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Foundational Literacy Programs Affect FAST Scores

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Foundational Literacy Programs Affect FAST Scores

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Capstone Project: An Action Research Project

Northwestern College, Orange City, Iowa

Abstract

This action research study investigated if there is a relationship between the implementation of a foundational literacy intervention in the first grade classroom and the results of the earlyReading (FAST) scores. This action researched answered the question: Is the foundational literacy intervention programs affecting earlyReading FAST scores? First grade students were participating in various literacy programs that focused on phonemic awareness, phonics, fluency, comprehension, writing, and language. This action research study was conducted throughout the 2022-2023 school year. Data was collected through two out of the three FAST assessments in the school year.

Keywords: foundational literacy, interventions, earlyReading

Table of Contents

Abstract.....2

Foundational Literacy Programs Affect FAST Scores4

Literature Review.....6

 Reading Development.....6

 Foundational Literacy Skills Breakdown.....9

 Reading Interventions11

 Prevention vs Intervention13

Methods.....16

 Research Setting.....16

 Participants.....17

 Research Variables.....17

 Data Collection Plan18

 Interventions19

 Data Analysis Plan.....19

 IRB Approval.....20

Data Collection20

Findings.....22

 Data Analysis22

Discussion.....28

 Summary of Major Findings.....28

 Limitations of the Study.....29

Future Study.....29

Conclusion30

References.....32

Foundational Literacy Programs Affect FAST Scores

Learning how to read can be a long and challenging path to walk down. However, with the world changing all the time there has been more resources popping up to use to support literacy. Gathering the appropriate tools and strategies to enhance foundational literacy skills is essential to being successful. Reading the words on the page is not just an end goal in and of itself, but a stepping stone that allows us to interact with and learn about the world (Achieve The Core, 2022). There is no perfect way to learn how to read but there is hope to find the perfect one for a particular reader. The problem arises when school districts start to see a shift in decreasing state testing scores each school year. Nearly 30% of Iowa's students in grade K-3 are not attaining reading benchmarks (Petroski, 2018).

It is known that foundational literacy skills are important in a student's success and it all begins early on in a student's academic career. During those early years students build a foundation and that foundation will impact them forever as they develop in their learning. Word level reading skills in early elementary grades have been shown to be longitudinally predictive of reading achievement in late elementary and middle school grades (Erbeli et al., 2017). This research allows educators to understand how important it is to have a foundational literacy program and understand the challenges that come with each type of program.

A Wash, Rinse, Dry, and Repeat (WRDR) cycle begins when school districts are sticking with a curriculum that is outdated, not using a curriculum to guide instruction, or using too many curriculums to fill gaps of other curriculums being used. School districts are left to make hard decisions of what curriculums to use based on their resources, financial status, and students they are currently serving. The students who do not read well or are responding positively at certain curriculums are often left behind. School districts must adapt to execute differentiated instruction

because they are affected by Title 1 and special education teachers finding class sizes increasing each school year. The gaps are becoming wider and students who showed proficiency in early elementary are now showing signs of struggle due to lack of strategies and tools obtained to tackle certain reading situations.

The purpose of this action research study is to determine if there is a relationship between a foundational literacy intervention program in a first grade classroom affecting earlyReading test scores. There are multiple programs that students are learning at the same time to build on their foundational literacy skills. The action research project highlights how the foundational literacy programs can affect earlyReading test scores.

The information from research studies included in this action plan was found in the DeWitt Library. Research is from peer-reviewed journals within the last 10 years on the topics of foundational literacy intervention programs and how they affect state standard testing scores. Words used during the research of this topic are foundational literacy, interventions, earlyReading.

This action research study covers the foundational literacy intervention programs and its benefits to achieving the earlyReading test. Documentation was conducted throughout the 2022-2023 school year during two out of three testing periods of Fastbridge: earlyReading. Data was obtained through anecdotal notes, foundational literacy program assessments, and Fastbridge earlyReading assessment. The research through peer-reviewed sources covers background knowledge of foundational literacy skills as well as foundational literacy programs. Categories that are discussed within the literature review are reading proficiency, reading barriers, reading interventions.

Literature Review

Interventions for success in reading are needed. Students need tools to help them navigate unknown words with familiar patterns. There is literature that has been discovered in various ways to support students to be a proficient reader. This literature review highlights foundational literacy skills and interventions through peer-reviewed scholarly journal articles. This literature review also reveals ways to understand how a person learns to read, what skills are needed to be a proficient reader, how we should be teaching students how to read, and how educators are able to prevent reading difficulties in a student's later life through intervention.

Reading Development

Learning to read is not a simple task. There is a process that must be done in order to appropriately develop the skills to be a proficient reader. Learning to read is a combination of multiple skills. However, each of those skills play an essential role in developing as a reader. The National Reading Panel (NRP) of the National Institute of Child Health and Development (NICHD) issued a report that identified five areas that were critical for effective reading instruction: phonemic awareness, phonics, fluency, vocabulary, and comprehension (Brown, 2013). The process of learning to read is a developmental process. The skills and behaviors that develop early serve as the base for later competence and proficiency (Brown, 2013). Each area is a building block that children use to become proficient readers.

In this research study Mesmer discovered that part of developing a proficient reader children need foundational literacy skills to develop those five areas of effective reading instruction. The foundational literacy skills are focused on developing student's understanding and working knowledge of print concepts, phonological awareness, phonics and word recognition, and fluency (Brown, 2013). With the findings of the importance of foundational

literacy skills it shows that each component cannot be taught separately or in different order each time instructed. Print concepts and phonological awareness support phonics instruction, morphological instruction extends students' word recognition, and fluency automatizes word reading (Mesmer, 2020). In other words, foundational literacy skills are part of a solid foundation that a child needs to be considered a proficient reader.

Similar findings about the importance of developing reading skills was discovered by Kilpatrick. According to his findings, reading is critical for all school subjects and can affect a student's entire academic experience (Kilpatrick, 2016). Many subjects like science or social studies require a textbook. During a math learning period students are having to read more with word problems and explain their answers. Poor reading virtually guarantees poor writing skills (Kilpatrick, 2016). Learning to read allows students to succeed in the classroom in all their subjects but it also allows them to be successful with their future endeavors in life. School districts are not blind that the impact of reading has on students and on society (Kilpatrick, 2016). There are millions of dollars that school districts spend on reading resources to support their students and educators. Kilpatrick discovered and put into light that research over the last thirty years has indicated that most reading difficulties can be prevented, and among those that cannot be prevented, poor readers can make far greater progress than we have been experiencing in our schools (Kilpatrick, 2016).

The orthographic mapping plays a vital role in understanding how a student is able to collect and build literacy skills. Orthographic mapping involves the formation of letter-sounds to bond the spellings, pronunciations, and meanings of specific words in memory (Ehri, 2014). The development works as a sequence when connecting spelling of words to their pronunciations. Throughout this orthographic mapping the connections become stronger and improve. "To form

connections and retain words in memory, readers need some requisite abilities. They must possess *phonemic awareness*, particularly segmentation and blending. They must know the major grapheme-phoneme correspondences (letter-sound knowledge) of the writing system. Then they need to be able to read unfamiliar words on their own by applying a decoding strategy.” Doing so “activates orthographic mapping to retain the words’ spellings, pronunciations, and meanings in memory.” (Ehri, 2014). This quote from Ehri implies that the ability to segment and blend phonemes is critical in supporting decoding and then leads towards orthographic mapping.

There are three intersecting skills that must be in place to enable orthographic mapping (Kilpatrick, 2016). The three are highly proficient phonological and phonemic awareness, automatic letter-sound correspondence knowledge, and the ability to accurately and quickly decode a word by identifying its sounds letter by letter, and blending those sounds to read the word (Kilpatrick, 2016). According to the findings, when students are beginning to be taught about articulatory features of phonemes and the relationship with grapheme-phoneme orthographic mapping is occurring. The foundation of supporting sight words for supporting a students vocabulary. This research, discovered by Ehri, seems that spelling sound connection works with memory causing it to impact the processing of phonological memory for words.

How orthographic truly works is when we see letters with our eyes and the sounds we hear in that word get processed together. Processing together as a sight word and being stored in the brain to be retained later when in use. This concept may sound like memorization but that is not the case. Orthographic mapping is not a skill but rather a technique that can be done with students. As a student moves onto the next stage of schooling the instruction changes. Preschool and kindergarten age students are developing and practicing basic letter-sounds. While students

are in the middle and towards the end of kindergarten and especially in first grade, students are focused on blending and segmenting of phonemes in written words and developing phonic decoding skills which must be in place for orthographic mapping (Ehri, 2014). In other words, orthographic mapping has helped us understand the why part of why students are struggling with reading and not being able to remember certain skills taught.

Foundational Literacy Skills Breakdown

In the study by Kilpatrick, we understand how words are stored, we cannot do “business as usual,” using the same approaches that have consistently yielded 30% reading failure (Kilpatrick, 2016). The findings suggest that educators need to work backwards from what scientists have discovered on how reading works. We need to first teach the skills needed to map words to permanent memory, second is to teach reading in a developmentally appropriate manner, and avoid teaching reading techniques (Kilpatrick, 2016). Each of these steps to equip students to become a proficient reader will allow them to succeed in and outside of the classroom.

Understanding the importance of each component in order to deliver instruction in an appropriate manner will support students in their reading ability. In a study by Brown, reading requires mastery, integration and application of numerous skills and knowledge. All children can develop a strong foundation for literacy and reading development when they are given opportunities to engage in purposeful, meaningful language and early print activities (Brown, 2020). Print concepts, phonological awareness, phonics and word recognition, and fluency are part of reading development. Students who are starting the journey of learning how to read are introduced to print awareness. During this stage, students are building the ability to understand and recognize print and the purpose it has when exploring books. Concepts about print include

knowing where the front and the back of the book are located; knowing right side up from upside down; knowing that the print, not the picture, is what we read; knowing which direction we read in; and knowing the meaning of punctuation marks (Brown, 2020). With the understanding of the importance of the concept of print is it essential to provide the students access to those picture books at a young age. At the preschool age is when students are most impacted with developing print awareness. According to Zucker, Justice, and Piasta, considering the print features within children's books, such as typeface colors, lines, and orientation, they support children's emergent literacy (Zucker et al., 2009).

The next stage is phonological awareness. Phonological awareness is an umbrella term and encompasses a number of sound related skills necessary for reading development (Brown, 2020). With the phonological awareness skills developed students are able to recognize patterns in words and use the knowledge to read and build words. Findings have found that phonological awareness is a strong predictor of later decoding and comprehension abilities. Research has shown that phonics and word study are valuable strategies for improving children's ability to recognize words and decode text (Brown, 2020). The connection between letters and sounds is powerful. Developing the skills to identify letters and sounds allows the student to identify words and build them automatically. Students must learn to identify words quickly and efficiently to become fluent so they are able to shift their mindset to understanding what they are reading. The last stage in developing literacy skills is fluency. Fluency serves as the bridge between decoding and comprehension (Brown, 2020).

Foundational reading skills must work together, it is the integration of the skills that provide an entry point to complex literacy (Mesmer, 2020). It is commonly mistaken that foundational skills only means phonic skills. However, that is not the case there are about five

components to building foundational skills. To build those skills productively and efficiently each component is executed in its own way.

Strategies to teach students how to read have changed over time. There are multiple components to reading but somehow they all work together. To give educators and other viewers a visual of all those components the reading rope was created. It is a visual representation of the many strands woven into skilled reading, which was created by Hollis Scarborough (VanHekken, 2021). There are two big strands and they represent language comprehension and word recognition. Within those two big strands are smaller strands. The language comprehension strand has background knowledge, vocabulary, language structures, verbal reasoning, and literacy knowledge (VanHekken, 2021). The word recognition strand has phonological awareness, decoding, and sight recognition (VanHekken, 2021). As the two strands form together the learner is increasing strategic and increasing automaticity. Then, eventually the goal is that the learner becomes a skilled reader by being able to fluently execute and coordinate word recognition and text comprehension (VanHekken, 2021).

Reading Interventions

There are two foundational skills that they believe are a core part of foundational literacy skills. The first one is letter knowledge and the second one is phonemic segmentation. They reflected on how each component builds on each other. The findings were that a routine of segmenting and blending was producing stronger results over a group that was tested with just a letter memorization routine. Results showed that phonemic segmentation training enabled students to function at the partial alphabetic phases in their word reading (Ehri, 2020). Reflecting on the results the findings show with phoneme segmentation training allows students to move towards improving reading skills.

Letter and sound routine is a step towards practicing the print to sound decoding process. This routine refers to the automatic, unconscious activation of letter-sound knowledge (Kilpatrick, 2016). The letter-sound skill is also associated with visual-phonological paired-associate learning (Kilpatrick, 2016). In order to know a letter the student would have to associate the sound of that particular letter as well. It is matching the visual memory with the sound and both involve phonology. Building on the letter-sound skills starts with exposing students to letters. According to Kilpatrick this letter sound routine needs to be done hundreds of times. This can occur even before they effortlessly and flawlessly recognize them. There are multiple ways to establish learning letters. They include exposure, multisensory methods, teaching a small set of letters at a time, pointing out visual features of letters, teaching letter sound in a developmentally appropriate manner, and teaching letters using embedded mnemonic letters (Kilpatrick, 2016).

Providing exposure to letters will allow them to become automatic with their letter recognition and sounds. Until those two elements are mastered they will not be efficient in reading. Using multi-sensory methods is providing students with letter experience in three dimensions. Making letters with a material, tracing letters, and seeing all types of letters from uppercase to lowercase to cursive to print. Less is more efficient when it comes to learning all the letters. There are some letters that are easier than others and that should affect how we teach them to students as well. Research has shown that students more easily learn the sounds of the letters whose sounds appear first in the letter's name (Kilpatrick, 2016). Understanding the uniqueness of each letter will allow students to recognize features to be able to distinguish one from another. In other words, it is essential to understand letter-sound learning works with visual memory and phonological memory.

Training for phonological awareness can be done in multiple ways. Kilpatrick has discovered three effective ways to train phonological awareness. The first type of learning opportunity is direct teaching then one minute activities and finally incidental teaching. Second is direct teaching means explicitly instructing students in phonological awareness skills (Kilpatrick, 2016). One minute activities benefit from phonological manipulation. Both work together in phonological tasks: segmentation, isolation, and blending skills. Lastly the third effective way to train is through incidental teaching moments can happen anytime anywhere during the school day.

Many classrooms are moving towards more small group intervention instruction time rather than whole group intervention instruction time. Quality teaching is key to student success and that teachers need assistance to deliver quality (Estrada, 2005). Executing a small reading intervention group gives the teacher more wiggle room to execute the instruction in such a way that it meets the needs of all students. To become fully competent comprehenders, students need much more, including explicit comprehension instruction beginning in the earliest grades, and other high-level operations that contribute to comprehension, such as vocabulary, oral-language production, literary experiences, and writing and text analysis (Estrada, 2005). Starting small group instruction at the early grades lays a solid foundation when identifying mastered skills and areas of improvement.

Prevention vs Intervention

There are multiple students with weak reading skills that go unnoticed. These unidentified areas of improvement will affect students later on. These students will perform average to low average in reading, especially in the early years, but with much effort (Kilpatrick, 2016). These students with these qualities can be referred to as “compensators.” Compensating

students have strong language abilities but have a weakness in one of the key skills needed for reading, usually phonemic proficiency (Kilpatrick, 2016). There is a way to prevent compensation. Kilpatrick discovered that students should arrive at first grade with the prerequisite skills to learn to read (Kilpatrick, 2016). Once students have a solid foundation they are able to start the mapping process when they are expected to learn to read. Children with poor phonological awareness and or poor phonemic decoding skills will not do well. Unfortunately, if that is the case students are already behind right out of the starting gate. Students are learning to come up with weak compensating strategies to remember words, because they cannot access the efficient orthographic mapping process used by good readers (Kilpatrick, 2016). In other words, there is hope to prevent most reading difficulties.

The implementation of tiered frameworks such as Response to Intervention (RTI) to improve early literacy outcomes in early childhood settings (Stuckey et al., 2022). The study tested if students received tiered early literacy support would they improve in their literacy skills. In other words, there is a need that has been seen with students needing more support with building their literacy skills. RTI is a comprehensive early detection and prevention strategy used to identify and support struggling students before they fall behind (Gersten et al., 2017). There are three tiers or levels of support. Tier one covers all students and expects high quality research-based reading instruction in the general education classrooms. Tier two are students who do not make adequate progress in the general education context and would receive more targeted, small group instruction using reached-based methods. Tier three are students who have a diagnosed learning disability.

Kilpatrick suggests that tier 1 activities can include training phonological awareness from kindergarten to third grade, training letter-sound skills from kindergarten to late second grade,

using the developmental reading appreciation, and using various teaching techniques that promote mapping (Kilpatrick, 2016). These routines are executed in the general classroom as a whole group instruction time. Tier two instruction is research-based in a small group setting where phonological awareness training is still continuing and letter-sound routine and both are recommended to have master before moving forward. The biggest difference between tier one and tier two is not the content of instruction, but the intensity (Kilpatrick, 2016). Tier three focuses on that research-based instruction for students with reading disabilities. Students at this tier are still working on training phonological awareness and letter-sound routine and working at a pace of instruction that is benefiting the student. According to the findings, there is multiple overlapping between the tiers of support. All involving the key components of orthographic mapping (Kilpatrick, 2016). In other words, specific reading interventions can be that framework for instructional content.

It is common that some students would show reading difficulties at a younger age as they are developing to becoming a reader. However, there are ways to lessen the percentage of children at risk. Kindergarten through middle of first grade is a prevention period. While middle of first grade to higher grade levels would be considered intervention. The researcher, Scanlon (2005) conducted a preventative program in kindergarten to children who were identified as being at risk for experiencing reading difficulties and effects of two first grade intervention programs delivered to children who demonstrated substantial difficulty with reading development at the beginning of first grade (Scanlon et al., 2005). To consider an intervention effective means one year of growth every six months. The findings of this study suggested that the 1st-grade intervention approach that emphasized the development of phonological skills was

more effective in reducing the incidence of treatment resistance than the program that emphasized engaging the children in reading connected text (Scanlon et al., 2005).

Effective interventions are what all students need access to if they are considered at risk in their literacy skills. Students need reading interventions because multiple studies have demonstrated that with typical instruction, children who do not learn to read adequately in the primary grades will likely continue to struggle with reading in subsequent years (Denton, 2012). Causes to gaps in a student's reading skills most times come from not receiving appropriate early reading instruction in the primary grades. If the performance gap between typically developing readers and students at risk for reading difficulties is addressed aggressively in the early stages of reading acquisition, more serious reading problems may be prevented (Denton, 2012). Reflecting on research, learning how to read is quite a process. However, with an appropriate intervention, these difficulties are preventable and can be corrected.

Methods

The action research plan will be described in this section by identifying the variables, intended research site, research participants, and length of time for data collection. It will discuss the test methods and data collection methods. It will also describe the intervention that will be used on the selected participants and discuss how the data will be interpreted. It will lay out a plan on how the collected data will be interpreted and presented to understand the effect of the intervention on test scores.

Research Setting

This action research study was conducted in the action researcher's classroom, a 3A school district in suburban Iowa. Within the school district, 79.9% of students are Caucasian, while 7.8% are Hispanic, 5.1% Multi-Racial, 2.5% Asian and 3.3% African American (Iowa

Department of Education, 2022). Economically, 18.4% of the student population is eligible for free-or-reduced lunch (U.S. News Education, 2023). The evaluation will take place in the participants' normal classroom and during regular school hours.

Participants

The action-researcher conducted their action-research project in their first grade general classroom, consisting of 21 students aged 6-7. Of these 21 students, three students had Individualized Education Plans (IEP) and 1 student on a speech plan. The class consisted of 11 females and 10 males. Students participated in the foundational literacy intervention at least once a day for two quarters of a school year which lasted about 20-30 minutes each session. Seven out of the 21 students are considered at-risk based on their earlyReading FAST scores. These seven are receiving an extra reading intervention at least once a day for 15-30 minutes in a small group setting. There are students who are considered persistently at-risk because they have not met Fastbridge's benchmark for earlyReading assessment at least twice in a row, and students that are at-risk have not met the required benchmark once.

Research Variables

The purpose of this action research study is to answer the following question: *Is the Foundational Literacy Intervention program impacting earlyReading FAST scores?* The first variable to be evaluated are students test scores and to assess whether there is change from fall to winter. My independent variable is the foundational literacy interventions program. The interventions will be provided to students who fall below the standard for a specific part of the FAST assessment. The earlyReading FAST assessment will be considered the dependent variable and will be administered to all students in the fall and winter. The assessment asks the

same questions to every student and the scores will be used to determine the effectiveness of the interventions.

Data Collection Plan

The research would be conducted over two quarters of the school year. The plan would start at the beginning of the school year giving each student the diagnostic assessment that correlates with the foundation literacy program. Data will also be collected from the Fastbridge earlyReading assessment during the Fall and Winter testing period. Scores will be compared with the diagnostic test and the Fall and Winter testing periods from Fastbridge.

The earlyReading FAST test is a universal screening used to assess early reading skills. These skills tested consist of nonsense words, word segmenting, sight words, and fluency. Each of these assessments are one-minute long. The nonsense word assessment is where students have to read phonetically regular “words.” The word segmenting assessment is where students are assessed to form a word from individually-spoken sounds called phonemes. The sight word assessment is where students are to recognize up to 50 of the most high-frequency English words. The fluency assessment is where students are given three reading passages. Each student was provided with the same instruction and material. The educator conducted these assessments in a one-on-one setting. After each testing period, the educator accessed each student’s composite score report from the Fastbridge website. The educator was then able to see which students were below the grade level benchmark for first grade. In this research project, the earlyReading FAST assessment was the dependent variable. The educator will then be able to compare the fall assessment scores to the winter assessment scores.

The testing method used to collect data, Fastbridge, showed validity and reliability as it is a statewide testing system used by educators to track students progress throughout the year. It

also has the ability to determine if students need extra help to meet benchmarks set by the state. Educators rely on the data provided from the assessment to make informed decisions about students' education and provide extra support when students need it. This assessment also provides

Interventions

Students whose overall composite score was below the recommended benchmark score, were provided weekly progress monitoring tests in the universal screening literacy content area where they were not proficient. With the completion of the fall screenings, twelve students required progress monitoring. The researcher will administer these progress-monitoring assessments to the students weekly and the results will be recorded in the FastBridge testing software. The software will track progress and provide data to evaluate a student's gain towards meeting a benchmark during the winter testing period.

Data Analysis Plan

The data was analyzed based on the dependent t-test. Based on the fall screening scores, students who were flagged to receive progress monitoring were placed in a group to explicitly teach foundational literacy skills. These students received extra support by using the foundational literacy intervention program (FLI) from Northwest Iowa AEA reading consultant. Progress monitoring was documented weekly on the Fastbridge website using their testing materials. The research was intended to represent if there is a positive outcome for students receiving foundational literacy interventions. The winter testing scores will be compared to the baseline fall testing score to understand how the intervention affected a student's score.

IRB Approval

The action research conducted is considered exempt from the IRB process at Northwestern College in Orange City, Iowa. According to the federal code §46.104 section d number one, “Research, conducted in established or commonly accepted educational settings, that specifically involves normal educational practices that are not likely to adversely impact students' opportunity to learn required educational content or the assessment of educators who provide instruction” (National Archives and Records Administration, 2018). During this research process there will be no moments where students will miss essential instruction.

Data Collection

The data was collected for each test according to the directions outlined in the FastBridge learning administrators manual (Illuminate Education Inc., 2023). The manual gives specific directions and instructions for how to administer each section of the test. It also shows how to evaluate the students' responses and score them properly. The manual also gives practice examples that can be used on students before the exam takes place to understand how the test will work.

The section for Word Segmenting (WS) is administered by telling the students to say the sounds in the word that the teacher states. This is repeated ten times with ten different words and each word has a possible score of 3 points. Time begins when the instructor gives the first word and ends when the last of the ten words is completed or when there have been four incorrect responses in a row. Each time a word is given by the instructor the student has 5 seconds to repeat the sounds back or is counted as an incorrect response. Once complete a total score is calculated as well as a sound correct per minute score determined.

The second section administered of the test is Nonsense Words (NS). This section involves made up words that students are asked to pronounce and if they cannot pronounce them then they can sound them out as well. This test begins when the instructor tells the student to begin. Once the students pronounce the first word the timer begins, if they cannot pronounce the first word the instructor waits three seconds, marks the word incorrect and begins the timer. This test lasts one minute and the total correct words minus any errors are used to compute their score. A score of words per minute is calculated and used towards their composite score as well.

The third test section is Sight Words (SW). This assessment involves students recognizing common words and being able to readily read them aloud. This section is also a one minute test and involves the student reading from a predetermined list of words as fast as they can. This test begins once the instructor tells the student to begin. The timer starts as soon as the student reads the first word, if they do not start within three seconds the word is marked incorrect and the timer begins. The number of correct words is counted and any errors or mispronunciations are marked down as well. The total correct words minus any errors is used to calculate a words per minute score. This score will be used in the computation of their composite score as well.

The final test section is the CMBreading assessment (CMBR). This section involves reading three separate passages with each one being timed. The timer is set to one minute and begins when the student reads the first word or if the student is unable to read the first word after three seconds, it is marked incorrect and the timer begins. Words that are read incorrect are marked and the last word read when the timer is up is marked and a score is calculated. If the student is able to complete the entire passage in the allotted time the final time in seconds is

recorded. A score of words per minute is calculated for each passage. The middle score of the three calculated is assigned as the score for this section.

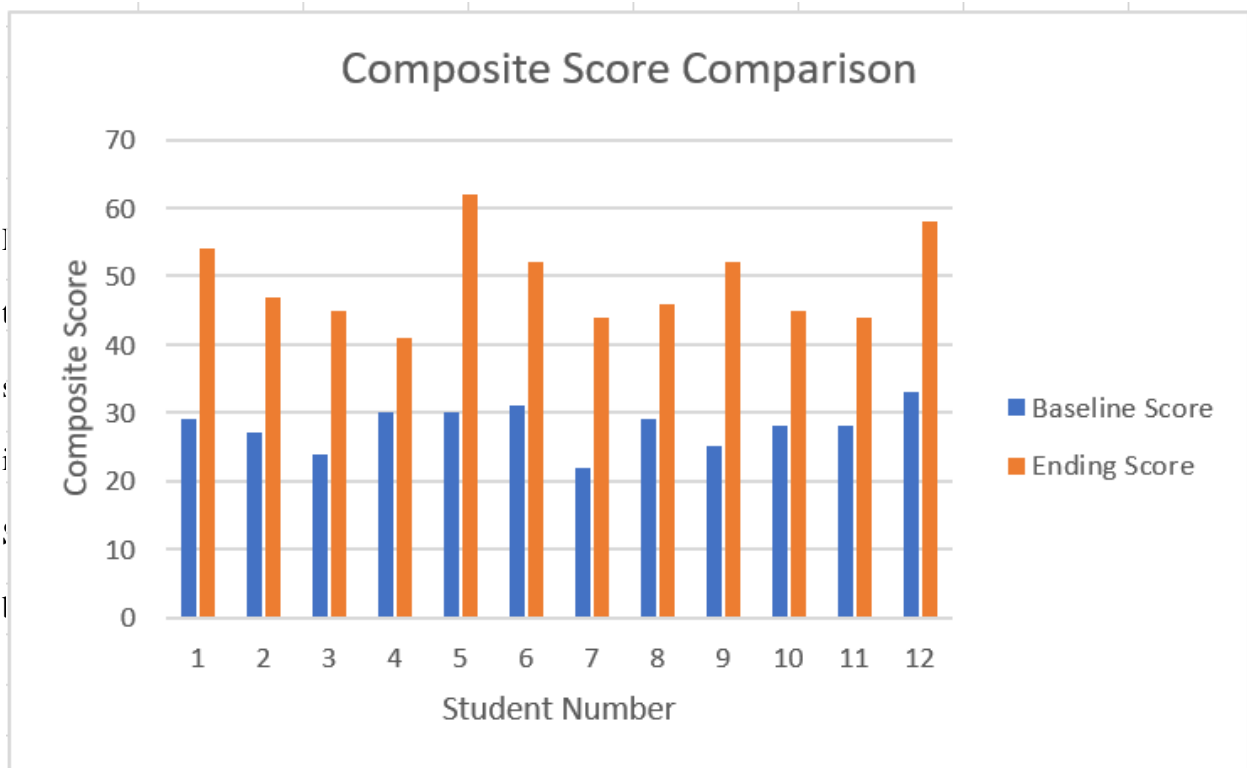
Findings

Data Analysis

There were 20 students that were administered the FastBridge test in the fall to determine baseline scores. Of those only 12 are included for the analysis of this action research project as they received additional support from the instructor. The average baseline composite score for the 12 students was 27.9 and the average composite score following the intervention period was 49.2. Chart 1 below shows the composite score comparison between the baseline and ending test period. The composite score was calculated using the same testing materials for both the baseline and ending tests.

Chart 1

Participants Baseline and Composite Scores Stacked Chart

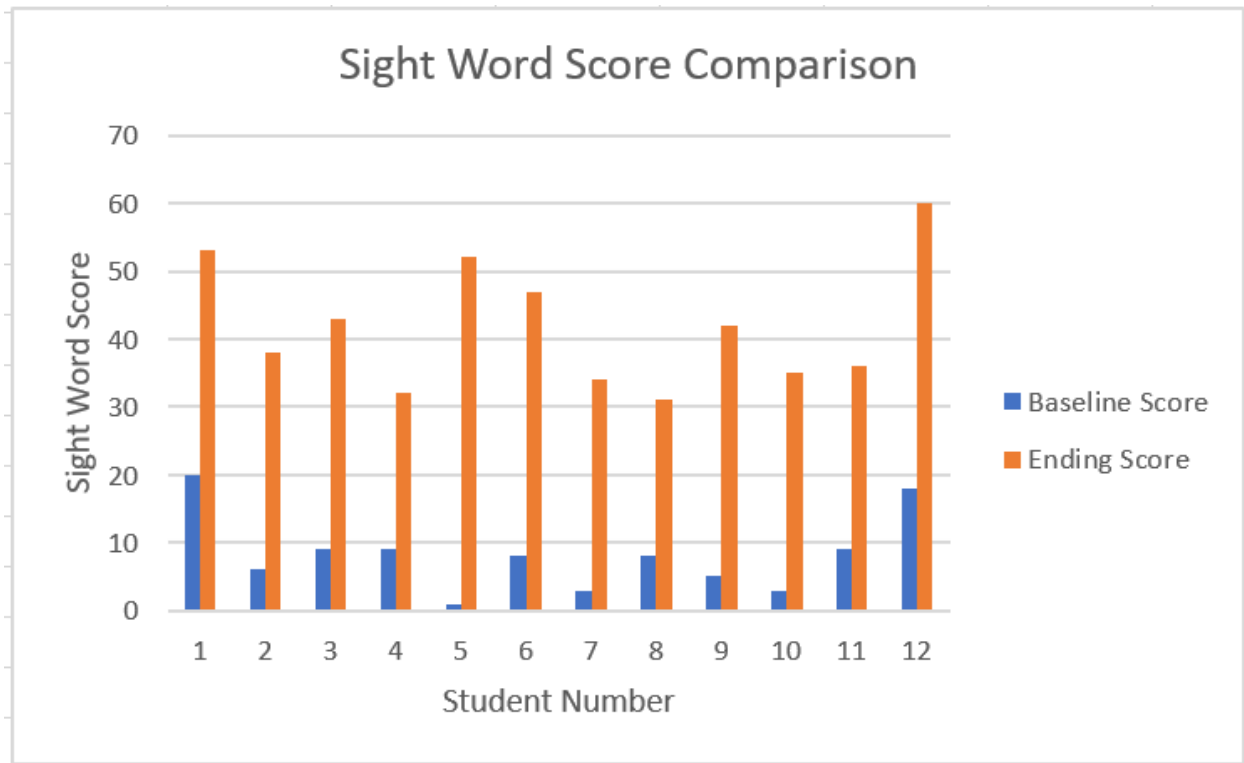


testing subjects (nonsense words, word segmenting, sight words, CMBReading) and in their overall composite scores.

Sight words which are defined as high frequency words that students should recognize when seen in books, and other reading materials. These words can be described as automaticity. Charts 2 below compares students' baseline scores to ending scores for the sight word component of the assessment. Of the 12 students receiving interventions, no students received an intervention for sight words. The increase in scores for sight words from baseline to ending scores can not be directly attributed to an intervention. The scores could be attributed to the interventions received in other assessment areas and regular phonics instruction during the fall school year.

Chart 2

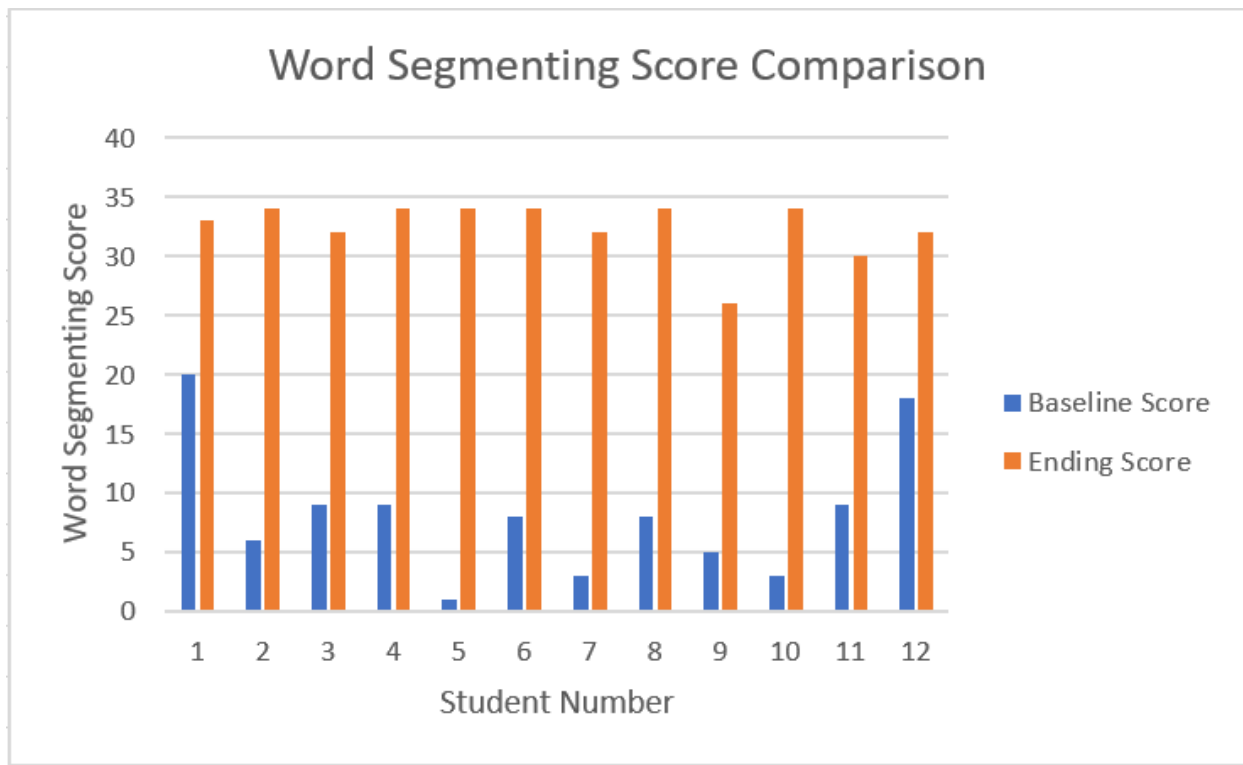
Participants Baseline and Ending Score Comparison - Sight Words



Word segmenting which involves students recognizing individual sounds within a word. No students received weekly progress monitoring for word segmenting as part of the fall school year. Chart 3 shows the students baseline scores vs their ending scores and shows significant student improvement. The improvement can't be attributed to an intervention since no students received an intervention for word segmenting. The mean score for the baseline test was 28.6 and the ending average score was 32.4. This is only a small change from baseline average score to the ending average score but is likely due to regular phonics work during regular instruction. Another explanation is that word segmenting isn't directly focused on for the assessment.

Chart 3

Participants Baseline and Ending Score Comparison - Word Segmenting

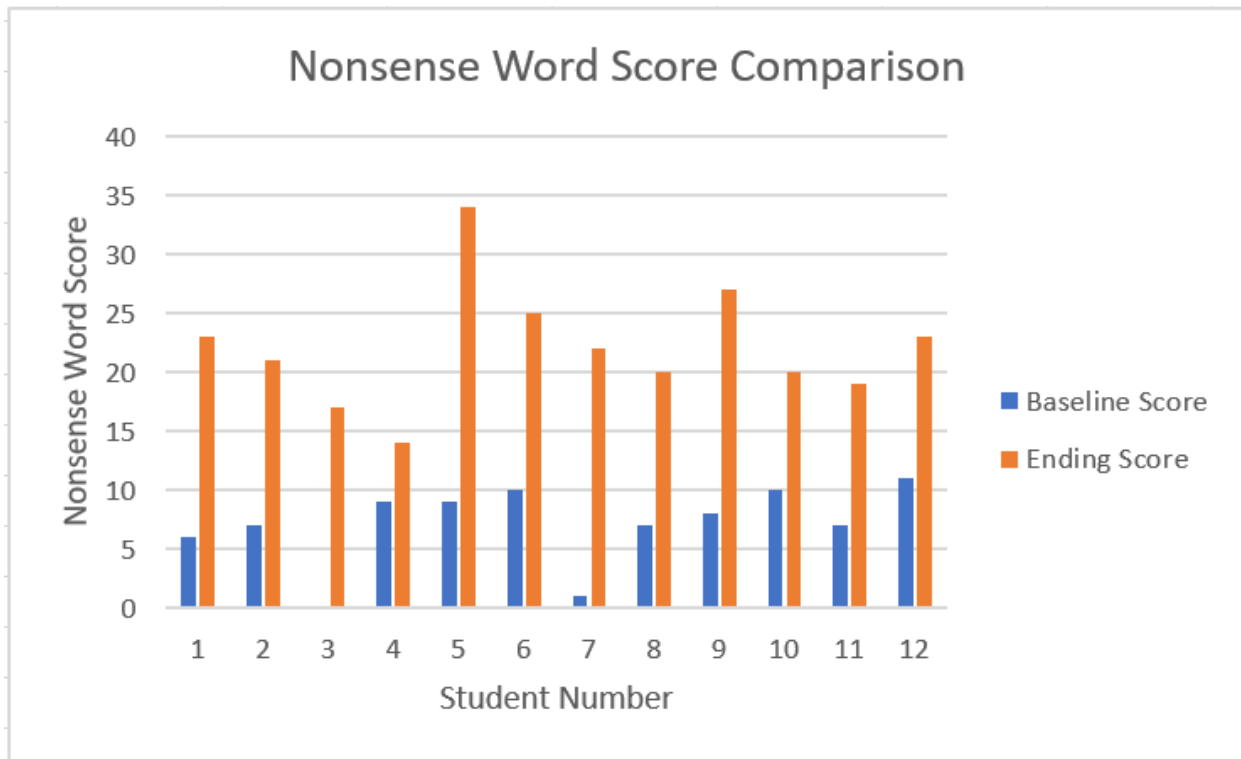


Nonsense words which are described as made up words and is one of the harder parts of the assessment for students. Students need to have their individual letter sounds mastered in

order to put the made up words together. Of the 12 students' that received interventions, all 12 received an intervention for nonsense words and were progress monitored weekly in the FastBridge system. Chart 4 compares students' baseline scores vs their ending scores for the assessment of nonsense words. This chart shows a significant improvement from baseline to ending scores due. The mean for the baseline scores was 7.1 and the ending score mean was 21.9. This increase can be attributed to the weekly progress monitoring that was administered after the baseline assessment. It can also be attributed to the regular phonics instruction which included some additional word related to nonsense words.

Chart 4

Participants Baseline and Ending Score Comparison - Nonsense Words



CMBReading involves reading predetermined passages. This assessment is sort of a combination of the three above-mentioned assessments - nonsense words, word segmenting, and sight words. Chart 5 below compares students' baselines scores to their ending scores. No

students received weekly progress monitoring for CMBReading. The mean baseline score was 7.3 and the ending mean score was 20.4. This a significant increase from baseline to ending and can't be attributed to an intervention. This increase is likely due to the weekly progress monitoring for nonsense words. Another explanation could be that students spent more time reading books and other passages during regular instruction as well as outside of the classroom. This would lead to a large gain in confidence and show a large score increase during the winter testing period.

Chart 5

Participants Baseline and Ending Score Comparison - CMBR

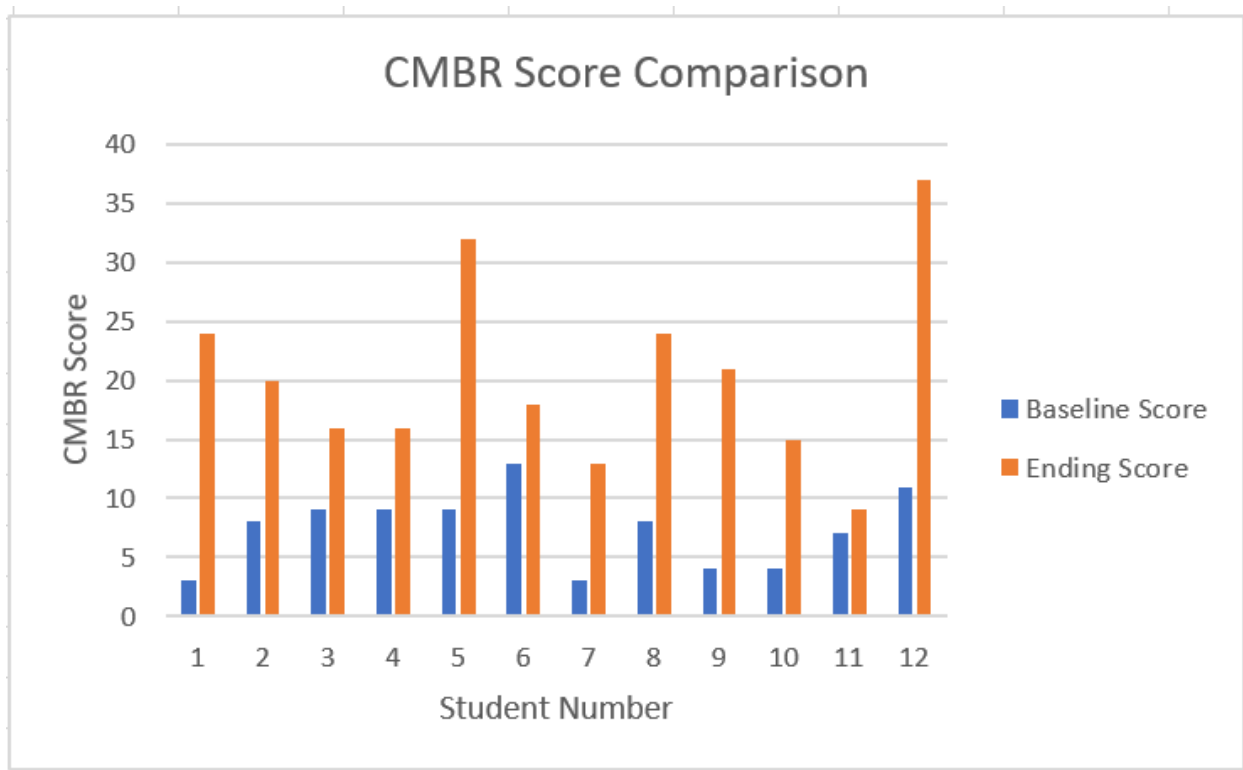
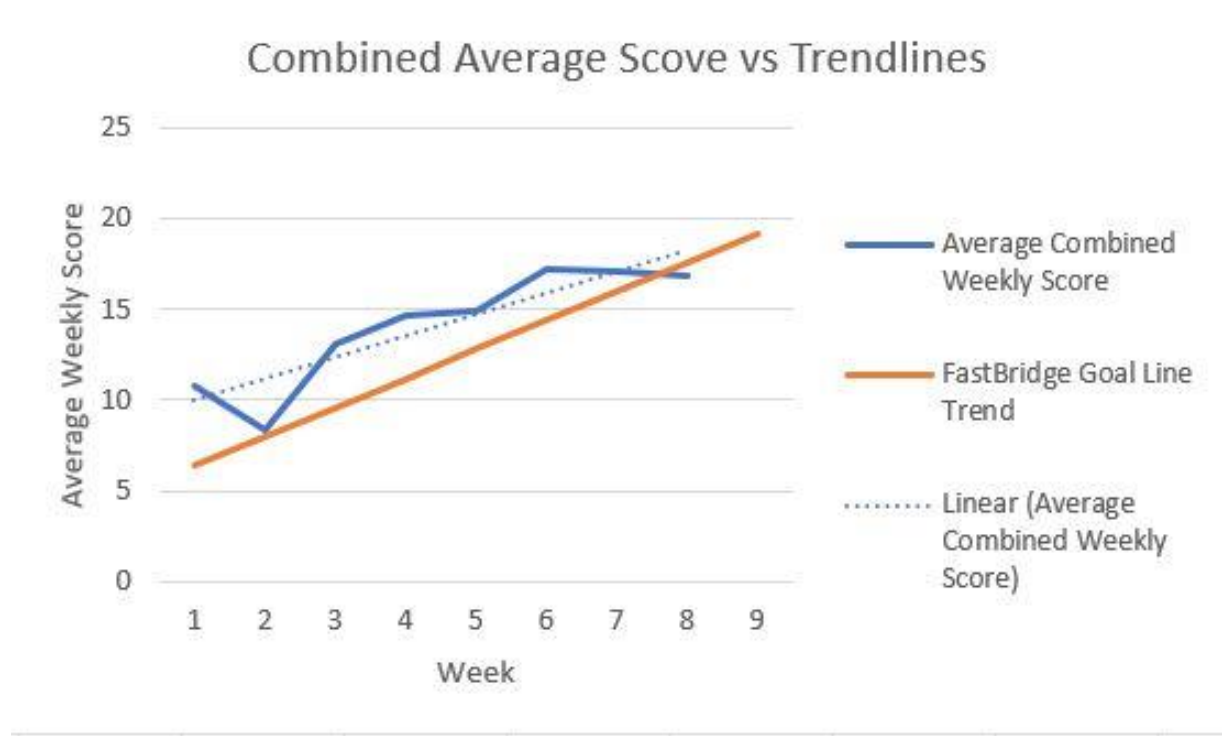


Chart 6 shows a line graph that represents the students combined average weekly score during the intervention period. This weekly progress monitoring took place during the fall following the baseline assessment. As seen in the graph there is a positive upward trend

following the weekly progress monitoring by the 12 students. The orange line on the graph is the benchmark and shows that the students were exceeding the goal set by the state during their weekly progress monitoring.

Chart 6

Participants Average Weekly Intervention Score vs FastBridge Trendline



A dependent t-test was used to determine if there was a statistical difference between the baseline scores and ending scores. The t-test determined there was a significant statistical difference between baseline scores (M=27.9, SD = 2.96, n = 12) and ending scores (M = 49.2, SD = 6.14, n = 12). These scores follow weekly progress monitoring following the baseline testing in the fall with a moderate effect size $t(11) = -10.8249, p < 0.05, df = 22, d = 4.42$. Overall there was an -21.3 score for the composite between the baseline score in the fall and the ending score in the winter.

Following the weekly progress monitoring intervention, all of the students showed growth in each of the four testing categories which led to a higher composite score. This progress monitoring was completed within the FastBridge system. The data shows the students weekly scores between their baseline and ending assessments. This data suggests that students who are at risk or persistently at risk and receive weekly progress monitoring, can make an improvement in their overall composite scores from one testing period to the next.

Discussion

Summary of Major Findings

The purpose of this study was to determine if foundational literacy interventions affect earlyReading FAST assessment scores. To answer this question, students used the programs Really Great Reading (RGR) and Foundational Literacy Intervention (FLI) every day for two quarters of the school year. Data collected during this study showed that scores increased from the fall screen testing period to the winter screen testing period. The findings in this action research suggests that the instruction of Really Great Reading and Foundational Literacy Interventions increased student's earlyReading FAST assessment composite scores.

The 12 students that received an intervention were used to determine the effectiveness of the selected intervention by comparing fall composite scores to winter composite scores. Through weekly progress monitoring the students were able to increase their scores in all assessment areas, some which no students' were directly receiving an intervention for. The weekly progress monitoring performed in FastBridge proved to be effective in raising students' composite scores.

Limitations of the Study

The study has potential limitations. One of the limitations in the research is using first grade students out of one section of the school district rather than using all of them. During this there could be a threat to internal validity. The attendance of all the student participants could vary throughout the months that data is collected. Each student is unique in their own way. There may be some students that naturally catch onto the strategies and excel in the work. There will be a mixture of students who are old for the class, young for the class, or who are right in the middle. The students all come from a variety of family home life backgrounds that could play a factor. Some of the participants receive special services that may affect scores and learning ability. The research is using two foundational literacy interventions and there could be some validity by not knowing if this is the best intervention to use to enhance earlyReading scores. Another limitation is the type of foundational literacy intervention may produce a different result or may work better for some students. Finally, the timing of this study could have been a limitation. Two quarters of the school year is not a full year to collect data and understand how students' scores change during the course of one grade level.

Further Study

Implications for future research suggest that more information about foundational literacy interventions be considered. The data that was collected in this study was from a suburban town in Northwest Iowa. The classroom had only 21 students, and the study took place in one of six first grade sections in the school district. As reviewed in the literature, it is important to incorporate a foundational literacy intervention in both a large and small group setting. The study could be impacted among varying demographics, and in different size districts or grade levels.

The influence of the environment in the school, it is possible that insignificant details could be seen affecting the ability of students to succeed in their studies (Lazarus, 2020).

Another way for this study to go is comparing a control vs. experimental group. The study in this paper had one group as the experimental group and did not compare data with a control group. If this was conducted one group as the control group would receive a different foundational literacy intervention program while the experimental group would receive the another foundational literacy intervention program. Given the correlation of the intervention with positive influence on student earlyReading FAST scores shown in this study, it would be fascinating to compare the results from two groups during the same time period.

In addition, future study is to continue the foundational literacy interventions, and the researcher collects data from students from the first grade level to high school graduation and beyond. Intervention could change as the years go on but the intervention would still be implemented in the students academic career. Data could be collected from year to year to see if a positive impact is occurring on their literacy skills. Through future research that could occur could gain a more detailed picture of the impact that a foundational literacy intervention can affect a students literacy skills. Researchers will be able to determine how to understand which foundational literacy program can provide the most positive impact to their students' literacy testing scores.

Conclusion

Learning how to read does not magically happen overnight. It takes time, effort, and a lot of trial and error to find out what works the best. Teachers play a key role in identifying the need for early support in reading skill development because they generally observe the first signs of

reading difficulties (Virinkoski et al., 2018). Through many discoveries there have been multiple foundational literacy interventions invented but the question becomes which is the best and does it make a difference. During this research it has shown that using a foundational literacy intervention makes a positive impact on students' reading ability. This foundational literacy intervention may not be the only one that will work or the best for all but it is one step closer to making a difference. A difference that shows educators how impactful an intervention can change a students ability.

Foundational literacy interventions are the key to earlyReading FAST score testing success. Effective foundational literacy interventions are essential for building a strong foundation with literacy skills for students ages six and seven. The foundational literacy interventions were Really Great Reading (RGR) and Foundational Literacy Intervention (FLI). The first grade level is a critical time for elementary students to build a solid foundation of literacy skill to be successful in their future academic journey. Reading is a skill that must be explicitly taught, and a failure to master the foundational skills of reading early in life significantly decreases the likelihood of learning them at all (Kenner et al., 2018). This action research project was integrated into a first grade classroom to determine if the foundational literacy interventions were positively affecting earlyReading FAST scores. Students need help in supporting each component of foundational literacy skills.

References

- Achieve The Core. (2022). *Foundational skills (K-2)*. Achieve The Core. Retrieved June 30, 2022, from <https://achievethecore.org/collection/6/foundational-skills-k-2>
- Brown, C. S. (2013, November 30). *Language and literacy development in the early years: Foundational skills that support emergent readers*. Language and Literacy Spectrum. Retrieved February 2023, from <https://eric.ed.gov/?id=EJ1034914>
- Denton, C. A. (2012). *Response to intervention for reading difficulties in the primary grades*. Journal of learning disabilities. Retrieved January 2023, 45(3), 232–243. <https://doi.org/10.1177/0022219412442155>
- Erbeli, F., Hart, S. A., & Taylor, J. (2017). Longitudinal Associations Among Reading-Related Skills and Reading Comprehension: A Twin Study. *Child Development*, 89(6), 493. <https://doi.org/10.1111/cdev.12853>
- Ehri, L. C. (2014). *The Science of Learning to Read Words: A Case for Systematic Phonics Instruction*. International Literacy Association-Wiley Online Library. Retrieved March 2023, from <https://doi.org/10.1002/rrq.334>
- Estrada, P. (2005). *The Courage to Grow: A Researcher and Teacher Linking Professional Development with Small-Group Reading Instruction and Student Achievement*. NWCommons. Retrieved June 2022, from , 39(4), 320-364. <https://www.proquest.com/scholarly-journals/courage-grow-researcher-teacher-linking/docview/215340430/se-2>
- Gersten, R., Newman-Gonchar, R., Haymond, K., & Dimino, J. (2017). *What is the evidence base to support reading interventions for improving student outcomes in grades 1–3?* Regional Education Laboratory. Retrieved February 2023, from <http://ies.ed.gov/ncee/edlabs>

Illuminate Education Inc. (2023). *Earlyreading Overview – FastBridge*. Fastbridge. Retrieved March 2023, from <https://fastbridge.illuminateed.com/hc/en-us/articles/1260802461290-earlyReading-Overview>

Iowa Department of Education. (2022). *Iowa School Performance Profiles*. Department of Education - Iowa School Performance Profiles. Retrieved March 2023, from <https://www.iaschoolperformance.gov/ECP/StateDistrictSchool/DistrictSummary?k=8466&y=2022>

Kenner, B., Terry, N., Fiehling, A., & Namy, L. (2017). *Phonemic awareness development in 2.5- and 3.5-year- old children: an examination of emergent, receptive, knowledge and skills*. ProQuest. Retrieved January 2023, from <https://www.proquest.com/>

Kilpatrick, D. A. (2016). *Equipped for reading success: A comprehensive, step-by-step program for developing phoneme awareness and fluent word recognition*. Casey & Kirsch Publishers.

Lazarus, K. U. (2020). Socio-Demographic Factors Affecting Reading Comprehension Achievement Among Secondary School Students with Learning Disabilities in Ibadan, Nigeria. Ibadan, Nigeria;IAFOR Journal of Education. Retrieved February 29, 2023, from <https://eric.ed.gov/?id=EJ1245839>

Mesmer, H. A. E. (2020, January 23). *There are four foundational reading skills. Why do we only talk about phonics?*. Education Week. Retrieved February 2023, from <https://www.edweek.org/teaching-learning/opinion-there-are-four-foundational-reading-skills-why-do-we-only-talk-about-phonics/2020/01>

- National Archives and Records Administration. (2018). *The Federal Register*. Federal Register : Request Access. Retrieved May 29, 2022, from <https://www.ecfr.gov/on/2018-07-19/title-45/subtitle-A/subchapter-A/part-46#46.104>
- Petroski, W. (2018). Nearly 30% of Iowa Students in Kindergarten Through 3rd Grade Fall Short on Reading Benchmarks. Des Moines Register. <https://www.desmoinesregister.com/story/news/politics/2018/09/05/iowa-education-elementary-school-teaching-learning-reading-schools-kim-reynolds-testing/1202449002/>.
- Scanlon, D. M., Vellutino, F. R., Small, S. G., Fanuele, D. P., & Sweeney, J. M. (2005, November 30). *Severe Reading Difficulties--Can They Be Prevented? A Comparison of Prevention and Intervention Approaches*. ERIC. Retrieved March 2023, from https://doi.org/10.1207/s15327035ex1304_3
- Stuckey, A., Albritton, K., & Cruz, K. (2022). Research to practice to research: Examining who, how, what, when, and where for early literacy interventions within tiered frameworks. *Psychology in the Schools*, 59(9), 1873–1905. <https://doi.org/10.1002/pits.22735>
- U.S. News Education. (2023). *Sergeant Bluff-Luton Community School District*. U.S. News Education. Retrieved March 2023, from <https://www.usnews.com/education/k12/iowa/districts/sergeant-bluff-luton-comm-school-district-105625>
- VanHekken, A. (2021, March 9). *The reading rope*. Heggerty. Retrieved June 2022, from <https://heggerty.org/blog/the-reading-rope/>
- Virinkoski, R., Lerkkanen, M.-K., Holopainen, L., Eklund, K., & Aro, M. (2018, September). *Teachers' Ability to Identify Children at Early Risk for Reading Difficulties in Grade 1*.

Early Childhood Education Journal, 46(5), 497-509. <https://doi.org/10.1007/s10643-017-0883-5>

Zucker, T. A., Justice, L. M., & Piasta, S. B. (2009). Pre-kindergarten teachers' verbal references to print during classroom-based large-group shared reading. *Language, Speech and Hearing Services in Schools, 40*, 376-393. [http://dx.doi.org/10.1044/0161-1461\(2009/08-0059\)](http://dx.doi.org/10.1044/0161-1461(2009/08-0059))