A Comparison Of Guided Reading And Systematic Phonics Approaches To Supplementary Reading Instruction

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A COMPARISON OF GUIDED READING AND SYSTEMATIC PHONICS APPROACHES TO SUPPLEMENTARY READING INSTRUCTION

A Dissertation Presented

by

Madeline R. Berkowitz

Submitted to the Graduate School of the University of Massachusetts Amherst in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

May 2022

College of Education
A COMPARISON OF GUIDED READING AND SYSTEMATIC PHONICS APPROACHES TO SUPPLEMENTARY READING INSTRUCTION

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by
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ABSTRACT

A COMPARISON OF GUIDED READING AND SYSTEMATIC PHONICS APPROACHES TO SUPPLEMENTARY READING INSTRUCTION

MAY 2022

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Early mastery of reading fundamentals is essential. However currently there is a debate on the best way to teach reading. Across the US schools are choosing to use varying forms or reading curricula aligned with different pedagogies. However, not all curricula are based in empirical science. This study compares two approaches to supplementary reading instruction: guided reading and explicit phonics. A randomized controlled design was used, and first grade students were assigned to receive either explicit phonics or guided reading intervention three days per week for approximately thirty minutes each lesson. Reading fluency and a broad reading measure served as dependent variables. Results indicated that explicit phonics instruction was more effective than guided reading for students reading below grade level but was not more effective than guided reading for above grade-level. Significant results were not found for broad reading.
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CHAPTER 1

STATEMENT OF THE PROBLEM

1.1 Introduction

Acquiring adequate reading skills is one of the most critical tasks a child will master during their school years. Failure to do so has been linked to lower educational attainment and income (McLaughlin et al., 2014), unemployment (Caspi et al., 1998), and high school dropout (McGee et al., 2002). However, NAEP (2019) results indicated that only 34% of eighth-graders are reading at or above the proficient level, a three percent drop from 2017 results, with 27% percent scoring below the basic level.

While there is consensus that teaching reading is crucial, how to teach and what to teach has spawned significant debate. Fundamental differences in the ways that teachers and researchers view teaching and learning have resulted in multiple, often vastly different, instructional approaches being used across American schools.

Because reading instruction is widely accepted as a critical target of early education, it is particularly vulnerable to pedagogical debates. The “how to teach” debate explains differences in the ways students are taught and the “what to teach debate” defines varying instructional priorities. It is these differing instructional priorities, the “what to teach debate” that has spawned a long history of “reading wars” resulting in the vacillation between meaning-based and phonics-based instruction.

1.2 How To Teach

At the root of the debate on how to teach are fundamentally different understandings of what knowledge is and how it is acquired by humans. Bruner (1986)
traces a constructivist understanding of knowledge and learning to the late 1700s German philosopher Immanuel Kant who argued that we cannot know the world beyond our own experiences of the world. Thus, knowledge and learning are mental events, and there is no objective truth. Knowledge does not exist beyond the context of one's own personal or social construction of that knowledge (Hein, 1991).

Jonassen (1991) contrasts the constructivist view of learning and knowledge with an objectivist view where the world has an absolute and knowable structure that can be discovered, broken down, and taught to someone else. Thus, the constructivist perspective focuses on the process of constructing knowledge, while the objectivist view focuses on the knowledge itself (Tam, 2000).

In contrast to the highly mentalist, constructivist philosophies, materialism posits that rather than the mind and physical world being separate entities, they are governed by the same rules (Delprato & Midgley, 1992), and behavior is caused by environmental factors rather than cognitions (Harris, 2007). In the materialist tradition, behaviorists argue that cause and effect relationships between a learner and the environment can be discovered and manipulated to change a learner's behavior (Delprato & Midgley, 1992).

These theoretical approaches to learning and knowledge have had a significant impact on the educational community and teaching practices. Constructivist philosophies have generated constructivist educational approaches where creating knowledge in an authentic environment is emphasized (Narayan et al., 2013). On the other hand, behavioral approaches, in the materialist tradition, have generated approaches where mastery of specific content and explicit teaching of information are emphasized.
1.2.1 The Constructivist Classroom

The goal of a constructivist classroom is the development of metacognitive processes that allow children to explain how they know something (Honebein, 1996). Learning occurs when children interact with their environment, individually or socially, challenge their existing schemas, and assimilate or accommodate the new information (Narayan et al., 2013). As knowledge is constructed by the learner, it is expected that not all children will arrive at the same conclusions; however, they should all be able to defend their ideas (Tam, 2000). This learning process is active and builds on a child’s previous knowledge (Narayan et al., 2013).

Honebein (1996) describes a constructivist classroom as one in which students take responsibility for their learning, with significant choices in topics and activities. Teachers take a non-hierarchical, collaborative role where they work alongside children as a consultant or facilitator to help students achieve their goals. They design authentic, open-ended activities that promote the use of multiple strategies, hypothesis testing, and interaction between students.

1.2.2 The Behavioral Classroom

While constructivist classrooms emphasize the learning process over its outcome, behavioral classrooms apply principles of applied behavior analysis to educational settings, focusing on mastery of specific content, tight control of the learning environment, and teaching the most amount of information in the least amount of time (Bereiter & Engelmann, 1966). Two behavioral approaches, Direct Instruction, referred
to as “big DI”, and direct instruction methods, nicknamed “little di” emerged in the 1960s and 1970s.

Direct Instruction (“big DI”) combines a highly scripted curriculum with specific delivery practices and focuses on encouraging learning through control of the instructional environment, particularly teacher communication (Binder & Watkins, 1990). Engelmann and Carnine (2016) noted that Direct Instruction programs begin with a careful analysis of the information to be taught rather than an analysis of the learner. A series of positive and negative examples accompanied by an unambiguous cue are juxtaposed to highlight sameness and differences. This type of communication is considered faultless because there is only one possible interpretation of the material. After the initial presentation, students practice on examples not presented in the lesson. As students demonstrate mastery, they move to examples that are more varied in format and wording.

Direct instruction methods (“little di”), are a collection of validated teaching procedures that can be used with any curriculum (Hughes et al., 2017). These methods include increased allocation of time to teacher-led, active instruction in academic subjects, small group instruction, opportunities for review, rapid pacing, repetition of rules, frequent questioning, lesson introductions and summaries, clear presentation of material, and deemphasis on unsupervised independent work time (Brophy & Good, 1984). Over time these methods were combined with expanded research on opportunities to respond, positive feedback, retention, and strategy instruction and renamed explicit instruction (Hughes et al., 2017).
1.3 What to Teach

Intertwined with the debate on how to teach is a debate on what to teach. Consistent with their theoretical approach to learning and instruction, constructivists generally rely on the importance of prior knowledge and understanding to support the development of new knowledge through experiential learning. Applied to reading instruction, a constructivist approach prioritizes engaged student-led reading activities, facilitated by meaning-focused instructional techniques. This has been described as a top-down approach to teaching reading because it relies on developing higher-order thinking.

Behaviorists, on the other hand, are more inclined to adopt a bottom-up approach to reading instruction that focuses on lower-order skill and strategy development through code-focused instruction. Constructivists theorize that comprehension facilitates the natural development of basic reading skills. On the other hand, behaviorists believe that basic reading skills facilitate the development of reading comprehension.

1.3.1 Top-Down Reading Theory

The most well-recognized application of top-down early reading instruction was the Whole Language movement of the 1980s and 1990s. The foundation of Whole Language is theory-rich and integrates ideas and research from multiple fields (K. S. Goodman, 1989).

Whole language theorists view reading as the process of making meaning from text rather than converting written symbols to sounds (Smith, 1999). Goodman (1967), citing research on adult reading and children’s miscue analysis, describes reading as a “psycholinguist guessing game.” Skilled reading is an imprecise process where readers incorporate graphic, syntactic, and semantic cues to make an initial guess about a word
and then refine the guess as they collect more information. Just as people recognize pictures as meaningful wholes (Smith, 1999) and learn language through exposure to spoken language (Smith, 1992), children will learn to read naturally through exposure to text, and there is no need to break down language.

Knowledge of phonics will develop passively through reading experiences and does not need to be explicitly taught (K. S. Goodman, 1967; Smith, 1999). In fact, whole language advocates argue that explicit phonics instruction may impede early reading growth because it focuses on meaningless sequences (Smith, 1999) and may prevent children from using syntactic and semantic cues (K. S. Goodman, 1967). Instead, Smith (1999) suggests children learn best when reading is allowed to develop naturally through exposure to authentic texts.

The top-down approaches to reading instruction fit well within a constructivist framework of active meaning-making and building on prior knowledge where learning is purported to occur through authentic experiences, in this case, exposure to quality literature. Whole Language classrooms further incorporated constructivist ideals influenced by philosophers and psychologists, such as Vygotsky and Dewey (Y. M. Goodman, 1989). They created integrated cross-curricular units, based on children's prior knowledge, that focused on rich literacy environments and meaningful opportunities to solve real problems (Y. M. Goodman, 1989). Teachers acting as facilitators were given the power to make curricular decisions, and in return, they allowed students to make choices and drive their own education (K. S. Goodman, 1989).

Marie Clay translated psycholinguist theory and research into the Reading Recovery program, a one-on-one reading intervention that emphasized using multiple
cues through the three-cueing system (semantic, syntactic, and graphic clues). These instructional objectives were later integrated into programs such as guided reading where students are encouraged to use multiple reading strategies including guessing, looking at pictures, and skipping words (Rog, 2003).

1.3.2 Bottom-up Reading Theories

While Whole Language reading theorists were arguing for a meaning-driven approach to reading and language processing, others argued for a bottom-up approach, focusing on specific skill development. LaBerge and Samuels (1974) posed a computational model that described the process by which visual and phonologic memory stores process information during reading. They theorized that word recognition occurs through activating a complex network of feature detectors. Elements of print (circles, lines, curves) activate feature detectors, which in turn activate letter detectors, spelling pattern detectors, word detectors, and word grouping detectors. This information is then combined with information in phonologic memory to allow for word reading. Initial learning requires significant attention. However, with practice, cognitive connections are strengthened so that students can recognize larger units of texts at once, and reading grows more fluent and automatic, requiring less attention and processing.

Gough and Tunmer (1986) proposed the simple view of reading, which included both top-down and bottom-up processing. They argued that reading ability can be predicted by multiplying decoding and linguistic comprehension. Thus, good readers will have well-developed decoding (bottom-up processing) and linguistic comprehension (top-down processing), and poor readers will have weaknesses in decoding, linguistic comprehension, or both. Since the relationship is multiplicative, a child who completely
lacks decoding or linguistic comprehension skills will not be able to read, and any improvement in reading or linguistic comprehension will result in a multiplicative increase in reading ability.

Gough and Tunmer (1986) and LaBerge and Samuels (1974) did not develop specific teaching methodologies. However, LaBerge and Samuels (1974) model implies that reading is print-driven rather than meaning-driven, and that fluent decoding is a prerequisite for comprehension. Gough and Tunmer (1986) identified decoding and linguistic comprehension as targets for reading instruction and intervention. Thus, both models would support the teaching of phonics and align better with behavioral teaching methods, which allows information to be broken down into parts, rather than a Whole Language approach that purported that breaking reading down into subskills may impede reading development.

1.4 Applying Reading Theories to Instructional Practices

Different instructional goals of top-down and bottom-up reading instruction produce different classroom practices. The goal of top-down reading instruction is a strategic reading style where students create meaning by integrating word analysis and comprehension strategies (Villaume & Brabham, 2001). Teachers sequence instruction in response to student needs, and students practice reading in leveled texts. On the other hand, the goal of phonics instruction is accurate and automatic word reading. Instruction follows a predetermined sequence and students practice reading decodable readers.
1.4.1 Top-Down Theories in Practice

1.4.1.1 Whole Language

In answering the “what to teach” question, Whole Language theorists reject instruction in basic skills, particularly phonics, which is regarded as unnaturally segmenting language, and thus, inconsistent with wholistic instruction (Baumann, 1991). Further, phonics rules are considered too complicated and the exceptions too great for them to be a useful teaching target (Smith, 1992).

While skills instruction is generally rejected, Whole Language practitioners are more open to strategy instruction, which focuses on the process of controlling and applying skills in authentic situations (Baumann, 1991). McCauley and Friend (2003) noted that reading strategy instruction is typically taught using the three-cueing system. Students are encouraged to integrate multiple sources of information or cues when reading words, including letter-sound correspondence (graphophonics), language structure (syntactic cues), and their prior knowledge and the meaning of the text (semantic cues) to make a guess about an unfamiliar word. Smith (1999) noted that using graphophonics are the least useful and should be a last resort, used only if other strategies do not work.

Baumann (1991) noted that Whole Language theorists answer the how to teach question through indirect instructional means in an authentic environment by leveraging unplanned teachable moments. Teachers design instruction based on student needs and serve as guides by observing students, and responding to their spontaneous questions or miscues during spontaneous teachable moments. This child-centered, teacher-designed pedagogy rejects direct instruction and basal readers. Instead, common components of
Whole Language classrooms include immersion in literature, daily read-alouds by teachers, daily independent reading of student-chosen literature, and reading responses through drama, art, music, or writing (Watson, 1989).

1.4.1.2 Balanced Literacy

As challenges to the Whole Language movement mounted, balanced literacy emerged as a way to retain meaning-focused, child-centered, and literature-driven elements of Whole Language instruction while including more explicit instruction in skills and strategies (Pearson, 2004). Spiegel (1992) noted that a blended literacy classroom should include specific objectives and teacher-designed activities to meet these objectives, constituting a scope of instruction. However, there does not need to be a prescribed sequence. Instead, teachers proceed through the objectives flexibly, based on student needs.

Rog (2003) noted that reading instruction in blended literacy classrooms is often taught through the reading workshop model, which includes teacher read-alouds, shared reading, guided reading, and independent reading. Word study including phonics, high-frequency words, and vocabulary is incorporated into all reading and writing activities. Instruction occurs through a combination of mini-lessons and teachable moments and stresses flexible strategy use, including the three-cueing system.

While balanced literacy advocates are more open to skills instruction, which can occur in indirect and somewhat more direct ways, it retains many of the core elements of Whole Language, including the three-cueing system. Its answers to “what to teach” and “how to teach” questions are less extreme but not materially different than Whole Language.
1.4.1.3 Guided Reading

Guided Reading is solidly grounded in constructivist theory, borrowing three cueing, leveled texts, and running records from Marie Clay’s Whole Language-based, reading recovery. Instruction focuses on the child’s understanding of the text and encourages discussion and active meaning-making rather than practice of isolated skills. Reading is viewed as a continual process of development rather than a discrete behavior, and teachers carefully observe reading behaviors and use facilitative talk to extend cognitive processing and enable the child to develop a deep understanding of a text (Fountas & Pinnell, 2012).

In the reading workshop model, guided reading serves as the bridge between teacher reading and independent reading (Rog, 2003). Fountas and Pinnell (2012) indicate that elements of guided reading include small group instruction using flexible ability groupings, leveled books, and running records. Lessons follow a format that includes selecting a text, introducing the text, reading the text, discussing the text, delivering teaching points, word work, and an optional extending understanding segment. Teachers observe students' moment-by-moment behaviors, respond using facilitative talk, and plan to constantly extend a student's processing system. Rather than following a prescribed sequence instructional decisions are made using running records, an assessment method during which a teacher observes a child reading an authentic book and notes strengths, weaknesses, and strategy use (Paris & Carpenter, 2003).

Rog (2003) noted that consistent with the three-cueing system, students are encouraged to use a variety of strategies to read words including looking at the picture, looking for recognizable chunks within a word, using word-walls or other references,
sounding out words, skipping the word, re-reading from the beginning of the sentence, self-correcting a word that doesn’t make sense, or guessing. Students are encouraged to continually monitor whether a word sounds right, makes sense, and matches the print. Although decoding is one possible strategy, Rog (2003) cautioned teachers against allowing emerging readers to become overly dependent on decoding, instead encouraging them to ensure that students develop a wide repertoire of strategies.

1.4.1.3.1 Leveled Texts

Students who receive guided reading typically practice reading using leveled texts. Several systems have been developed to assign numerical or alphabetic levels to texts which can then be matched to students’ reading levels. According to Brabham and Villaume (2002) texts are often leveled based upon readability formulas that use sentence length or the number of syllables in words. However, aligned with Clay’s suggestions, comprehensive systems also account for qualitative information such as predictability, text formatting, illustrations, complexity/content, and vocabulary. The easiest books are highly predictable based on the picture cues and the context of the story and repetitive based on word choice and sentence structure.

Rog (2003) noted that since leveled readers are not highly controlled for phonetic readability, they include many unknown words. Because of this, the before reading phase of guided reading is key. Teachers activate prior knowledge and review unknown words before students begin to read, setting students up for success to read unknown words with meaning cues when they read the book.
1.5 Bottom-Up Theories in Practice

Phonics includes any instruction that is designed to teach phoneme-grapheme relationships (Scarborough & Brady, 2002) and can be accomplished in a variety of direct and less direct means. However, explicit phonics instruction answers the how to teach and what to teach questions using a scope and sequence of increasing complex phoneme-grapheme relationships, explicit instruction, and decodable readers (Mesmer & Griffith, 2005).

1.5.1 Explicit Phonics Instruction

The goal of explicit phonics lessons is mastery of the sound-symbol system leading to accurate word reading, which in turn supports comprehension. Emergent readers learn relationships between sounds in language and the ways those sounds are represented in print. It is built on a foundation of phonemic awareness, a component of phonological awareness that involves identifying individual phonemes in words (Scarborough & Brady, 2002). The discrete sounds in spoken language are critical to understanding the alphabet because each distinct sound is represented by a letter or combination of letters. Phonemic awareness can be difficult to acquire as it requires children to isolate individual sounds from a continuous stream of speech, even though phonemes often overlap with no natural breaks between them (Castles et al., 2018). However, phonemic awareness is critical because it allows children to link phonemes (sounds) to graphemes (letters) as they learn to decode words. Students are explicitly taught to isolate and manipulate speech sounds and to map speech sounds onto letters or combinations of letters. As readers progress, they are taught increasingly complex phonetic patterns.
1.5.2 Systematic Scope and Sequence

A systematic scope and sequence for explicit phonics instruction assumes that letter-sound correspondences are consistent and provide a logically sequenced, planned progression of phonics patterns (Buckingham, 2020). A scope and sequence allows information to be organized and remembered by students because similar elements are often grouped together (i.e. short vowel sounds), skills progress from simple to more complex, and instructors can be sure that skills are not accidentally omitted (Duke & Mesmer, 2019). Although several possible sequences exist, most begin with individual letters, starting with high-frequency letters that can combine to make simple words, then progress to digraphs and blends (Carnine et al., 2009). This is often not the case for incidental teaching of phonics where skill selection is driven by teachable moments.

1.5.3 Explicit Instruction

Delivery of phonics instruction, the how to teach, is through explicit instruction. Explicit instruction of early literacy typically employs a part-to-whole strategy where specific phoneme-grapheme patterns are isolated and taught to students (Villaume & Brabham, 2003). Students practice blending and spelling the target pattern and practice reading decodable readers that feature the pattern (Villaume & Brabham, 2003). Additionally, teachers aim to provide ample opportunities to respond through active engagement with the lesson and seek to maximize student time on task (Rupley et al., 2009).
1.5.4 Decodable Text Reading

Children who receive explicit phonics instruction practice skills by reading decodable readers, books with a high percentage of phonetically regular words and words that follow phonics patterns that have been taught (Mesmer, 2000). Decodable texts reinforce lesson content and allow students to practice skills in connected text, which is thought to be more effective than worksheets (Mesmer & Griffith, 2005). Although leveled literature and decodable texts often contain the same types of words at the early levels, decodable texts tend to group words with similar phonics patterns in the same text and repeat the patterns more times (Mesmer, 2000) increasing students’ practice opportunities.

In a research synthesis, Cheatham and Allor (2012) noted that students read decodable texts more successfully than less decodable texts (higher accuracy, rate, and prosody). Further, when students receive phonics instruction paired with decodable text reading they were more likely to apply phonics strategies when compared with students who received the same phonics instruction but read less decodable books. However, it is unclear if the decodability of books paired with phonics instruction affects overall reading performance as measured by standardized tests.

1.6 Comparisons of Guided Reading and Explicit Phonics Instruction

Comparisons of the guided reading and systematic phonics approaches have been somewhat inconclusive. In a study of first grade, whole-class instruction using guided reading or Direct Instruction approaches, Tobin and Calhoon (2009) found mixed results. The Direct Instruction group scored higher on Aimsweb oral reading fluency, while the guided reading group scored higher on Aimsweb phoneme segmentation. There were no
significant differences in nonsense word decoding. However, schools in this study were not randomly assigned to an intervention condition.

Kamps et al., (2007) found results that favored direct instruction over guided reading approaches. They analyzed data from first and second-grade students at schools randomized to implement RTI practices with those in control schools. The experimental schools used Open Court as a core curriculum and Direct Instruction approaches for intervention, including Reading Mastery, Early Interventions in Reading, Read Well, and Read Naturally and balanced literacy approaches for students who responded well to the initial intervention. The control schools utilized balanced literacy approaches with guided reading incorporated into both the core curriculum and secondary intervention. For students receiving secondary interventions, they found that students who received Direct Instruction intervention scored higher on first-grade DIBELS nonsense word fluency, second-grade DIBELS oral reading fluency, and Woodcock Reading Mastery word attack, word identification, and passage comprehension. However, group size differed significantly between experimental and control schools. Groups in the experimental schools had between three and six students per group and groups in the control schools had six to fifteen students in each group. Additionally, the experimental schools were simultaneously implementing other RTI practices, which may have affected results.

Denton et al., (2014) completed the best-controlled comparison of explicit instruction and guided reading. Second-grade students were randomized to receive explicit instruction in phonics (Sound Partners), fluency (modified Quick Reads), and comprehension (developed by authors), or guided reading, or a control group with no intervention provided by the research team. The explicit instruction group performed
better than the control group on Woodcock Johnson III letter-word identification, word attack, and passage comprehension, while the guided reading group performed better than the control group only on letter-word identification. There were no significant differences between the guided reading group and direct instruction group, however effect sizes favored explicit instruction, ranging from .01 for letter-word identification to .33 for passage comprehension.

1.7 Statement of the Problem

Despite the large evidence-base supporting explicit phonics instruction (Galuschka et al., 2014; Jeynes, 2008; National Reading Panel, 2000; Torgerson et al., 2019), a variety of methods for teaching reading are currently utilized in American schools. Kurtz et al., (2020) reported the results of a national survey of teachers randomly selected from marketing lists. Results indicated that 68% of kindergarten to second-grade teachers report using a balanced literacy approach, while 22% report using systematic, explicit phonics. Teachers reported dedicating 39% of literacy instruction time to phonics, but 75% percent of teachers also reported teaching the three-cueing system. The most common program that teachers reported using was Fountas and Pinnell’s leveled literacy program, a balanced literacy, guided reading approach.

The current study compared the effects of guided reading and systematic phonics interventions for first-grade students. Like Denton et al (2014), students were randomly assigned to either a guided reading or explicit phonics intervention condition provided by research staff. However, in the present study, participants were first-grade students, which may have affected the pattern of results as younger children may show greater response to early intervention than older students do (Lovett et al., 2017). Further, the
intervention was less time-intensive and did not include the fluency and comprehension elements that were included in the Denton et al. (2014) intervention.

It was hypothesized that students in the systematic phonics group would make more progress than those in the guided reading groups due to explicit teaching of skills and opportunities to practice reading decodable readers. Further, systematic phonics instruction has a significant evidence base (Galuschka et al., 2014; Jeynes, 2008; National Reading Panel, 2000; Torgerson et al., 2019) and comparisons tend to favor systematic phonics instruction over guided reading (Denton et al., 2014; Kamps et al., 2007; Tobin & Calhoon, 2009).

The current study was unique in that it took place during the spring and summer of 2021, during the COVID-19 pandemic. All students experienced disruption of their kindergarten year and received fully virtual instruction from March until the end of the school year in 2020. Students received a variety of instructional formats during first grade from fully virtual to fully in-person. As virtual learning during the pandemic was less effective than traditional schooling (Engzell et al., 2021), the impacts of classroom curriculum likely had less impact on student learning than it would have otherwise, allowing the effects of the intervention to be more concentrated.
CHAPTER 2

REVIEW OF THE THEORETICAL AND EMPIRICAL LITERATURE

2.1 History of Meaning-driven Reading Instruction

Mathews (1966) reported that alternatives to phonics-based instruction, have a long history. In the U.S. this meant the look-see method, where children learn to recognize a large vocabulary of words by sight. In the mid-1800s John Miller Keagy, suggested that children learn to read words “as if they were Chinese symbols.” Later, aversion to teaching phonics become more impassioned, when Horace Mann likened the alphabet to “skeleton-shaped, blood-less ghostly apparitions,” which repelled children and suggested that teachers provide instruction in whole word reading before phonics. Around the turn of the 20th century, Colonel Francis Parker, endorsed by Dewey, took the look-say method further and combined it with other progressive ideals such as expanding the focus of early instruction to include content areas, focusing on literature rather than textbooks, and allowing student interest to drive learning.

These reforms become widespread during the 1920s and 1930s. Progressive educators sought child-centered education that was driven by a child’s interest and guided by teachers, emphasized arts and self-expression, and met a child’s physical, emotional, and intellectual needs (Zilversmit, 1993). For early reading instruction, this meant the look-say method, a focus on literature and meaning, and an expansion of the number of subjects taught in elementary schools (Mathews, 1966).

However, problems with progressive education began to emerge. Some progressive schools went so far in their goals of child-centered education that reading,
writing, and math were largely ignored (Zilversmit, 1993). Secondary teachers were noticing that children taught with the look-say method were unable to read unfamiliar words, and Dewey’s University of Chicago Laboratory School was forced to create a clinic for children who had difficulty learning to read (Mathews, 1966). Flesch’s 1955 book “Why Johnny Can’t Read,” noted these problems and called for phonics-based instruction (Mathews, 1966). Similarly, (Chall, 1967), found that research supported teaching word reading through phonetic decoding, especially to low-income students and that students who were taught with decoding methods had better comprehension than those instructed with other methods.

In addition to indications that progressive education was less effective than had been hypothesized, its philosophy did not fit the political and cultural landscape of the cold war. Zilversmit (1993) noted that a rigorous and disciplined approach to education was perceived as necessary to keep pace with the Soviet Union. Further, conservative groups attacked progressive education as promoting subversive, un-American values like secularism, collectivism, and internationalism. Despite progressive education’s fall from grace, educators such as William Gay, continued to support constructivist ideals, setting the stage for the politicizing of reading instruction and the proliferation of theories by Marie Clay, Frank Smith, and Kenneth Goodman, leading to widespread adoption of the Whole Language movement in the 1980s and 1990s.

California policy makers were especially enthusiastic about adopting Whole Language. In the late 1980’s Bill Honig, California’s superintendent of education, sought a curricular approach that emphasized reading “great books” (Davenport & Jones, 2005). He assembled a committee to develop the 1987 English Language Arts Frameworks,
which advanced a Whole Language philosophy. However, by 1994, California tied for last place among the states on the NAEP, and the number of students scoring below the national mean in San Diego plummeted from 51% to 25% just one year after implementing Whole Language (Davenport & Jones, 2005). The abysmal test scores caused a public uproar led by Marion Joseph, former school board member and grandmother of a struggling reader. By 1995, Bill Honig was a proponent of phonics instruction and a new committee had been formed to issue a new set of recommendations. The new commission suggested that the 1987 framework underemphasized skill development and did not adequately delineate between early reading instruction and later grade reading instruction (California Department of Education, 1995). The new recommendations called for organized explicit skills instruction, ongoing assessment to inform teaching, an early intervention program, and a literature, language, and comprehension program (California Department of Education, 1995).

Whole language supporters were quick to defend the practice. Stephen Krashen (2002), one of the authors of the 1987 framework, pointed out that there is no evidence that the 1987 frameworks were implemented correctly, that their implementation resulted in a decline in scores, or that re-adoption of phonics resulted in an uptick in scores. NAEP scores were disaggregated by state for the first time in 1992, thus there was no way to know if scores declined as a result of the 1987 guidelines. Further, scores on the California Achievement Program test did not show a decline after Whole Language was introduced and NAEP scores did not increase after phonics instruction was reintroduced. Rather than explicit skills teaching Krashen suggests increased access to literature through investment in school libraries and public libraries.
Other Whole Language advocates felt that dangerous political forces were behind the push to increase phonics instruction in California. Kenneth Goodman was quoted saying "I have no doubt that people will be hauled into court for refusing to teach phonics. Think of the implications of that for our democracy" and commenting "It's a political campaign, tightly controlled, carefully manipulated, and most of the players don't even know they're being used" (Bowler, 1998).

2.2 The Move Away from Whole Language

Mounting evidence on the effectiveness of phonics instruction, and negative outcomes of Whole Language instruction in states like California drove a shift away from Whole Language in the late 1990s and early 2000s. Pearson (2004) noted several reasons for the decline of Whole Language, some dealing with Whole Language directly and others relating to a changing political landscape. In terms of Whole Language itself, Pearson (2004) noted curricular casualties resulting from teachers neglecting instruction in basic reading skills, metacognitive comprehension strategies, text structure, and content area reading. Further, Whole Language was frequently misunderstood and implemented incorrectly or incompletely. As politicians became more involved in education, there was a shift to an emphasis on measurable results, standardized testing, and a focus on empirical rather than qualitative research. This political climate was largely incongruous with the Whole Language philosophy.

A shifting focus on empirical research tended to favor phonics-based, behavioral approaches (Pearson, 2004), which had been amassing empirical results for decades. The most notable was ABT Associates (1977) evaluation of project follow through, an almost decade-long research project during which schools partnered with researchers to
implement reforms focusing on basic skills, cognitive problem solving, or affective development. Results demonstrated that, while effects varied greatly between sites, basic skills interventions including Direct Instruction, tended to produce the best results, especially with low-income children.

Stahl and Miller (1989) completed a large meta-analysis of studies that compared Whole Language or similar approaches to phonics-based approaches. They found that overall, the programs produced similar results for reading achievement and attitude towards reading. However, there were differences based on population. Whole Language was more effective as a kindergarten or school readiness program than as a first-grade program and had larger effects on word recognition, while phonics programs had larger effects for comprehension. Further, phonics-based programs were more effective for children from low-income households and higher-quality studies tended to favor phonics-based programs.

At the same time, research emerged challenging Whole Language's basic premise on reading processes. Stanovich (1980) summarized several studies that demonstrated that reliance on context clues diminished as reading skills increased, indicating that skilled readers do not rely on context. On a lab-based sentence completion task, he found that context effects vary over the lifespan, with context clues facilitating word reading for young children but not adults. This was replicated in a longitudinal study in which second graders read easy and difficult words. In this study, context effects decreased as children’s reading ability increased and context facilitated reading less for unpracticed words than practiced words. This directly contradicted Whole Language claims that skilled readers engage in a guessing game that is highly reliant on context.
Eye-tracking studies also supported bottom-up text processing. Rayner (1998) summarized eye-tracking studies and noted that reading consists of short fixations where a word is focused on by the fovea and saccades where the eyes skip a few words. While not every word is fixated, each word is processed as letters in the parafoveal area can be detected and read. As text becomes more complex, fixation length increases, and saccades decrease. This indicates that reading is a bottom-up process rather than a “guessing game.”

Beginning in the 1980’s governmental agencies began funding a series of research syntheses to discover the best methods of reading instruction and end the “reading wars.” Kim (2008) noted that many of these reports rejected a dualism between reading for meaning and decoding and instead recommended early teaching of the code combined with a focus on meaning and opportunities to practice reading and develop fluency.

The National Institute of Child Health and Human Development issued a report on findings from 33 years of research across 44 sites. They concluded that reading does not emerge naturally, and that context is not a reliable cue for reading words, as content words can only be guessed 10%-20% of the time (Lyon, 1998). They recommended that a comprehensive early reading program include direct and systematic instruction in phonics and phonemic awareness, opportunities to practice reading, and opportunities to read and discuss authentic literature (Lyon, 1998).

The most influential of the government research synthesis was the report of the Nation Reading Panel (2000). This report was largely viewed as favoring code-based instruction. The authors concluded that systematic phonics instruction was superior to other approaches to phonics instruction and that instruction in phonics and phonemic
awareness should be included in kindergarten and first grade. However, the authors were unable to come to conclusions on the exact intensity of phonics instruction or if it should continue beyond first grade. They further concluded that a complete reading program included not only phonemic awareness and phonics instruction but also instruction in fluency, vocabulary, and comprehension.

### 2.2.1 Whole Language Response

Smith (1999) criticized the empirical research base supporting systematic phonics instruction as biased and designed to confirm the view of the researchers. He further noted that it is impossible to completely separate code-based instruction and meaning-based instruction and that educational studies are difficult to properly control outside of the lab and have little applicability if they occur in a lab. Goodman (1989) further criticized the research by noting that it often misrepresents Whole Language by studying it outside the theoretical construct in which it was developed. For example, Whole Language theory posits that language is greater than the sum of its parts. Thus, using a standardized test, which breaks language into its parts, would not produce valid results in a Whole Language classroom.

Goodman (1989) further noted that empirical research is often atheoretical and contributes little to theory development or understanding the processes by which an intervention works. Pearson (2004) called for a more balanced approach to research in which a variety of quantitative and qualitative research methods are used for basic research, theory development, and testing the effectiveness of interventions. Research agendas should investigate not just the effectiveness of interventions but also why they are effective, who they are effective for, and under what circumstances they are effective.
Taking a different approach, Garan (2001) directly criticized the national reading panel’s methods, claiming that metanalysis was not an appropriate method for the phonics sub-panel. She noted there was not a large enough sample of studies to draw valid results, and the measures used as outcome variables across studies were not conceptually similar enough to be combined.

Whole Language theorists put up considerable opposition to emerging empirical literature base supporting phonics. While they were unwilling to abandon their theoretical roots or core teaching practices, they were somewhat open to incorporating some skills instruction into their existing practices under the guise of “balance.”

2.3 Balanced Literacy

Since the publication of the National Reading Panel, there has been an emphasis on reaching a middle ground and providing a balanced education, with elements of code-focused and meaning-focused instruction. Teachers may have reached this conclusion before researchers. Both survey (Pressley et al., 1996) and observational (Pressley et al., 2001) studies of effective teachers indicated that rather than aligning with one philosophy, the best teachers integrated strategies from across methodologies. The ability of teachers to combine educational methods appears to be stable, as Mathews (1966) reported that during the progressive education period at the turn of the century, the majority of teachers were combining elements of progressive and traditional education, rather than aligning with one or the other.

However, where the exact balance should lie is still unclear. Pressley et al., (2002) described balanced literacy as mirroring the practices of effective teachers. There is explicit skills instruction in basic skills, including phonological awareness, synthetic and
analogic phonics, and vocabulary. Additionally, instruction occurs in advanced skills such as comprehension, self-monitoring, and relating information to what students have already read. Students are exposed to a wide variety of literature, are given authentic experiences in reading and writing, and are provided with an integrated curriculum. Pearson (2004) suggested that balanced literacy is similar to Whole Language, with added skills instruction to address curricular casualties.

Other’s reject balanced literacy due to a lack of research support. Travers (2017) discouraged scholars and practitioners from falling prey to the moderation fallacy, assuming that a middle position is most logical, and further argued that balanced literacy has not been shown to be more effective than either Whole Language or phonics instruction.

Fletcher et al., (2020) argued for an integrated program that combines evidence-based practices rather than balanced literacy. This approach is built on a foundation of early phonics instruction, as children will not be able to read for meaning if they do not have basic reading skills. Integrated with phonics are evidenced-based practices for developing fluency, comprehension, and language development.

2.4 The Current Debate

Recently, the reading wars, recast as a debate between science of reading researchers and balanced literacy proponents, has received increased media attention. Much of this has focused on investigative reporting by Emily Hanford who released a series of podcasts and print stories. Hanford (Hanford, 2017, 2018a, 2018b, 2019) argued that the balanced literacy approach is failing both typically developing and dyslexic students in the US. She has criticized schools for utilizing balanced literacy curriculums
that deemphasize phonics in favor of three-cueing methods for word reading. Further, many teacher preparation programs neglect language fundamentals and perpetuate myths that reading develops naturally and good readers integrate multiple cues while reading. Hanford noted that Mississippi experienced gains on NAEP scores after implementing policies to support science of reading practices in primary grades including extensive teacher professional development and suggested that other states follow suit.

Authors of prominent balanced literacy curriculums have defended their curricular approach in light of Hanford’s reporting. Lucy Calkins, balanced literacy advocate and author of the Units of Study Curriculum, directly responded to criticism in a piece titled “No one gets to own the term science of reading” (Calkins, 2019). Irene Fountas and Gay Su Pinnell authors of a suite of balanced literacy curriculum, interventions, and assessments responded in a podcast on their publisher’s website (Fountas & Pinnell, 2019). Both argued that their curriculums teach phonics, that they do not use the three cueing system, that science of reading aligned programs have a narrow focus that neglects important aspects of literacy (Calkins, 2019; Fountas & Pinnell, 2019), and point to the failure of reading first as evidence that phonics-centric curriculum didn’t work (Calkins, 2019).

Both Calkins (2019) and Fountas and Pinnell (2019) have responded to criticism that their curriculums neglect phonics instruction by pointing to various commercial products including phonics curriculum, teacher guides, and assessments that include phonics content. They describe their approach to phonics as going beyond typical programs by allowing students to practice what they have learned in authentic
environments, integrating other areas of literacy, and providing a program that is explicit, multi-sensory, and inquiry-based (Fountas & Pinnell, 2019).

Presently, balanced literacy advocates argue that while phonics is important, literacy is complex, encompassing comprehension and engagement, and phonics instruction should not be at the expense of other types of reading and writing instruction (Bommarito & Thomas, 2021). The International Literacy Association (ILA) (International Literacy Association, 2019) encouraged a comprehensive curriculum that provides instruction in the five pillars of reading, oral language, and a variety of self-regulated strategies including meaning-based strategies.

Fountas & Pinnell (2019) and Calkins (2019) have denied teaching the three-cueing system in their programs. They claim critics are confused about the three cueing system and describe it as an approach to assessment rather than a teaching method. However, critics continue to assert that three cueing is prevalent in balanced literacy programs. They point to multiple instances of the term “MSV” (meaning, structure, visual) and “multiple sources of information” in Calkins curriculum, a clear reference to the three cueing system (Goldberg, 2019; Goldenberg, 2019; Snow, 2019). Cognitive psychologist, Mark Seidenberg (2019), noted that in her essay Calkins (2019) provides examples of children reading using multiple cues while exhorting the importance of phonics. He further noted pronunciation is the most reliable cue to word reading and the integration of multiple cues while reading is unreliable, ineffective, and inconsistent with research findings on the mechanics of skilled reading.

Balanced literacy advocates describe phonics instruction as a “one-size-fits-all” approach and argue that teachers should be able to use the full range of strategies from
explicit instruction to guided reading, as each child has unique needs and a unique learning style (Bommarito & Thomas, 2021). No one program or method should be mandated or banned as none are effective for every child (Bommarito & Thomas, 2021). However, cognitive psychologist, Dehaene (2009) argued that since all humans have the same brain structure, we all learn to read approximately the same way.

Both balanced reading and science of reading advocates cite educational reform programs aimed at increasing phonics instruction as proving that phonics instruction is or is not effective. In her reporting Hanford (Hanford, 2018a, 2018b, 2019) promoted educational reforms in Mississippi that encouraged teaching practices aligned with the science of reading. She noted that after passing these reforms Mississippi saw significant increases in NAEP scores, at a time when other states’ scores were stagnant. The gains were so large that Mississippi, a poor state that traditionally scored near the bottom on NAEP was able to score average, similar to wealthier states like California. However, the National Council of Teachers of English (Suskind, 2020) argued that there is no way to prove that phonics instruction was the causal variable in improving Mississippi’s NAEP scores. Paul Thomas (Bommarito & Thomas, 2021) noted that extreme retention of 3rd graders in Mississippi, an element of the reading reform package, likely inflated NAEP scores as only higher achieving students participated in the 4th grade NAEP. He further accused science of reading advocates of supporting grade retention despite its lack of research support and negative effects on children.

Balanced literacy advocates have noted that an evaluation that found that Reading First, an early 2000s federal program to increase teaching practices aligned with the National Reading Panel, including phonics, did not produce significant effects on
comprehension. They cite this as evidence that phonics mandates do not work (Calkins, 2019; Suskind, 2020). However, Shanahan (2020) noted that 25% of reading first funds were used to encourage reading-first practices in non-reading first schools, with some states mandating reading-first practices in all schools. This meant that at the time of the reading first evaluation, which compared reading first schools to non-reading first schools, there was little difference between reading first and non-reading first schools in terms of reading instruction, thus little reason to expect differences in comprehension scores between the schools. He argued a fairer assessment would be to examine overall NAEP scores, which increased during the reading first years, and have stagnated since.

2.5 Research on Systematic Phonics Instruction

While proponents of guided reading and balanced literacy argue about the merits of each approach, there is no doubt that Phonics instruction has a larger empirical research base. Phonics instruction is the most studied form of reading instruction (Galuschka et al., 2014), with reviews and metanalysis consistently showing positive results (Torgerson et al., 2019) and benefits extending to students with disabilities (Galuschka et al., 2014) and minority students (Jeynes, 2008). Phonics instruction has shown effectiveness in one-to-one, small group, and whole-class formats (Slavin et al., 2011). Effects across studies are greater for one-to-one phonics instruction than for Whole Language based Reading Recovery tutoring (Slavin et al., 2011). A meta-analysis indicated that results remained up to a year after interventions ended (Suggate, 2016), with one study reporting significant results for basic reading skills and a trend towards higher high school graduation rates ten years after the original intervention (Blachman et al., 2014).
This research is further bolstered by studies of brain imaging which indicate that after phonics-based reading instruction brain imaging of poor readers more closely resembles that of good readers (Barquero et al., 2014; Shaywitz et al., 2004) and that they show greater connectivity in reading-related areas (Keller & Just, 2009).

There is also significant research support for phonemic awareness, the foundation of phonics instruction. Meta-analysis indicates that phonemic awareness shows larger differences between dyslexic and typical children and is a better predictor of reading in the general population than rime awareness or verbal short-term memory (Melby-Lervåg et al., 2012). Further, instruction in phoneme level skills in preschool (Carson et al., 2019) and beginning elementary school (Carson et al., 2013) results in improved reading outcomes for both typically developing children and children with language impairments. Convergent evidence indicates that phonemic awareness is a crucial skill in learning to read, and a bottom-up behavioral model of reading instruction identifies this as an important foundational skill that enables effective word reading when explicitly used to facilitate alphabetic knowledge and decoding skills.

2.6 Guided Reading in the Balanced Literacy Classroom

While phonics instruction draws on empirical literature, Guided Reading’s development was theory-driven. Guided reading is rooted in a constructivist framework and is an element of many balanced literacy programs that endorse the workshop model. It emerged from Marie Clay’s Reading Recovery program, which was developed in New Zealand to complement class-wide Whole Language programs and provide the lowest-performing readers with early intervention (Clay, 2007). Teachers complete an intensive in-service program where they are trained in instructional decision-making and finding
teachable moments (Clay, 1991). Rather than completing drills, students are immersed in text and provided scaffolded instruction by a trained tutor for thirty minutes a day (Pinnell, 1989). Students are encouraged to use flexible strategies such as self-monitoring, cross-checking, and searching for cues (Fountas & Pinnell, 2012). The cueing strategy includes using meaning, graphic, and language structure clues to make guesses about words, which is consistent with Goodman's account of skilled reading (Pinnell, 1989).

Like Reading Recovery, Guided Reading focuses on developing flexible strategy use rather than specific skills (Iaquinta, 2006). Students work in small groups with a teacher to build critical thinking skills and learn to think within a text, beyond the texts, and about the text (Fountas & Pinnell, 2012) while developing habits of self-monitoring, cross-checking, self-correcting, searching, prediction, and confirming (Iaquinta, 2006). Teachers provide explicit strategy instruction in decoding, comprehension, and problem-solving; but also allow students to self-correct, or problem solve on their own (Iaquinta, 2006). Facilitative language is used for scaffolding instruction, promoting independence, and engaging children in rich oral discussions about texts, which build vocabulary (Fountas & Pinnell, 2012).

Teachers College Reading and Writing Project (2020), a proponent of guided reading, has incorporated recent reading research into guided reading processes. They suggest kindergarteners and beginning first graders receive five to eight minutes of phonological awareness instruction each day with phonics instruction incorporated into both whole class and small group lessons. Children should be encouraged to attempt to decode a word first before using picture or meaning clues. However, guided reading
should still retain many of its core elements and phonics instruction should be balanced with broad exposure to text, including decodable readers and authentic literature.

Studies have shown some positive effects for integrating phonics with literature approaches. For example, phonics integrated with shared storybook reading produced better results than word usage integrated into shared storybook reading for both reading and motivation (Chen & Savage, 2014). Phonology integrated with a reading intervention based on Marie Clay’s work produced better results than phonology or reading intervention alone (Hatcher et al., 1994), and an intervention that combined Whole Language practices and phonics produced better results than either component alone (Tse & Nicholson, 2014).

The United States has a long history of fluctuations between phonics-based and meaning-based instruction in classrooms. Currently, the debate continues between science of reading proponents and balanced literacy advocates, with researchers, educators, parents, and politicians aligning with one side or the other. This has created a varied instructional landscape in classrooms. Several states including Mississippi, Arkansas, Tennessee, Connecticut, Florida, and Texas have passed legislation requiring science of reading aligned practices. On the other hand, balanced literacy, and guided reading approaches remain popular in classrooms and teacher preparation programs (Kurtz et al., 2020). The polarizing debate and conflicting information leave many misinformed or confused about best practices in early literacy. This study sought to provide clarity by directly comparing the effects of explicit phonics and guided reading on first-grade readers. We hope that the direct comparison will provide convincing evidence of the necessity of explicit phonics instruction for emergent readers.
CHAPTER 3

METHODOLOGY

3.1 Introduction

Using a pre-post test, experimental, research design, this study compared the effects of a guided reading and an explicit phonics intervention on the reading skills of first-grade students who were referred by their teachers or parents. Students were randomly assigned to one of two groups, either the guided reading or explicit phonics condition. Changes in scores between pretest and posttest on measures of broad reading (FastBridge aReading) and reading rate (FastBridge CBMreading) were compared between the two groups using linear regression analyses.

3.2 Participants, Recruitment, and Consent

3.2.1 Participants and Settings

Participants in the study were first-grade students who were referred by their parents or teachers. A power analysis conducted using G-Power with alpha set at .05, 1-alpha set at .95, and Cohen’s $d$ set at .5 indicated that 54 participants were necessary to obtain appropriate power. Denton et al. (2014) found effect sizes of approximately .2 (range .07-.33) favoring phonics-based instruction for second grade students. However, estimates of effect size for systematic phonics instruction for kindergarten and first-grade students are typically larger, in the range of .31-.84 (Wanzek & Vaughn, 2007). An effect size of .5 was chosen for the power analysis to represent a moderate effect, within the range of what would be considered typical for first-grade systematic intervention.
Data collection occurred across three sites and two waves of data collection. Wave one occurred during the spring of 2021 and wave two occurred during the summer of 2021. All participants had their educational experience significantly disrupted by the COVID-19 pandemic.

Two sites participated in the spring wave. Site one was an urban school with an enrollment that was 43% Hispanic/Latino, 28% African American, 19% White, 6% multi-racial, and 4% Asian. Forty percent of students are classified as economically disadvantaged and 8% as English learners. The site utilized a core curriculum that was explicit, teacher-directed, and included a phonics component. Due to the COVID-19 pandemic, students experienced fully virtual education from March through June of their kindergarten year and September through May of their first-grade year. They experienced hybrid education (virtual and in-person) beginning in May of their first-grade year, with a minority of participants choosing to remain fully remote. All students began the intervention as fully remote learners, with most transitioning to hybrid learning during the course of the intervention. A total of nine students were drawn from site one.

Site two was a district in a small city. Students in the district are identified as 71% White, 16% Hispanic/Latino, 3% Asian, 3% African American, and 7% multi-racial. Twenty-six percent of students were identified as economically disadvantaged and 3% as English learners. The district used a balanced literacy approach to core reading instruction. Students in the district experienced fully remote instruction from March through June of their kindergarten year. The school used a combination of hybrid (in-person and online) and fully remote instruction from September through May and fully in-person instruction from May through June, with some families choosing to continue
fully remote instruction. The majority of participants (n = 10) from this site were in a fully remote classroom, with a minority (n = 2) being in a fully in-person classroom. A total of 12 participants were drawn from site two.

Across both sites, fully remote students joined the intervention from home or childcare centers using computers, tablets, or phones. In-person students joined the intervention from their classroom or the school library using computers.

The second wave of this study occurred in the summer. Students in the summer wave were drawn from across the country, with most located in the Northeast. The sample was 61% White and 39% multiracial. All participants in the second wave experienced fully virtual education from March through June of their kindergarten year. They experienced a wide variety of educational formats during first grade. Some students attended fully in-person school for the entirety of first grade. Others were fully virtual, hybrid, homeschooled, or experienced multiple formats. Twenty students participated in the summer wave.

Across both waves of this study, a total of 53 students signed consent for the intervention. Three students were excluded because they were unable to complete the pre-test, four chose not to participate due to scheduling issues, and five were lost due to attrition, for a total sample of 41 participants. During the spring wave of data collection, students were referred by their classroom teachers. We expected teachers to refer low achieving students, however, several of the referred students were average or above average on the pre-test. During the summer wave, students were referred by their parents and needed to score below the 40th percentile on at least one pre-test measure to participate.
Since the final sample included a wide range of reading abilities, students were blocked by initial reading skill level. Students were coded as lower skilled if they scored below the 40th percentile on either aReading or CBMreading during the pretest. They were coded as higher skilled if they scored above the 40th percentile on both measures. The lower skilled group aligns with our original intent when we asked teachers to refer students who were struggling to learn to read and also aligns with our inclusion criteria for the summer wave.

3.2.2 Recruitment and Consent

During spring recruitment, school principals were contacted and given information about the study (see Appendix A for principal recruitment email). Interested principals contacted first-grade teachers and offered them the opportunity to have students in their classrooms participate. Teachers selected children who they felt would benefit from extra reading instruction and placed them in groups of two or three with other students at a similar reading level. There was no specific criterion for teachers to choose students, they could choose any student they believed could benefit from additional reading support. The teachers contacted parents of potential participants and provided them with a flier about the study (see Appendix B-D for parent recruitment materials and consent form). Interested parents then emailed the research team and were provided an electronic consent form. Teachers assigned students to small reading groups, and once consent was obtained, the small groups were assigned to a tutor based on tutor availability. Students gave verbal assent during the first session before the intervention was started. (see Appendix E for student assent script).
During summer recruitment schools were given fliers about the study to distribute to parents and fliers were posted on social media. Interested parents contacted the research team and signed consent electronically. Students completed the pre-test measures with the requirement that they score below the 40\textsuperscript{th} percentile on at least one measure to participate. No potential participants scored above the 40\textsuperscript{th} percentile on all measures. Parents were typically offered two potential times for participation and chose the one that best fit their schedule. Parents were not told which times were guided reading groups and which were phonics groups.

3.2.3 Tutors

A total of twelve tutors participated in the study. Eleven tutors were graduate students in school psychology, and one tutor was an undergraduate student. During the first wave of the study, eight tutors were randomly assigned to receive training in either guided reading or explicit phonics, with the requirement that exactly four tutors receive each training. Each tutor taught one group of first graders using the protocol in which they were trained. Four tutors participated in the second wave of the study. Each tutor during this wave led two or three small reading groups. Two tutors led a combination of guided reading and phonics groups. Tutors in the spring wave of the study participated as volunteers or to fulfill a requirement for a class. Summer tutors received a small stipend. Tutors received approximately ninety minutes of training. During the spring wave of data collection, eight of the tutors received synchronous remote training. They met in groups of four and received a remote synchronous presentation that covered either the phonics intervention or the guided reading intervention. The presentation included information on the theory and rationale behind the intervention, the steps needed to implement the
intervention, and a video or demonstration of someone implanting the intervention. The tutors met a second time and had the opportunity to practice the intervention with another tutor and ask questions. One additional tutor completed the initial training asynchronously and then met with the first author to practice the intervention. During the summer wave, one tutor had already participated in the spring wave of data collection and did not complete additional training. A second tutor had served as a guided reading tutor during the spring session but received additional training in the phonics intervention, and a third tutor was new and received initial training in the phonics intervention.

3.3 Intervention

3.3.1 Guided Reading Condition

The guided reading lessons were based on lessons developed by the Reading A-Z intervention website (https://readinga-z.com) and modified for remote delivery using a web-based meeting platform. In this condition, tutors chose a series of books based on student interest and Fountas and Pinnell reading level. The tutor taught a unit, including three guided reading lessons, for each book based on Reading A-Z guided reading lesson plans (see Appendix F for an example). Each lesson lasted 30-minutes and included before reading, during reading, and after reading phases.

During the before reading phase of instruction the tutors were encouraged to spend five to seven minutes building background knowledge, setting a purpose for reading, introducing vocabulary, and teaching a reading strategy mini-lesson. Tutors were encouraged to focus on building background knowledge and vocabulary and completing
an in-depth book walk the first time they read the book. They were instructed to focus more heavily on mini-lessons the second and third time they read the book. Reading A-Z provided digital worksheets for many of the mini-lesson activities.

Next, students read the book as part of the during reading phase. Tutors screen shared the book and students took turns reading. Tutors monitored reading, probed for comprehension, and helped students solve problems related to word solving, fluency, comprehension, and vocabulary. Tutors were instructed to encourage students to self-correct and solve problems themselves. They focused on having students actively monitor their understanding, note areas they did not understand, and build a literal, inferential, and analytic understanding of the text. The during reading phase of the lesson lasted at least fifteen minutes. Tutors were encouraged to have students engaged in reading for the majority of the session.

After reading the tutor engaged students in a discussion about the book and about how students used strategies during reading. Next, tutors chose a mini-lesson and activity related to their book from among several options on Reading A-Z. Activities focused on comprehension, phonics, phonemic awareness, vocabulary, or grammar and mechanics.

3.3.2 Explicit Phonics Condition

The explicit phonics intervention was also an adaptation of an intervention developed by Reading A-Z (https://www.readinga-z.com/). Adaptations were made to allow the intervention to be delivered remotely. A Jamboard was created for each lesson so that physical materials such as picture cards, letter cards, words cards, and gameboards could be used in a virtual environment. Each unit consisted of three thirty-minute lessons
delivered across three days, focusing on one or two phonics rules and one high-frequency word (see Appendix G for a sample lesson).

Each lesson followed a format with the tutor teaching or reviewing a target phonics rule, students practicing the rule, reading a decodable reader with a high percentage of words following the target rule, and students playing a game that allowed them to practice learned high-frequency words. Day one included a high level of tutor support as the tutor explicitly stated and demonstrated the rule and allowed students to practice the rule with a high level of scaffolding and tutor support. On days two and three, students practiced reading, blending, writing, and sorting words with decreasing tutor support.

3.3.3 Remote Adaptations

The Reading A-Z explicit phonics lesson included several physical components such as letter tiles, word cards, and picture cards, which are meant to be used in a pocket chart or manipulated by students. To adapt the intervention for remote delivery these manipulatives were recreated using Google Jamboards. Tutors were also able to use Jambaords to write on, similar to a whiteboard. Students used a personal whiteboard or pencil and paper for writing activities and held them up to a camera for the tutor to see. Tutors used digital books from Reading A-Z and screen shared them with students so that students could read.

3.4 Implementation Integrity

Tutors completed an implementation integrity checklist after each session. Phonics tutors checked off each activity they completed. For activities with many
examples, tutors indicated if they completed all or some of the examples and if they only completed some of the examples, whether or not they completed examples of each target pattern. See Appendix H for the implementation integrity form for the explicit phonics intervention.

The guided reading tutors completed a checklist indicating which activities were completed during the before reading, during reading, and after reading phases, and the approximate length of each phase. Additionally, guided reading tutors recorded the names and levels of each book they chose, and the skills taught during the before reading or after reading mini-lesson. See Appendix I for the implementation integrity form for the guided reading intervention.

3.5 Fidelity

During the first wave of data collection, groups started and ended on a rolling basis depending on school needs, tutor schedules, and when consents were obtained. During the summer wave of data collection all groups started and ended at the same time. Students were offered an average of sixteen sessions ($SD = 1.92$, range 14-22), equaling about five weeks of instruction. Attendance varied, with average attendance being 84% ($SD 13\%$, range 56%-100%).

3.5.1 Guided Reading Fidelity

Fidelity checks were returned for 70% of guided reading sessions. Responses indicated that tutors generally followed the before reading, during reading, and after reading format. Tutors chose a leveled book based on children’s Fountas and Pinnell reading level on 100% of fidelity occurrences. All sessions included before reading and
during reading activities and 93% included after reading. The reason for not including the after reading component was typically running out of time or students arriving late.

During the before reading portion of the lesson tutors reported including a variety of activities, with most lessons including multiple components in the before reading phase. Common activities included activating prior knowledge (43% of lessons), completing a picture walk (35%), introducing vocabulary (35%), setting a purpose for reading (33%), and completing a mini-lesson (40%). While completing the during reading phase, tutors reported conferencing with each student during 90% of lessons. During the after reading phase, tutors reported discussing the book (49% of lessons), discussing skill use (20% of lessons), conducting a mini-lesson (68%), and extending understanding (13%). Overall, 80% of lessons included at least one mini-lesson. The most common topic for mini-lessons was comprehension skills (35% of mini-lessons) followed by phonics (24%), grammar/mechanics (22%), vocabulary (13%), and phonological awareness (6%).

3.5.2 Systematic Phonics Fidelity

Fidelity forms were completed for 66% of systematic phonics lessons. Forms indicated that tutors attempted each of the teaching activities (introducing the rule, blend/create words, dictation, etc) during each lesson. Most lessons included more than one target rule and each teaching activity had several examples for each rule. Results indicated that tutors completed all teaching examples most of the time (66% of teaching activities). The remainder of the time tutors reported they did not complete all teaching examples but that they did complete some of the teaching examples for each of the target rules (27%) or that they did not complete teaching examples of each target rule (6%).
Day two of each unit included teaching a high-frequency word. Tutors taught the high-frequency word 89% of lessons. Reading the book included a warm-up during which students read words or sentences with the target rule on days 1 and 2 and then read a decodable book. Tutors completed the warm-up activity 93% of the time. Tutors read the entire book 63% of the time, part of the book 19% of the time, and did not read the book 19% of the time. On day three there was an additional center activity. This was completed 96% of the time. Finally, each lesson ended with a game, which was completed during 56% of lessons.

3.6 Dependent Variables

Dependent variables included reading fluency and broad reading. Hoover and Tunmer (2018) define decoding as the ability to “recognize printed words accurately and quickly to efficiently gain access to the appropriate word meanings contained in the internal mental lexicon” (p. 304). Fluent and accurate decoding is important because it frees cognitive processing capacity for comprehension (Hoover & Tunmer, 2018). Decoding and fluency ability were measured by oral reading fluency, the number of correct words read per minute in connected text. Words read correctly per minute has been shown to predict reading scores on norm-referenced tests within school years (Kilgus et al., 2014), and can predict outcomes on high stakes tests over multiple school years (Hintze & Silberglitt, 2005).

Broad reading serves as an overall measure of reading including component skills such as decoding and phonemic awareness as well as vocabulary and comprehension. It was included in the assessment measures to give an overall indication of reading and comprehension ability.
3.7 Measures

3.7.1 CBMreading

Illuminate Education (2020b) indicates that the CBMreading measure consists of three probes where a student reads a passage aloud for one minute and the test administrator marks word reading errors. Each probe is scored for the number of words read correctly in one minute, and the final score is the median of the three scores. The American Institutes for Research (2020) indicates that first-grade CBMreading measures have a sensitivity of .78, a specificity of .70. Reliability, as measured by inter-rater reliability, is .96 and as measured by alternate form reliability is .74.

3.7.2 aReading

Illuminate Education (2020a) indicates that the FastBridge aReading measure is a computer adaptive, thirty-item multiple-choice, and fill-in-the-blank test that takes between fifteen and thirty minutes. Items are delivered on a computer with visual and auditory stimuli. Items span the broad domain of reading including concepts of print, phonological awareness, phonics, vocabulary, and comprehension. The American Institutes for Research (2020) reported psychometrics for first-grade aReading using the Gates-MacGinitie-4th Edition as a criterion measure. Results demonstrated a model-based reliability .95, predictive validity .83, and construct validity .69. Additionally, aReading has a sensitivity of .91 and specificity of .87.

3.8 Data Analysis Plan

For both CBMreading and aReading a gain score was calculated by subtracting each participant’s pre-test score from their post-test score. Regression analysis was then
performed with the gain score predicted by treatment assignment and pre-intervention reading serving as a blocking factor. A rejection area of .05 was used to maintain 95% confidence. The data were reviewed to make sure they met the assumptions for regression analyses. Regressions were performed separately for reading fluency and broad reading.
CHAPTER 4
RESULTS

4.1 Introduction

The purpose of this study was to determine whether guided reading or explicit phonics had a greater effect on first graders’ reading fluency and broad reading abilities. Reading fluency was measured by calculating the number of words a student read correctly in one minute on first-grade level CBMreading probes published by FastBridge. A growth score was calculated by subtracting each student’s pre-test score from their post-test score. Broad reading was measured by the student’s score on the FastBridge aReading measure, a multiple-choice, computer adaptive test. Again, a growth score was calculated by subtracting the pre-test score from the post-test score.

It was hypothesized that all students would make gains during the intervention period due to additional opportunities to practice reading. However, it was also hypothesized that the explicit phonics group would make greater gains due to the phonics intervention’s systematic and explicit nature and alignment with research (Galuschka et al., 2014; Jeynes, 2008; National Reading Panel, 2000; Torgerson et al., 2019). The study used a randomized repeated measures design to test the differences. Linear regression was used to analyze the growth scores based on intervention assignment.

4.2 Descriptive Statistics

Descriptive statistics are provided for the dependent variables including pre-test scores, post-test scores, and gain scores for CBMreading and aReading. Table 1 includes
descriptive statistics for the full data set and Table 2 provides the descriptive statistics for the participants blocked by pre-test reading skill level. Students were coded as lower skilled if they scored below the 40th percentile on pre-test CBMreading or aReading. They were coded as higher skilled if they scored above the 40th percentile on both measures. Scatterplots and means plots showing gains in words read correctly per minute and gains in aReading for the two conditions are shown in Figure 1-Figure 4.

4.3 Growth in Word Read Correct Per Minute

4.3.1 Assumptions

Linear regression was performed to investigate the relationship between gains in the number of words read correctly per minute on CBMreading and intervention assignment, with skill level serving as a blocking variable. Before fitting the regression model the data were examined to ensure that it met the assumptions for regression including a linear relationship between the independent and dependent variable, independence of residuals, homoscedasticity, and normal distribution of residuals. Further, the data set was checked for normality and outliers.

A visual analysis of a histogram of gain scores for words read correctly per minute and skewness and kurtosis statistics were used to determine that the data approximated a normal distribution without skewness (skew = .39) or kurtosis (excess kurtosis = -.29). A boxplot indicated that there was one outlier in the guided reading group, which exceeded 1.5 times the interquartile range. See Figure 1 for a histogram and boxplot depicting the distribution of growth in words read correctly per minute scores.
Homoscedasticity of residuals and linearity of residuals was examined through visual inspection of a graph showing residuals plotted against fitted values. Data supported linearity and homoscedasticity. Linearity was further examined through a Q-Q plot. The quantiles for the residuals in the data set were plotted against quantiles for the normal distribution. Data approximated a straight line at a 45-degree angle, indicating a normal distribution of residuals. Independence of residuals was not a concern because data were not time series and no participant participated in both interventions. See Figure 1 for plots.

4.3.2 Findings

Once it was assured that the data set met the assumptions, a linear regression was fitted to see if intervention assignment predicted growth in words read correctly per minute on CBMreading probes, with initial reading skill serving as a blocking factor. A model was created in which the dependent variable, growth in words read correctly per minute, was predicted by intervention assignment, with reading skill serving as a blocking variable. An alpha level of .05 with a corresponding 95% confidence interval was used as a criterion for determining statistical significance. The dependent variable, growth in words read correctly in one minute was a continuous variable. The independent variable, intervention assignment, was a categorical variable with two levels, guided reading, and systematic phonics. The blocking variable, reading skill, was a categorical variable with two levels (lower skilled, higher skilled). The full model was significant ($F(3, 35) = 5.80, p = .002$, adjusted $R^2 = .33$). Further, there was no main effect of intervention assignment ($\beta = 4.93, 95\% \text{ CI } [-5.79, .15.66], \ p = .36$) but there was an interaction between intervention assignment and reading skill ($\beta = -14.07, 95\% \text{ CI } [-
The effect size for the interaction was medium to large ($\eta^2_g = .13$). Examination of cell means indicated that intervention type had differential effects on reading fluency based on initial reading skill level. The phonics intervention was significantly more effective than guided reading for low-skilled readers but was not more effective than guided reading for higher skilled readers. See Table 3 and Figure 3 for more details.

4.4 Growth in aReading scores

4.4.1 Assumptions

A similar process was followed to fit a regression model to the aReading growth scores with intervention predicting growth in aReading score and initial skill level serving as a blocking variable. The data were examined for normality and outliers. Next, assumptions including a linear relationship between the independent and dependent variable, independence of residuals, homoscedasticity, and normal distribution of residuals were checked.

In terms of normality, the distribution of aReading scores showed a skewness of .26 and a kurtosis of -.27. Further, visual inspection of a histogram revealed an approximately normal distribution. Inspection of a boxplot revealed no data points beyond the range of 1.5 times the interquartile range, indicating a lack of outliers.

Homoscedasticity and linearity of residuals were assured through visual inspection of a graph of fitted values plotted against residuals. There was no systematic pattern in the residuals indicating that was not a systematic trend in errors between the two conditions. Linearity of residuals was further examined through visual inspection of a Q-
Q plot. The pattern of data approximated a 45-degree line, indicating that the distribution of residuals was approximately normal. Independence of residuals was not a concern because data were not a time series. See Figure 2 for plots.

4.4.2 Findings

Linear regression was fitted to the aReading growth scores. In the model, growth in aReading was predicted by intervention assignment with initial reading skill serving as a blocking variable. The independent variable had two levels (guided reading, systematic phonics), the blocking variable, reading skill, had two levels (lower skilled, higher skilled), and the dependent variable was continuous. The model was not significant, ($F(3, 32) = 2.75, p = .06$, adjusted $R^2 = .13$). Further neither the main effect of intervention ($\beta = 5.33, 95\% \text{ CI } [-19.56, 30.23], p = .67$) or the interaction between intervention assignment and initial reading skill ($\beta = -28.17, 95\% \text{ CI } [-58.65, 2.32], p = .07$) was significant. Intervention assignment was not a significant predictor of gains by itself and did not differentially predict gains based on initial reading skill level. See Table 4 and Figure 4 for more details.
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<tr>
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</thead>
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<tr>
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<tr>
<td>Pre-Treatment Words Read</td>
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<td>Correctly Per Minute</td>
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<td>Growth in Words Read Correctly Per Minute</td>
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Table 2. Descriptive Statistics Blocked by Initial Reading Skill Level

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<tr>
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<th>Phonics-Lower Skilled</th>
<th>Guided Reading-Lower Skilled</th>
<th>Phonics-Higher Skilled</th>
<th>Guided Reading-Higher Skilled</th>
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<td><strong>Pre-Treatment Words</strong></td>
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<td></td>
<td></td>
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<tr>
<td>Read Correctly Per Minute</td>
<td>Mean (sd)</td>
<td>26.5 (13.6)</td>
<td>13.9 (10.8)</td>
<td>75.3 (48.4)</td>
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<td><strong>Post-Treatment aReading Score</strong></td>
<td>Mean (sd)</td>
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<td>446 (30.6)</td>
<td>490 (24.3)</td>
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<td>-1.34</td>
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<td><strong>Growth in Words Read Correctly Per Minute</strong></td>
<td>Mean (sd)</td>
<td>11.5 (9.35)</td>
<td>2.4 (7.08)</td>
<td>13.7 (5.01)</td>
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<td>-.13</td>
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<td>Kurtosis</td>
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<td>-.46</td>
<td>-1.3</td>
<td>-1.74</td>
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<tr>
<td><strong>Growth in aReading</strong></td>
<td>Mean (sd)</td>
<td>29 (22)</td>
<td>6.17 (26)</td>
<td>7.17 (11.7)</td>
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<td>-.24</td>
<td>.49</td>
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<tr>
<td>Kurtosis</td>
<td>-1.53</td>
<td>-1.11</td>
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### Table 3. Regression Results for Gains in Words Read Correctly Per Minute

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<th>Effect</th>
<th>Estimate</th>
<th>SE</th>
<th>95% CI</th>
<th>p</th>
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<tbody>
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<td>Initial Reading Skill</td>
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<td>-10.87</td>
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<tr>
<td>Interaction</td>
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<td>-26.73</td>
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</tr>
</tbody>
</table>

*Note.* N = 40. CI = confidence interval; LL = lower limit; UL = upper limit

### Table 4. Regression Results for Gains in aReading score

<table>
<thead>
<tr>
<th>Effect</th>
<th>Estimate</th>
<th>SE</th>
<th>95% CI</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>7.17</td>
<td>8.62</td>
<td>-10.43</td>
<td>24.77</td>
</tr>
<tr>
<td>Intervention</td>
<td>5.33</td>
<td>12.22</td>
<td>-19.56</td>
<td>30.23</td>
</tr>
<tr>
<td>Initial Reading Skill</td>
<td>21.833</td>
<td>10.58</td>
<td>.27</td>
<td>43.39</td>
</tr>
<tr>
<td>Interaction</td>
<td>-28.17</td>
<td>14.97</td>
<td>-58.65</td>
<td>2.32</td>
</tr>
</tbody>
</table>

*Note.* N = 37. CI = confidence interval; LL = lower limit; UL = upper limit
Figure 1. Assumptions: Growth in Words Read Correctly Per Minute
Figure 2. Assumptions: Growth in aReading
Figure 3. Cell Means Plot: Growth in Words Read Correctly Per Minute
Figure 4. Cell Means Plot: Growth in aReading
CHAPTER 5
CONCLUSIONS

5.1 Introduction

This study compared the effects of short-term explicit phonics and guided reading interventions on first graders' oral reading fluency and broad reading abilities. It was hypothesized that the students in the explicit phonics condition would make more growth because explicit phonics has a larger evidence base.

Proficient reading is a necessary skill, and early mastery of basic reading is important for later academic success. It is essential that students can read on grade level by third grade, and early intensive intervention is necessary to ensure all students meet this milestone. Third grade is a critical point in reading development because children transition from learning to read to reading to learn (Chall, 1983), and a solid foundation in basic reading skills is necessary for children to make this transition. If struggling readers are not provided early, effective intervention, they fall progressively more behind (Juel, 1988), and intervention becomes less effective (Wanzek & Vaughn, 2007). When students do not reach grade-level proficiency by third grade they are four times more likely not to graduate high school (Annie E. Casey Foundation, 2012).

Although the need for early reading intervention is clear, there are many different approaches to early reading intervention. There is consensus in the empirical research community that word reading is an important predictor of comprehension (Eason et al., 2013; Verhoeven & van Leeuwe, 2008; Zinar, 2000) and that teaching word reading through explicit phonics instruction is critical in the primary grades (Galuschka et al.,
Explicit phonics instruction aims to teach students relationships between sounds and letter(s) using a systematic scope and sequence, direct instruction, and decodable readers (Villaume & Brabham, 2003). Comprehension is thought to follow accurate and fluent word reading.

However, some continue to refute the research base supporting explicit phonics instruction and argue for balanced literacy, a top-down meaning-focused approach to early reading instruction. They advocate for a balanced literacy approach based on the reader's workshop model with a focus on guided reading and leveled texts. Teachers observe students and make decisions about the scope and sequence based on a student's reading behaviors (Fountas & Pinnell, 2012). Rather than focusing on accurate and fluent word reading, students are encouraged to use a variety of strategies including guessing words (Rog, 2003). The focus of instruction is on meaning, and it is thought that comprehension will facilitate word reading (Calkins, 2019).

The debate between science of reading advocates, who endorse explicit phonics, and balanced literacy advocates plays out in the classroom where school leaders, teachers, and parents must choose from a wide array of curricular materials, aligned with different pedagogies. The varying curricular options allow stakeholders to choose ineffective programs, with many children failing to achieve proficiency and a large achievement gap (National Assessment of Educational Progress, 2019). Thus, it is incumbent upon schools to understand the empirical research surrounding phonics instruction and choose research-based programs to provide equitable and effective instruction for students.
The current study was designed to provide clarity on the most effective interventions for emerging readers by directly comparing the effects of phonics-based intervention with guided reading. By comparing the interventions to each other rather than to control groups, the benefits of one type of intervention over the other becomes clear.

5.2 Summary of Findings

5.2.1 Oral Reading Fluency

Reading fluency is highly correlated with reading comprehension (Eason et al., 2013; Verhoeven & van Leeuwe, 2008; Zinar, 2000) because when word reading is fluent students can dedicate more cognitive resources to comprehension (LaBerge & Samuels, 1974). Reading fluency is commonly measured by the number of words read correctly in one minute. This study utilized the FastBridge CBMreading measure to estimate growth in words read correctly per minute throughout the intervention.

It was hypothesized that students in both groups would make gains due to extra time spent in small group reading, but that the systematic phonics group would make more growth in words read correctly per minute than students in the guided reading group due to the phonics intervention alignment with research and explicit and systematic nature. The students in the sample had a wide range of initial reading levels so they were blocked by initial skill level for analysis. Students were considered lower skilled if they scored below the 40th percentile on either aReading or CBMreading. They were considered higher skilled if they scored above the 40th percentile on both measures. Lower skilled students in the phonics group gained an average of 11.5 (SD = 9.35) words
correct per minute while lower skilled students who received the guided reading intervention grew an average of only 2.4 (SD = 7.08) words. For higher skilled students, those in the phonics group grew an average of 13.7 (5.01) words correct per minute while those in the guided reading group grew an average of 18.6 (SD = 14.0) words correct per minute. As hypothesized, both groups of students made gains during this intervention period. Although there was not a significant main effect for intervention type, the interaction between initial reading skill and intervention was significant, indicating that intervention effectiveness was moderated by initial skill.

For lower skilled readers, explicit phonics was the more effective intervention by a large margin. However, for higher skilled readers, the effect of intervention type was more nuanced. Higher skilled readers in the guided reading group outperformed higher skilled readers in the phonics group. However, the margin was smaller, and confidence intervals were overlapping, indicating that for advanced readers intervention choice may not be as consequential.

5.2.2 Broad Reading

Broad reading was measured utilizing the FastBridge aReading measure. The aReading measure is a multiple-choice, computer-adaptive measure that includes questions from a variety of reading-related domains including phonological awareness, concepts of print, phonics, vocabulary, and comprehension. This measure allowed us to estimate the effects of the intervention on overall reading ability. It also allowed us to measure generalization of skills learned during the intervention to different types of reading tasks.
It was hypothesized that students in the explicit phonics condition would show more growth on the aReading measure than students in the guided reading condition. It was expected that growth in word reading skills would generalize to other reading domains. Lower skilled readers in the explicit phonics group gained an average of 29 (SD = 22) points on aReading while lower skilled readers in the guided reading group gained an average of 6.17 (SD = 26) points. For the higher skilled readers, students in the explicit phonics intervention grew an average of 7.17 (SD = 11.7) points while those in guided reading grew an average of 12.5 (SD = 10.3) points. The pattern of results, showing more growth for lower skilled readers in the phonics group by a large margin and more growth in the guided reading group for higher skilled readers, but by a smaller margin was similar to the results for CBMreading. However, for aReading the interaction between initial skill level and intervention type was not significant. This may have been due to the small sample size or significant variability in growth for participants within both interventions. Further, CBMreading is more sensitive to growth and it is possible that the interaction would have become significant for aReading had the interventions continued for a longer period of time.

5.2.3 Instructional Hierarchy

Haring and Eaton (1978) suggested an instructional hierarchy where children move through stages of acquisition, fluency, generalization, and adaption as they gain mastery of new skills. Instructional priorities and practices are different at each stage in the hierarchy. At the acquisition and fluency stages instruction should be focused on demonstration, prompting, cueing, drill, and reinforcement. The generalization and adoption stages focus on applying skills across contexts and in novel situations. Reading
interventions are most effective when they are matched with a student’s skill needs and development in the instructional hierarchy (Daly & Martens, 1994; Daly et al., 1999).

Lower skilled participants were struggling with acquisition and/or fluency of decoding skills. The explicit reading intervention proved a good instructional fit for these students because it provided modeling of phonics concepts and opportunities to practice the concepts in isolation and in connected text. The guided reading intervention provided a poor instructional fit because students were only sometimes provided with modeling of phonics concepts and the texts did not provide opportunities to practice learned phonics concepts. As a result, lower skilled readers in the explicit phonics condition made substantially more progress than those in the guided reading condition, especially for reading fluency.

Higher skilled students were grade level or above grade level readers who had achieved accuracy and fluency with basic reading concepts. They were at the generalization and adoption stages and needed opportunities to apply reading skills in a variety of situations. Opportunities for practice and modeling of already learned skills in the phonics condition likely proved little value to these students. The guided reading condition provided more time reading texts and the opportunity to read more advanced texts, thus providing a better instructional fit.

Of note is the fact that the difference in effectiveness between the two interventions was much higher for lower skilled readers than for higher skilled readers. The benefit of the phonics intervention over the guided reading intervention for lower skilled readers was of a large magnitude. However, the benefit of the guided reading intervention over that of the phonics intervention for higher skilled readers, was of a
much smaller magnitude, with significant overlap in confidence intervals suggesting minimal difference. Thus, it appears that the drawbacks of an inappropriate instructional match are much higher for lower skilled readers. Lower skilled readers require swift and ample progress to catch up to grade-level standards. This progress is only achieved with effective instruction matched to instructional needs. Higher skilled readers also require instruction matched to their needs, however, the stakes are much lower, and they will likely make some progress regardless of the type of intervention provided.

Daly et al., (1996) noted that while acquisition and fluency are necessary for generalization and adoption, they are not sufficient and educators must explicitly plan for these stages. However, less research is available on effective practices for generalization and adoption. Guided reading serves as one possible option, however, more research should be done to discover the most promising practices.

5.2.4 Fidelity

The completion of fidelity forms was moderate. Fidelity data indicated that guided reading tutors chose leveled texts according to the student’s Fountas and Pinnell level and chose mini-lessons from the guided reading lessons provided by Reading A-Z. Tutors for higher-level guided reading groups tended to spend more time reading books because the higher-level books were longer and took more time to read. Tutors in the lower-level guided reading groups tended to spend more time doing mini-lessons, as the books took less time to read. Tutors in the phonics intervention used activities from the phonics lessons and read accompanying leveled readers with students. Tutors in both groups reported running out of time to complete entire lessons on occasion. This was due to students being late, technology issues, or some activities taking too long. There was no
evidence of diffusion of the treatments across condition or tutors using lesson components from a condition they were not assigned to.

The tutors’ ability to manage student behaviors, engage students in the remote setting, and experience with reading tutoring was not measured during the intervention. These factors likely varied between tutors and affected student progress. However, tutors were randomly assigned to interventions, so there is no expected differential effect of tutor quality between the two conditions.

5.3 Limitations and Future Directions

The current study had several limitations. The sample size was small, resulting in reduced power and only included first graders, limiting generalization to other grade levels. Further, the study focused on supplementary intervention provided by university tutors who were not professional teaching staff. Future studies should include other grade levels, test balanced literacy and science of reading approaches to core instruction, and recruit school-based certified teachers or school-based non-certified staff as interventionists.

When we recruited during the spring wave, we asked teachers to recommend struggling readers who would benefit from additional reading intervention. We expected teachers to recommend students who were below-average readers. However, in some cases, teachers recommended students who were average to above average. This may have been due to teachers having less contact with students during remote instruction and less information on student reading ability, teacher’s own assessments of students differing from our assessments, students from higher achieving classrooms appearing low compared to peers, or teachers referring students they felt would benefit from more adult
attention rather than students with a low reading level. Although unintentional, the inclusion of students with higher reading levels allowed us to identify an interesting interaction between reading ability and intervention type. Future studies should use stricter inclusion criteria to recruit low-achieving students to isolate the effects of intervention on this population. Future studies should also intentionally recruit average to above-average readers to investigate the most effective educational methods for these students.

This study was conducted during a global pandemic. As a result, both intervention and testing had to be conducted remotely. All assessments were designed for in-person delivery and were delivered in a non-standard format during the study. The interventions themselves were also modified for a virtual format. The current study suggests that remote delivery is a viable option for reading intervention, especially for students who do not have access to in-person instruction. However, it is not known how the results of the remote intervention compare to those of a similar in-person interventions. Further, it is possible that some types of interventions are better suited to the remote environment and that may have affected results. Future studies should continue to investigate the best interventions for remote delivery and the best ways to deliver intervention in a remote format.

5.4 Contributions to Extant Research and Practice

The current study adds to the base of research suggesting that phonics intervention is more effective for low-skilled first graders than guided reading. Meta-analyses have shown that phonics interventions produce higher effect sizes than other types of reading interventions (Slavin et al., 2011) and tertiary reviews of meta-analyses
(Torgerson et al., 2019) and government reports (National Reading Panel, 2000) have suggested that phonics be a core element of early reading programs. The current study provides further evidence of the effectiveness of phonics intervention for struggling readers, especially for reading fluency.

Further, findings extend the research base comparing phonics intervention to guided reading interventions. Two studies that did not use randomization found phonics to be superior to balanced literacy for increasing reading fluency during whole-class instruction (Tobin & Calhoon, 2009) and small group interventions (Kamps et al., 2007). Further, a random controlled trial found higher effect sizes for direct instruction over guided reading for second graders. The current study adds a randomized controlled trial comparing explicit phonics to guided reading as a supplementary approach for first graders. Results indicate that the phonics intervention provided greater benefit for reading fluency for lower skilled readers. Significant results were not found for broad reading. However, more intervention sessions may be required for changes in broad reading skills to be detected. It is also possible that the stronger foundational reading skills may result in better broad reading over time. Additionally, the failure to detect significant effects can be a result of the small sample size in the present study.

The study also extended the research base by including average to above-average readers, where most studies only include below-average readers. Results indicated that for average to above-average readers, phonics instruction in excess of what is received during core instruction is likely unnecessary. Average to above-average students appear to benefit from additional time reading and may also benefit from other types of interventions.
Research has suggested that interventions that are matched to skill deficits in the learning hierarchy are most effective (Burns et al., 2018; Daly & Martens, 1994; Szadokierski et al., 2017). A skill-by-treatment interaction based on the instructional hierarchy was found in the current study. The phonics intervention was more effective in increasing the reading fluency of lower skilled readers who struggled with accuracy or fluency when reading. However, for average to above-average students who demonstrated accurate and fluent word reading the phonics intervention no longer proved necessary. This study adds to the research base on the importance of matching intervention to student skill deficits within the instructional hierarchy.

Meta-analysis has shown that teletherapy can produce results similar to face to face therapy for children and adolescents with speech and language disorders (Jung et al., 2020), nursing and allied health interventions (Speyer et al., 2018), and mental health therapy (Krzyzaniak et al., 2021). However, there is less research on the use of telemedicine for academic intervention. Small-scale studies have indicated that remote academic interventions are potentially effective (Kohnen et al., 2021). The current study adds to the research literature suggesting the feasibility and potential effectiveness of remote literacy intervention.
APPENDIX A

ADMINISTRATOR RECRUITMENT LETTER

Dear Principal/Administrator,

We are contacting you about an opportunity for first-grade students to receive a free reading intervention as part of a research project at the University of Massachusetts Amherst. The research study involves comparing guided reading and systematic phonics interventions delivered to first-grade students. Participating students will be enrolled in either a guided reading or systematic phonics intervention delivered by a trained tutor. Assignment to interventions will be random so parents and teachers will not choose which intervention students receive. We will provide eight to ten weeks of intervention, three days a week, for thirty minutes. A session will occur over Zoom and there will be no person-to-person contact.

If you believe that this will be beneficial to students at your school, we will work with you to find a convenient time during the school day for the intervention to occur. We will then ask first-grade teachers to contact parents of children who might benefit from the intervention and offer them the opportunity to participate.

If you are interested in learning more about this opportunity please contact

Madeline Berkowitz at mberkowitz@umass.edu.

Thank you,
Madeline Berkowitz
Doctoral Candidate
University of Massachusetts Amherst
APPENDIX B

PARENT RECRUITMENT EMAIL

Dear, (Parent Name)
(Name of school) is working with the University of Massachusetts Amherst to offer small group reading to students as part of a research study. I believe that (child’s name) will benefit from extra small group reading. The attached flyer gives more information about the program. If you are interested or would like more information please contact the researchers at UMASSreadingstudy@gmail.com.
Regards,
(Teacher Name)
APPENDIX C

PARENT RECRUITMENT FLIER

UMASS READING STUDY

WHAT IS THE PROGRAM?
The program is part of a research study at the University of Massachusetts Amherst. Your child will work in a group with two or three other students and a trained tutor. Your child will do a guided reading or phonics program. Assignment to the programs is random.

WHO CAN BE IN THE GROUP?
All first grade students!

WHERE IS THE PROGRAM?
Anywhere! The program will be on Zoom. You will need a computer, laptop, or tablet and internet connection to participate.

WHEN IS THE PROGRAM?
The program will run from the middle of February to the middle of May. You can choose a time slot below:

- M, W, F: 10:00-10:30
- Tu, W, F: 1:00-1:30

HOW DO I SIGN UP?
Complete the consent form included in the email your child’s teacher sent. Questions? Umassreadingstudy@gmail.com or XXX-XXX-XXXX
APPENDIX D

CONSENT FORM

Your child was selected as a possible participant in this study because they may benefit from small group reading support. Your child’s participation in this research study is voluntary.

What are some of the important aspects of this research study that I should be aware of as a parent?
If you choose to have your child participate your child will receive a small group reading intervention three days a week for thirty minutes. The interventions will involve teaching reading skills, reading and discussing books, interactive activities, and games. We have worked with your child’s school to find a convenient time during the school day for your child to be in the group. The groups will be held remotely over Zoom so your child will not have person-to-person contact with the tutor or other children. However, you will need a computer, laptop, or tablet and an internet connection. The intervention will be either guided reading or systematic phonics. Assignment is random so you will not be able to choose which intervention your child receives. There are no likely risks from participating in the intervention. However, it is possible that your child may not enjoy the intervention, may feel bored, or may feel anxious. On the other hand, your child may increase their reading ability and may enjoy working in a small group with a tutor. Participation in this study is voluntary and if you do decide to have your child participate you can end participation at any time.

Why is this study being done?
This study is being done to find the best ways to help beginning readers learn to read. Two different reading interventions are being compared.

Who can participate in this research study?
First-grade students can participate in this study. Students who have never received reading intervention as well as those that are currently receiving an intervention or have received intervention in the past can participate.

Where will this research study take place and how many people will participate?
This study will be remote. Your child can participate from any location where they have access to a computer, laptop, or tablet and an internet connection. The intervention will take place as part of your child’s school day.

Approximately eighty students will participate.
What will happen if my child takes part in this research study?

If you agree to allow your child to participate in this study, we would ask him/her to:

- Complete a pre-test and post-test using the FastBridge assessment system.
- Attend reading intervention sessions three times a week for thirty minutes from February until mid-May.

How long will my child be in the research study?

Participation will take a total of about 19.5 hours of participation over three months.

Are there any potential risks or discomforts that my child might experience from participating in this study?

There are no expected risks or discomforts to your child. However, it is possible that your child may not enjoy the intervention, may feel bored or may feel anxious. If your child is not enjoying the intervention you may remove them from the study at any time with no penalty.

Additionally, a risk of breach of confidentiality always exists. We are mitigating the risk by using waiting rooms and passwords on Zoom. Pre and post-test data will be stored in a de-identified manner on Fastbridge’s secure system which includes encrypted passwords and data storage in centers certified as level 1 providers by the Payment Card Industry Data Security Standard. Other data will be stored on UMASS Amherst servers using the password-protected Box system.

Will being in this research study help my child in any way?

Your child may not benefit from the intervention. However, your child may improve their reading skills. Both interventions are commonly used in schools. Your child may also enjoy working in a small group with a tutor.

What other choices do I/my child have if my child does not participate?

If you choose not to participate you may speak with your child’s teacher about other options the school offers for reading intervention.

Will my child be given any money or other compensation for participating?

Your child will not receive compensation for participation.
How will my child’s personal information be protected?

Your child’s privacy and confidentiality is important to us. The following procedures will be used to protect the confidentiality of your child’s study records. Pre-test and post-test data will be stored in a de-identified manner on Fastbridge’s secure system which includes encrypted passwords and data storage in centers certified as level 1 providers by the Payment Card Industry Data Security Standard. Other data will be stored on UMASS Amherst servers using the password-protected Box system.

At the conclusion of this study, the researchers may publish their findings. Information will be presented in summary format and your child will not be identified in any publications or presentations. Signed consent documents will be stored securely and separately from research data.

The study will be conducted over Zoom. Zoom rooms will be password protected and waiting rooms will be used to increase privacy. Confidentiality cannot be fully guaranteed as other students will be in the same Zoom room as your child. Other individuals in the home may also see or hear what is happening during the Zoom meeting.

What happens if I say yes, but change my mind later?

- You can choose whether or not you want your child to be in this study, and you may withdraw your permission and discontinue your child’s participation at any time.
- Whatever decision you make, there will be no penalty to you or your child, and no loss of benefits to which you or your child were otherwise entitled.
- Your child may refuse to answer any questions that he/she does not want to answer and still remain in the study.

Will my child’s information (bio-specimens or private information) be used for research in the future?

Your information will not be used or distributed for future research studies even if identifiers are removed.

What if my child is injured?

The University of Massachusetts does not have a program for compensating subjects for injury or complications related to human subjects research, but the study personnel will assist you in getting your child treatment.

Who can I contact if I have questions about this study?

- The research team:
If you have any questions, comments or concerns about the research, you can talk to one of the researchers. Please contact:

Madeline Berkowitz at mberkowitz@umass.edu
Amanda Marcotte at marcotte@umass.edu

• UMass Amherst Human Research Protection Office (HRPO):

If you have questions about your child’s rights while taking part in this study, or you have concerns or suggestions and you want to talk to someone other than the researchers about the study, please call the HRPO at (413) 545-3428 or email humansubjects@ora.umass.edu

Parent’s Statement of Voluntary Permission.

When signing this form I am agreeing to voluntarily allow my child to enter this study. I have had a chance to read this Parent Permission Form, and it was explained to me in a language which I use. I have had the opportunity to ask questions and have received satisfactory answers. I have been informed that my child can withdraw at any time. A copy of this signed Parent Permission Form has been given to me.

SIGNATURE OF PARENT OR LEGAL GUARDIAN

__________________________________________________________
Name of Child

__________________________________________________________
Name of Parent or Legal Guardian

_________________________  _____________________________
Signature of Parent or Legal Guardian  Date

____________________________
Email address and/or phone number where we can contact you for scheduling purposes

____________________________
Email

____________________________
Phone
APPENDIX E
ASSENT SCRIPT

We want to tell you about a research study we are doing. A research study is a way to learn more about something. We would like to find out more about how to teach first graders to read. You are being asked to join the study because you are in first grade and you are learning how to read in school.

If you agree to join this study, you will be asked to come to a reading group on Zoom. We will read books, do activities, and play games. You will come to the group three times a week until almost the end of the school year. Before we start the reading groups, you are going to answer some questions about reading on the computer. Once we are done with the reading groups, in May, you will answer similar questions on the computer.

Your parent or guardian knows about this study and that we are asking if you would like to be part of it. We expect that the study will help you learn to read.

You do not have to join this study. It is up to you. You can say okay now and change your mind later. All you have to do is tell us you want to stop. No one will be mad at you if you don’t want to be in the study or if you join the study and change your mind later and ask to stop.

Before you say yes or no to being in this study, we will answer any questions you have. If you join the study, you can ask questions at any time. Just tell your parent or the researcher that you have a question.

If you want to be in this study, please type your name in the chat box.
APPENDIX F

GUIDED READING SAMPLE LESSON

About the Book
Text Type: Nonfiction/Biography  Page Count: 16  Word Count: 232

Book Summary
People follow traffic signals every day. Did you ever wonder where the idea for the traffic signal came from? Garrett Morgan and the Traffic Signal tells about the problems of buggy and car drivers in the 1920s and one man’s plan to help keep the streets safe.

About the Lesson
Targeted Reading Strategy
• Retell

Objectives
• Use the reading strategy of retelling to understand text
• Identify elements of a biography
• Manipulate initial and final sounds
• Recognize open vowel y
• Understand and recognize verbs
• Identify and understand how to place words in alphabetical order

Materials
Green text indicates resources available on the website
• Book—Garrett Morgan and the Traffic Signal (copy for each student)
• Chalkboard or dry erase board
• Elements of a biography, open vowel y, verbs worksheets
• Discussion cards

Indicates an opportunity for students to mark in the book. (All activities may be demonstrated by projecting book on interactive whiteboard or completed with paper and pencil if books are reused.)

Vocabulary
• High-frequency words: he, knew, saw
• Content words:
  Story critical: busy (adj.), corners (n.), plan (n.), problems (n.), signal (n.), traffic (n.)
  Enrichment: buggies (n.), Cleveland (n.), Ohio (n.)

Before Reading
Build Background
• Ask students what they think of when they hear the word traffic. Discuss their responses. Ask them to explain what types of vehicles make up the traffic on the roads. Ask students to explain what they know about how people and things were moved from one place to another before cars existed.
• Have students share examples of ways that traffic is controlled and what happens when it is not controlled.
Preview the Book

Introduce the Book

- Show students the front and back covers of the book and read the title with them. Ask what they might read about in a book called Garrett Morgan and the Traffic Signal. (Accept all answers students can justify.)
- Show students the title page. Discuss the information on the page (title of book, author’s name).
- Have students preview the table of contents. Explain that the table of contents helps them understand what the book is about. Have students use the table of contents to help them predict what the book might be about.

Introduce the Reading Strategy: Retell

- Explain to students that one way to understand and remember what they are reading is to stop now and then during reading to retell in their mind what is happening in the story.
- Explain that when someone re tells something, they explain in detail what happened in order from beginning to end. Point out that people retell stories as part of their daily lives, such as explaining what happened in school to a student who was absent. Ask students to share other examples of when people might give a retelling.
- Model retelling a familiar story in detail, such as The Three Little Pigs.
  Think-aloud: in The Three Little Pigs, three pigs each decide to build a house. The first pig decides to make his house out of straw. He gathers all of the materials and builds his house. The second pig decides to build his house out of sticks. He gathers all of the materials and builds his house. The third pig gathers the materials to build his house out of bricks. One day a big bad wolf comes to the house of the first little pig. He wants the little pig to let him inside and says I’ll huff and I’ll puff, and I’ll blow your house down. Continue retelling in detail to the end of the story.
- As students read, encourage them to use other reading strategies in addition to the targeted strategy presented in this section.

Introduce the Comprehension Skill: Elements of a biography

- Explain that a biography tells the story of a person’s life. Many times we can tell what a person is like by his or her actions. For example, if someone tells a joke and makes people laugh, we know that person is funny.
- A biography often focuses on what kind of person someone was and what the person did.
- Write the following headings on the board: What He/She Did, What He/She Is Like. Model identifying elements of a biography.
  Think-aloud: The things people do tell us what they are like. Sometimes I see children at school comfort someone who is sad or help someone up who has fallen down. Helping someone else is what the person did. I will write that under the heading What He/She Did. People’s actions often describe their character and how they are with other people. I would describe a person who helps someone else as caring. I will write caring on the board under the heading What He/She Is Like.
- Write Making fun of someone under the heading What He/She is Like. Ask students to describe a person who makes fun of someone else (not caring, mean, and so on). Invite students to share other examples of things people do and what that tells us about them.
- Introduce and explain the elements-of-a-biography worksheet. Have students use the chart to identify information about Garrett Morgan as they read.

Introduce the Vocabulary

- While previewing the book, reinforce the vocabulary words students will encounter in the book. For example, on page 5 you might say: The streets of the city of Cleveland, Ohio, were filled with horses, buggies, and cars. Point to pictures that provide a visual for vocabulary words, such as buggies, traffic, and corners.
• Remind students to look at the letters a word begins with or ends with to figure out a difficult word. For example, point to the word traffic on page 7, and say: The picture shows people and buggies on the streets. When I look at the parts of the word, it starts with /tʃ/. The word must be traffic. I will reread the sentence to make sure traffic makes sense in the sentence.

Set the Purpose
• Have students read the book to find out who Garrett Morgan is, what kind of person he was, and what he did. Invite students to write any words that tell the reader about Mr. Morgan's character on the back of their elements-of-a-biography worksheet. Remind them to stop reading now and then to retell in their mind what has happened so far in the story.

During Reading
Student Reading
• Guide the reading: Give students their copy of the book. Have them read to the end of page 6 and then stop to think about the events that have happened so far in the book. Encourage students who finish before others to reread the text.
• Model identifying elements of a biography.
  Think-aloud: I stopped after a few pages to retell in my mind what I had read so far. By page 6 I learned that the streets in the 1920s were very busy because there were lots of cars, people, bikes, horses, and buggies on the streets. A man named Garrett Morgan knew the streets were not safe when he saw a car hit a horse and buggy.
• Ask students what they think will happen because the man saw a car hit a horse and buggy.
• Check for understanding: Have students read to the end of page 8. Ask them to practice retelling to a partner what happened next in the story. Listen to students’ retellings for correct order and description of the story events.
• Ask students to identify what Garrett Morgan did after he saw that the streets were not safe (he made a plan for a traffic signal). Write what Garrett did on the board under the heading What He/She Did and have students record this information on their worksheet. Based on this action, ask students to describe what Garrett Morgan was like (concerned, caring, and so on). Have them record this information on their worksheet under the heading What He Was Like.
• Have students read the remainder of the book. Remind them to think about the details of the story so they can identify what Garrett Morgan did and what those actions tell about what he was like.
  ❗ Have students make a small question mark in their book beside any word they do not understand or cannot pronounce. These can be addressed in the discussion that follows.

After Reading
• Ask students what words, if any, they marked in their book. Use this opportunity to model how they can read these words using decoding strategies and context clues.

Reflect on the Reading Strategy
• Retell in detail with students the events of the story from page 9 through the end of the book.
  Think-aloud: After Garrett made a plan, a traffic signal was made. It had arms that went up and down instead of lights so people knew when to cross the street. They put these signals on corners. The plan worked and Garrett made the streets safe for everybody. Garrett also made other things.
• Ask students to identify what else Garrett Morgan made (a mask for firefighters, a newspaper).
• Have students retell Garrett Morgan's story to a partner, starting at the beginning. Listen for whether students include: correct events in detail and whether they list events in the correct order.
Reflect on the Comprehension Skill

- **Discussion:** Ask students why they think someone wrote a biography about Garrett Morgan. Discuss why he is an important person.
- **Independent practice:** Have students complete the elements of a biography worksheet.
- **Enduring understanding:** In this story, we learned that some people identify problems and create solutions to help make the world a better place. Now that you know this information, what will you do the next time you see a problem? What would you expect as a result?

Build Skills

**Phonological Awareness: Manipulate initial and final sounds**

- Explain that we can listen to the beginning and ending parts of words and break them apart. For example, say: Street without the /str/ is /te/. Add stop without the /str/ is /opl. In each word I left off the beginning sound and said only the ending sound.
- Say the following words and have students respond orally: Saw without the /sw/ is? (law) New without the /ni/ is? (new) Make without the /m/ is? (make) Then say: How without the /l/ is? (Hh) Made without the /led/ is? (Uml) Things without the /ngs/ is? (Uth)
- **Check for understanding:** Repeat the process above, manipulating both the initial and final consonant sounds. Use the following words: showed, plan, keep, and safe.

**Phonics: Open vowel y**

- Write the words busy and my on the board. Say the words aloud and have students repeat them with you.
- Underline the letter y in each word. Read the words again with students, emphasizing the sound the letter y makes. Ask students to explain the difference between the sounds.
- Explain that the letter y at the end of a word can stand for more than one sound. Discuss that the letter y can make the long /i/ vowel sound as in busy or the long /u/ vowel sound as in my.
- **Check for understanding:** Write the following words on the board and say them one at a time with students: happy, sunny, fly, buy, funny, sky, and buggy. Have students give the thumbs-up signal if a word stands for the long /i/ vowel sound and the thumbs-down signal if a word stands for the long /u/ vowel sound.
- **Independent practice:** Introduce, explain, and have students complete the open-vowel y worksheet.

**Grammar and Mechanics: Verbs**

- Write the following sentence on the board: Many things shared the street. Underline the words Many things. Ask students to explain what these many things did (shared). Circle the word shared and explain that words that show action are called verbs.
- Write the following sentence on the board: Cars were on the streets. Underline the word Cars. Ask students to identify what the cars did. Circle the word were and explain that words such as were and was also are verbs used to explain what something is doing.
- Invite students to think of verbs they know. Write these words on the board and have volunteers use each word in a sentence.
- **Check for understanding:** Have students work with a partner to locate and circle the verbs in the book. When students have finished, discuss their answers.
- **Independent practice:** Introduce, explain and have students complete the verbs worksheet.

**Word Work: Alphabetical order**

- Write the words Cleveland and buggies on the board. Underline the first letter in each word. Ask students what letter comes first in the alphabet: c or b.
- Review or explain that words are sometimes placed in a list by ABC, or alphabetical, order. Words are placed in alphabetical order by looking first at the initial letter in each word and deciding which letter comes first in the alphabet.
APPENDIX G

EXPLICIT PHONICS SAMPLE LESSON

Lesson 17: Inflectional ending -ed

Learning Objectives
- Decode inflectional ending -ed
- Understand that -ed makes different sounds based on the last letter of the root word
- Review doubling final consonant when adding an ending to a short vowel followed by a consonant
- Review dropping final e before adding an ending
- Read high Frequency word "walk"

Materials
- Jamboard: https://jamboard.google.com/d/1CuTaOZacI-ySQ20wsPAAWoywH1bXrYQEv5FCXQYi3Rla/viewer
- Baamboozle: https://www.baamboozle.com/game/209259

Day 1 Activity 1: Introduce inflectional ending -ed
Frames 1-2
- Display Frame 1.
- Do not delete picture cards for this activity

- Say "I'm going to show you pictures that make us think of action words, verbs. Imagine that all of these actions happened in the past, which means they happened at some time before right now."
- Show the picture card for "walked." Say "What action do you see?"
- Write "walk" and "walked" on the board. Point to the -ed and say "When I add the -ed ending to this verb, I am telling about something that happened in the past."
- Repeat with picture card add/add."".
- Repeat with picture card wag/wagged. Remind students "you If a word has a short vowel sound followed by one consonant, like wag, the lost letter is doubled before adding an ending like -ed or -ing."
- Point to the words and have the students repeat walked, added, wagged.
- Say "The ending -ed has been added to all of these words, but the ending does not have the same sound in all three words. As you can see, the ending -ed can have the sound /t/ as in walked, /ed/ as in added, or /d/ as in wagged."
- Point out the table and say "The ending -ed makes different sounds depending on the final consonant sound. Words that end in t or d have the /ed/ sound; words that end in p, k, f, gh, sh, ch, ss, c, or x have the /t/ sound; words that end in l, n, r, g, v, s, z, b, or m have the /d/ sound."
- Show the rest of the cards. Call on students at random and have them name the action, point to the ending, say the sound -ed makes with you.
- Display Frame 2. Say "Watch me make the word kick." move the letters onto the
Day 1 Activity 2: Blend and Create Words

Frames 3-4
- Turn to frame 3 and share the board with students in the chat.
- Help students make the word dash and blend the sounds.
- Say “Listen to this sentence: ‘yesterday we dashed to school.’” “How would you change dash to dashed?” Students should add -ed to their word.
- Note that dashed does not need a spelling change and that -ed makes the /d/ sound.
- Repeat with other -ash word family words (crash, smash, dash).
- Clear targets. Have students place oak word family card in the target. Have students add c and r tiles to the beginning. Model sounding out and blending cr/oak. Have students echo.
- Ask students to change the word to soak. Have students change the word to cloak.
- Clear targets: Place the set card.

Day 1 Activity 3: Practice Decoding

Frame 5
- Popcorn read the word list.

Day 1: Read

Frame 6
- Open the link to the book and share screen with students.
- Show the cover and read the title with the students. Ask students to...
Ask students what they see in the picture and what the story might be about.
- Turn to page 5. Ask students to tell what they think needs to be fixed.
- Have students whisper read as you choose different students to read out loud.

**Day 1 Activity (if time)**

**Frame 7**
- Click the Baamboozle link to play the game.
  https://www.baamboozle.com/game/209259

**Day 2 Activity Sort Words**

**Frame 8**
- Quickly review: "Last time we learned that when we add -ed to the end of an action word it means that something happened in the past. The ending -ed changes sound based on the last letter of the root word" point to the patterns at the top of the slide. Explain you will be sorting -ed words based on which sound the -ed makes.
- One at a time have student choose a word, read it, and sort into the correct pattern.
- If time, read the lists of words and have students choose a few words to write.

**Day 2 Activity 2: High Frequency Word “Walk”**

**Frame 9**
- Tell students they are going to learn a new high frequency word. Read the word then have students read it with you.
- Have students air spell the word

Ask students what they notice about the word
- Use the word in a sentence then ask students to volunteer sentences

**Day 2 Activity 3: Practice Reading**

**Frame 10**
- Popcorn read the sentences/phrases.

**Day 2 Read**

**Frame 11**
- Open the link and share the screen with students.
- Have students whisper read while you call on students to read loudly.
- Discuss book: Ask students what need to be fixed and how Bob helped Dad

**Day 2 Game**

**Frame 12**
- Share link to Baamboozle in chat and play game
  https://www.baamboozle.com/game/209259

**Day 3 Activity 1: Blend and Create Words**

**Frames 13-14**
- Ask students if they remember the rule and prompt/ give clues as necessary
- Share the Jamboard with students in the chat and assign students to workspaces. Let students know they are going to be making words
- Ask students to make the word, offer guidance as necessary, have students sound out and blend words as they push up the tiles, ask students to say what the sound -ed makes at the end.
- Review words that consonant
Day 3 Activity 2: Dictation

- Read the words and sentences one by one and then have students write them. For words, use them in a sentence.
- After each word or sentence delete the circle covering the word or sentence and have students check their work.
- Words: listed, hinted, graded, missed, dressed, bragged, and stopped

Day 3 Activity 3: Bingo

- Students draw a three-by-three grid on a piece of paper. They choose nine words from the list to write on their grid. Students take turns deleting circles and reading the word underneath. Any students with that word on their paper cross it out. The first student to get three in a row wins.

Day 3 Read

- Open the link to the book and share screen with students
- Have students whisper read the book while you call on students to read loudly.

Day 3 Game

- Share the link to Baamboozle in chat
- Play the game
- [https://www.baamboozle.com/game](https://www.baamboozle.com/game)

Extra Bingo Cards

Frame 19-20
# APPENDIX H

## EXPLICIT PHONICS IMPLEMENTATION CHECKLIST

<table>
<thead>
<tr>
<th>Lesson</th>
<th>Rule</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 1</td>
<td></td>
</tr>
<tr>
<td>Introduce rule: Picture cards</td>
<td>All Examples</td>
</tr>
<tr>
<td>Introduce rule: Make words</td>
<td>All Examples</td>
</tr>
<tr>
<td>Blend and Create Words</td>
<td>All Examples</td>
</tr>
<tr>
<td>Practice Decoding</td>
<td>Completed</td>
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<tr>
<td>Read Book</td>
<td>Entire Book</td>
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<tr>
<td>Play Game</td>
<td>Played Game</td>
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<tr>
<td>Day 2</td>
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<tr>
<td>Sort Words</td>
<td>All Examples</td>
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<tr>
<td>High Frequency Word</td>
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<tr>
<td>Practice Decoding</td>
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<td>Read Book</td>
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<td>Play Game</td>
<td>Played Game</td>
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<tr>
<td>Day 3</td>
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<tr>
<td>Blend and Create Words</td>
<td>All Examples</td>
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<tr>
<td>Dictation</td>
<td>All Examples</td>
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<td>Center Activity</td>
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<td>Read Book</td>
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<td>Play Game</td>
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### APPENDIX I

**GUIDED READING IMPLEMENTATION CHECKLIST**

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<thead>
<tr>
<th>Book Title:</th>
<th>Level</th>
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#### Before Reading

<table>
<thead>
<tr>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
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<tbody>
<tr>
<td><em>Picture Walk</em></td>
<td><em>Picture Walk</em></td>
<td><em>Picture Walk</em></td>
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<tr>
<td><em>Build/Activate Knowledge</em></td>
<td><em>Build/Activate Knowledge</em></td>
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<td><em>Vocabulary</em></td>
<td><em>Vocabulary</em></td>
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<td><em>Set Purpose</em></td>
<td><em>Set Purpose</em></td>
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**Mini Lesson:**

<table>
<thead>
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<th>Time:</th>
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#### During Reading

<table>
<thead>
<tr>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
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<tbody>
<tr>
<td>Conference with each student</td>
<td>Conference with each student</td>
<td>Conference with each student</td>
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**Time:**

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#### After Reading

<table>
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<tr>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
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<tr>
<td><em>Discuss Book</em></td>
<td><em>Discuss Book</em></td>
<td><em>Discuss Book</em></td>
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<tr>
<td><em>Discuss skill use</em></td>
<td><em>Discuss skill use</em></td>
<td><em>Discuss skill use</em></td>
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**Mini Lesson:**

| _Phonological Awareness_ | _Phonological Awareness_ | _Phonological Awareness_ |
| _Phonics_ | _Phonics_ | _Phonics_ |
| _Grammar/Mechanics_ | _Grammar/Mechanics_ | _Grammar/Mechanics_ |
| _Vocabulary_ | _Vocabulary_ | _Vocabulary_ |

**Time:**

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