Of these procedures, constant time delay and phonic analysis provided the most growth in student’s word-reading abilities. Wagner and Espin (2015) found the most significant way to improve a student’s reading ability was using a word-oriented approach in part with more support for fluency or

multi-component intervention. Snyder and Golightly (2017) stated that interventions that use balanced instruction to teach both phonics and whole word identification skills were recommended as best practice. These findings reveal that the best practice when teaching students phonics skills was using differentiated and balanced instruction that includes a word-oriented approach, phonic analysis (word boxes), and constant time delay. However, Schmidgall and Joseph (2007) stated the results in their study revealed that all instructional methods produced increased word-reading performance. Many studies supported this conclusion, putting into question each intervention's effectiveness and not only if the intervention was successful.

Researchers found that continuous reading and repeated reading were beneficial to students during fluency interventions. Hammerschmidt-Snidarich et al. (2019) found that continuous reading more closely approximated real reading. However, both Solari et al. (2018) and Vadasy and Sanders (2009) concluded that repeated reading increased students' reading fluency and had strong support as a remedial approach to increase reading speed. Neither Hammerschmidt-Snidarich et al. (2019) nor O'Connor et al. (2007) showed statistically significant differences between repeated and continuous reading to improve students' fluency. Both techniques were effective, and both showed growth in multiple studies. Continuous reading, however, seemed to be preferred by students and could be beneficial for those who lack reading motivation. Hammerschmidt-Snidarich et al. (2019) also concluded that it was crucial to analyze the number of words read by students instead of the amount of time read as students can vary significantly in the number of words read within a given time. Therefore, a combination of both continuous reading with a focus on the dosage of words read may help close the literacy gap.

When examining mixed-method interventions, Bradley and Noell (2018), Manset-Williamson and Nelson (2005), and Snyder and Golightly (2017) found that a balanced approach to reading interventions was successful in their studies. These researchers found that the more explicit and balanced the reading intervention, the higher the likelihood that students who struggle with reading will make significant gains in reading comprehension. However, Manset-Williamson and Nelson (2005) warn that teaching too explicitly may interfere with students' understanding of the text and the development of its meaning. Kim et al. (2010) found that a mixed-method approach to literacy using teacher-directed instruction and computer-assisted learning was essential to improve struggling readers' literacy skills. Therefore, as noted in previous studies, no one method leads to direct success in reading inventions. Several different mix-method intervention strategies provide student growth and success in reading. However, educators must be cautious of interventions becoming too teacher directed as it less resembles authentic reading.

Researchers determined that the efficacy and effectiveness of teacher-led interventions play a significant role in the success of an intervention. Kim et al. (2010) and Bianco (2010) showed that teachers who were comfortable with an intervention strategy gave the intervention with more fidelity and confidence. Teacher's trust in a procedure could often determine the success of the intervention. If a teacher did not feel confident or did not understand the intervention, they could subconsciously neglect to provide students with the best reading instruction.

The previous studies have shown that typical reading instruction will not increase struggling students' reading fluency as whole group instruction fails to differentiate all students' needs. Consequently, the research suggested that individual, dyad, or small group interventions

were considered best practice. (Kim et al., 2010; Vadasy & Sanders, 2009). Working in dyads or individually was an effective way to increase reading success. Vadasy and Sanders (2009) also found that educators achieve better results when teaching reading interventions than paraprofessionals.

Technology was another tool educators can use to enrich their interventions when working with students. According to Özbek and Girli (2017), using technology effectively increased students' motivation when presented with reading tasks. These findings disagreed with Larabee et al. (2014), who found that technology did not significantly increase student performance or improve students' reading skills during interventions. Although their study did not provide fruitful results, technology should be investigated further to determine its effectiveness in other strategic interventions.

Conclusion

Students who are struggling in reading are often years behind their peers. It is difficult then to assume that one intervention strategy that only takes place for a short amount of time can compensate for the years of reading success students have missed. Researchers show that students can be successful in many types of interventions. Therefore, it may not be a specific intervention that works one hundred percent of the time for every student. Still, teachers must determine the best intervention strategy for each child and frequently measure the intervention's effectiveness. Districts may also need to assess their teacher's trust and confidence in the intervention provided. If educators do not feel confident in the intervention, it can be difficult for the intervention to succeed. Researchers found that "it may be unreasonable to expect one reading intervention—even a comprehensive, mixed-method approach to literacy instruction—to address all areas of reading weakness simultaneously" (Kim et al., 2010, p. 24). Therefore,

educators must be confident in their teaching, teach with fidelity, and be willing to switch strategies if an intervention is not working for a particular student.

Many key findings were observed when analyzing the literature on phonics, fluency, and mix-method interventions. The insights gained from this research and how it can lead to improved instructional practices will be discussed in chapter 3. Chapter 3 will also discuss how this paper's research can be applied to the classroom. Chapter 3 will conclude with recommendations for possible future studies and an overarching conclusion.

Chapter Three: Discussion and Application

Insights Gained from the Research

As long as there are students who struggle with reading, there will continue to be a need for reading interventions. Many factors determine the effectiveness of these interventions in closing the literacy gap. There were many critical insights gained from this research that will help readers understand what is and what is not considered best practice when attempting to close the literacy gaps of struggling readers.

Research has shown that interventions are more successful when an educator teaches with confidence, efficacy, and fidelity. If an educator does not trust in their abilities to instruct students in a specific intervention, they may fail to deliver adequate instruction. However, when educators are confident in their instruction and understand how to teach the intervention material competently, students achieve better results and become better readers. Therefore, teacher efficacy and confidence cannot be overlooked when determining the effectiveness of a teacher-led intervention.

Research has shown that no one specific intervention strategy will conclusively close the literacy gap. However, some methods are proven to be more successful than others when

working with students struggling in reading. In phonics interventions, phonic analysis (word boxes) and constant time delay have shown varying levels of success. For fluency, repeated and continuous reading have been successful during interventions. As students typically preferred continuous over repeated reading, researchers recommended this method for students lacking reading motivation. Studies on mixed-method intervention strategies also show varying success levels using several different methods and noted that no one strategy proved to be significantly better than the others.

Technology is an outlier to consider when working with students in literacy interventions. The research involving technology had several technical issues that may have affected the study's results. These technical issues were seen in both tablet applications and computer-based programs. Therefore, if technology is included in literacy-based interventions, it must be sound in its design and adaptive to students' needs. Furthermore, researchers did not find a statistically significant difference in using a technological component in their interventions. Future studies need to be conducted to determine the effectiveness of using technology in literacy interventions.

Application

The findings from the literature review suggest that educators can use several different strategies with success when working with students in reading interventions. Educators must understand how to instruct students competently to achieve reading success. If an educator does not have this understanding, students will continue to struggle. To increase educators' competency and confidence, administrators need to provide ongoing professional development in literacy and intervention strategies. Educators can also collaborate with other reading intervention practitioners to strengthen their knowledge in effective reading intervention instruction.

When working with phonics interventions, educators should begin by using intervention strategies that include phonic analysis (word boxes) and constant time delay. When using fluency interventions, educators should use repeated or continuous reading, focusing on the dosage of words read. Additionally, it is essential to be vigilant of students' growth rate when choosing an intervention strategy. Educators must differentiate their intervention methods based on student needs and frequently change their methods if they are not working. Actively monitoring students' success or failure and a willingness to change methods when an intervention is no longer successful will benefit students more significantly than a single strategy deemed best practice.

Educators should also examine if technology will be utilized when considering which intervention should be used with students. Computer and tablet-based programs have provided inconclusive data on their success rate in literacy interventions. Therefore, technology should be used with caution. Faults have also been noted in the technical components of literacy interventions. If a technical element is present, educators should assess the accessibility and ease of using the product before utilizing it in an intervention.

Limitations are noted throughout this literature review. While it is valuable to look at assessment data from individual or small groups of students, when attempting to determine best practice in closing the literacy gap, it is essential to look at more extensive studies covering a more comprehensive range of students. Several findings were substantial; however, this could be examined more closely in future studies. Additionally, in some reports, the participants did not complete their reading interventions leading to inconclusive or insufficient data. While this can not be avoided in some cases, researchers should still attempt to eliminate this liability in future studies.

Future Studies

Research reveals several areas indicative of future studies. One component mentioned in several studies was technology. Computer and tablet-based programming have become a feature utilized in several literacy instruction areas. Therefore, it would be valuable for both researchers and practitioners to continue qualitative and quantitative studies on utilizing technology in literacy interventions. Current studies using computer-based programming often encountered technical issues. These studies also did not show added benefits when using a technological component in their intervention. Therefore, technology is an area that needs future research to determine its effectiveness in literacy interventions.

Retention and growth in student learning are vital to an intervention's success. While students may make gains in their knowledge throughout an intervention, it is unknown whether these gains remain after the intervention's completion. Researchers should consider examining the long-term benefits of their reading interventions to determine if students could retain the knowledge gained during these studies. A study following up on the current research could help practitioners determine which interventions remain successful over time.

Data collection is vital when attempting to determine what is considered best practice for closing the achievement gap. Future studies should also be conducted using larger sample sizes when researching various intervention strategies. The success of phonics, fluency, and mix-method interventions can be vastly different from one another as there are several intervention strategies for each literacy-related task. Therefore, quantitative research should be conducted on various intervention styles and students with varying backgrounds as this information can be beneficial to researchers and practitioners. Future studies in these areas can provide more conclusive and comprehensive data lacking in the current studies.

Conclusion

Teaching students to read is a complex and demanding task. This paper aimed to determine best practice when attempting to close the literacy gaps in reading using phonics, fluency, and mix-method intervention strategies in kindergarten through fifth grade. This research shows no single intervention can close the achievement gap in reading. Instead, educators should strive to use interventions that best suit students' phonics, fluency, and comprehension needs. Educators must also be willing to change the intervention if students do not show growth in their reading abilities. However, some intervention strategies were shown to provide statistically higher levels of achievement, including phonic analysis, constant time delay, and repeated and continuous reading. Teacher efficacy is also a significant factor in a literacy intervention's success. Therefore, educators should be well trained and confident in their teaching when working with students in an intervention. Educators who care deeply about students' success in reading make connections, teach with efficacy, and are willing to change intervention strategies if they do not work for a student. Every child deserves an exceptional education, and providing high-quality and comprehensive literacy interventions is an excellent place to start.

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Appendix

Article Tracking Matrix

Articles: author(s) name and year of publication	Method Qualitative/ Quantitative/ Meta- Analysis Mixed- methods	Theme 1 Phonics Interventions	Theme 2 Fluency Interventions	Theme 3 Mixed- Method Literacy Interventions	Theme 4 Effectiveness and Fidelity of Teacher- led Intervention Strategies
Bianco (2010)	Qualitative				X
Bradley & Noell (2018)	Qualitative	X			
Hammerschmidt-Snidarich, Maki, & Adams (2019)	Qualitative		X		
Kim, Samson, Fitzgerald, & Hartry (2010)	Quantitative			X	
Larabee, Burns, & McComas (2014)	Qualitative	X			
Manset-Williamson & Nelson (2005)	Qualitative			X	
Nese, Farley, & Anderson (2019)	Quantitative			X	X
O'Connor, White, & Swanson (2007)	Qualitative		X		
Özbek & Girli (2017)	Qualitative		X		
Schmidgall & Joseph (2007)	Qualitative	X			
Snyder & Golightly (2017)	Qualitative	X		X	
Solari, Denton, Petscher, & Haring (2018)	Quantitative				X
Vadasy & Sanders (2009)	Quantitative		X		X

Van Norman, Nelson, & Parker (2018)	Quantitative	X			
Wagner & Espin (2015)	Qualitative		X	X	