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Effects of Differentiated Literacy Instruction in a Kindergarten Classroom

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Abstract

The purpose of this action research was to determine if using differentiating literacy in kindergarten led to more successful student achievement. This included implementing multi-sensory learning, learning styles, positive relationships, and relevant, specific data. The researcher is a kindergarten teacher in her 6th year of teaching, where her own students participated in the class-wide intervention. The timeline for conducting this action research was eight weeks. This included the quantitative phonics pre-assessment through FAST (Formative Assessment System for Teachers), implementation of differentiated literacy activities tailored to various learning styles, collection of purposeful and relevant quantitative data, and a post-assessment on literacy skills based on the differentiation implemented. Findings revealed participants had an ending score higher than the grade-level benchmark as well as an ending score higher than grade-level peers on average. The research was conducted to result in future instruction in whole building classrooms to solidify the decisions made regarding differentiated literacy practices.

Keywords: literacy, differentiation, multi-sensory learning, phonics, learning styles, positive teacher-student relationships

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Research shows only 35% of fourth-grade students in Iowa are performing at or above proficiency as measured by the National Assessment of Educational Progress (NAEP) Proficient Reading criteria (NAEP, 2019). Specifically, at the research's site, a public school in Iowa, 60.05 percent of kindergarten and first-grade students met or exceeded the composite benchmark on the Formative Assessment System for Teachers (FAST) in the spring of 2017. This is down 3.45 percent from 63.50 percent in the spring of 2016. 32.65 percent of second through fifth-grade students met the college and career readiness benchmark in reading on the spring Measurement of Academic Progress (MAP) test (District Performance and Equity Profile, 2019). "A lack of fit between needs, abilities and prevalent teaching practices often results in children not functioning optimally; that is, they do not function at a level concomitant with their abilities" (Dijkstra et al., 2016). The problem is lack of basic literacy skills can be detrimental to the overall success of a child. "Literacy skills are the cornerstone upon which knowledge, self-esteem, and future educational opportunities are built" (Tyner, 2019, p. 2). Persons and groups impacted by this problem include educators, students, families, and other various stakeholders in education. This action research project aims to address research-based practices and strategies to best differentiate literacy in kindergarten to help fill this gap.

The purpose of this action research project is to address and implement research-based practices and strategies to best differentiate literacy in kindergarten for student growth and success. "Today's standards and assessments hold teachers accountable for growth in every student: students with special needs, English language learners, "gifted" students who are above grade level, and every child in between. Most teachers work hard because they are passionate and want to focus intentionally on instructional practices supporting below-, on-, and above-level

readers and writers" (Tyner, 2019, p. 2). There are many effects of differentiated literacy in a kindergarten classroom. The hope is with knowledge gained from this research project, there will be both improved teaching and learning regarding literacy. "As many schools continue to adapt to an increasingly broad range of learners, it has become more important than ever to develop instruction that responds to these academically diverse students. Differentiating reading and writing instruction for elementary students is a critical step to appropriately address the academic diversity existing in virtually every classroom. In other words, we need to modify our instruction based on our students' readiness. Whole-group instruction is not enough to meet the needs of this wide range of readers and writers" (Tyner, 2019, p. 4).

Research studies were found primarily through databases in DeWitt Library. Several sources were obtained through Google Scholar. Article inclusion criteria included a publication date within the last ten years for the most accurate and relevant data, applicable teaching strategies effective for elementary-aged students, various components of multi-sensory learning, learning styles of students, positive teacher-student relationships to help foster a desire to learn and grow, and relevant assessments and data which helped drive instruction.

The principal finding of this action research is differentiating literacy in kindergarten by implementing multi-sensory learning, learning styles, positive relationships, and relevant, specific data resulted in more successful student outcomes. "Differentiating literacy instruction is vital to the success of students. Each student is unique and brings his or her own set of needs to the classroom. The teacher must recognize various needs and plan instruction accordingly. "Differentiated instruction allows all students to access the same classroom curriculum by providing entry points, learning tasks, and outcomes that are tailored to students' needs. Differentiated instruction is not a single strategy, but rather an approach to instruction that

incorporates a variety of strategies" (Differentiated Instruction for Reading, 2013). When a study was performed on a group of six preschool students on letter-sound correspondence and word recognition, the data demonstrated a higher number of correct responses when KM (Kinesthetic Movement) was incorporated. "On average, participants responded with more correct responses for the KM stimulus set during all weeks. At weeks 1, 3-5, and 6-9, participants responded correctly to an average of 3.7, 3.3, and 3.4 KM stimuli; 3.1, 3, and 2.6 TD stimuli; and 3.3, 2.8, and 1.8 TD with KM stimuli, respectively" (Lozy et al., 2020, p. 1347).

This literature review will support the effects of differentiating literacy in kindergarten by exploring the themes of multi-sensory learning, learning styles, positive teacher-student relationships, and relevant, specific data resulting in more successful student outcomes. "Adapting instruction for various learning styles (LS) has positive impacts on student learning. Teachers indicated students engaged with content after accommodating for LS in pedagogical strategies and demonstrated improved attitudes towards learning" (Adkins & Guerreiro, 2018, p. 576). While these literature review themes pertain to various components of differentiated instruction, they are all in agreement. Providing differentiation for students can yield higher results compared to providing a one size fits all education. Educators must take into consideration effective differentiation celebrating student differences and learning styles. "As children select modes and share significant learning experiences and spaces that meet their learning purposes and meaning making needs at school, they offer glimpses of their authentic lives to educators who are open to listening, seeing and acting on their interests and valued experiences" (Streelasky, 2019, p. 100).

Review of the Literature

"Reading has a tremendous effect in fueling all aspects of our personality and enhancing our linguistic prowess. In fact, it wouldn't be wrong to say the entirety of human life depends on it. Whatever we grow up to become in our lives, no matter where we stand, reading has somehow shaped it" (Importance of Reading, n.d.). It is critical for educators to provide opportunities for young students to learn how to read and feel successful at reading. This involves incorporating many components of differentiation to reach each child at his or her level. This literature review encompasses numerous studies on successful components of early literacy including literacy differentiation, student learning styles, positive teacher-student relationships, and explicit phonics instruction.

Literacy Differentiation

"Literacy is a core educational goal that has been demonstrated to predict a range of socially significant outcomes, including employment, income, and participation in varied social institutions" (Bradley & Noell, 2018). Students are walking into classrooms each day bearing different needs, abilities, behaviors, and cultural backgrounds. According to Dijkstra et al. (2016), there is a lack of fit between needs, abilities, and prevalent teaching practices. This can often result in children not performing optimally. They do not function at a level parallel with their abilities. The results of research by Virgil & Petre (2015) state nearly 90% of teachers surveyed recognize the absence of specific regulations in relation to the phenomena of differentiation and individualization. These findings indicate a need for a change in the way educators teach literacy.

In the study by Dijkstra et al. (2016), differentiation framework was implemented in kindergarten math and literacy curriculum. Quantitative results demonstrated the intervention fidelity was relatively high in the improved intervention. Correlations proved teacher-reported

differentiation practices (DP) were higher in schools where the intervention was more fully implemented. Intervention fidelity was met in 50% of the pilot schools and in almost 90% of the improved intervention schools. The differentiation of the language and math curricula was developed in nearly 70% of the improved intervention schools, while in the pilot intervention only two out of eighteen schools (11%) fully developed these components. The intervention fidelity was higher in the improved intervention than in the pilot intervention, which means the adaptations in the intervention delivery enhanced the intervention fidelity (Dijkstra et al., 2016). In other words, teachers implementing DP resulted in higher student achievement.

Merely implementing a differentiated curriculum is not sufficient, though. There needs to be specific, relevant, and achievable differentiation practices for student success. A study by Jadallah et al. (2011) on researching the role of the teacher in differentiated scaffolding with fourth-grade students supports this statement. "Every child has an actual and a potential level of development. A problem a child can independently solve defines his or her actual level of development, whereas a problem he or she can solve under an adult's guidance or in collaboration with others defines this child's potential level of development (Jadallah et al., 2011).

Using sequential categorical data analysis, clusters of differentiated scaffolding moves were analyzed, such as specific prompting, asking for evidence, and praising. The bidirectional dependence analysis revealed teacher-child and child-child reciprocal influence regarding the use of scaffolding. For the sequence in which the teacher prompts for evidence followed by a child's use of evidence, k was equal to 0.106 (p \ .001); this result indicates the teacher was more likely to prompt children for evidence again when her request for evidence was responded to. For the use of evidence by a child followed by the teacher's praise of the use of evidence, k 5

.281(p\.001). Children were more likely to use evidence again after receiving praise from the teacher (Jadallah et al., 2011). Overall, these results imply the need for specific, relevant differentiation practices and how beneficial they are for student achievement.

A study by Lewis (2020) supports the need for specific, relevant literacy differentiation in classrooms as well. This study implemented Lexia Core 5 Reading, an individualized, engaging software program for young learners. "Differentiation is a part of personalized learning, but the terms are not synonymous. It is possible to personalize learning without technology, but using technology that offers explicit, systematic instruction frees up time for teachers to address the individual needs of each student and provide higher-order feedback" (Lewis, 2020).

Lewis (2020) discovered the instructional software is excellent for producing immediate feedback about the student relative to mastery. While this is an important and relevant feature, the genuine art of teaching emerges from utilizing the higher-order feedback and the information teachers gain from the software to work more effectively with individual students. This program is providing both the art and science of learning through personalized learning. The results speak for themselves. In one of the pilot schools, 100% of the students closed their learning gaps and achieved their progress goals as defined by the state. The other two pilot schools had similar results. Students began to take more ownership in their learning, they were more engaged, and their behavior significantly improved at those three schools.

These literacy skills correlate with the study done by Bradley & Noell (2020). The development of literacy has been described as consisting of five component skills: phonemic awareness, phonics, fluency, vocabulary, and comprehension. Lexia Core 5 embeds all five of these skills in a differentiated, engaging manner. "The most effective reading programs employ a balanced instructional approach attending to all five skills" (Bradley & Noell, 2020). Literacy

differentiations such as these help educators individualize instruction while also setting the state

to learn more about each student and his or her learning needs and styles to best support

achievement.

Student Learning Styles

There are numerous ways in which students best learn and succeed at school. In a study

by Peel (2020), four themes emerged to support the learning needs of young students in the

classroom. These four themes were: connect the learning, facilitate the learning, diversify the

learning, and socialize the learning. Connect the goal-orientated learning with purposeful

engagement, facilitate the activation of thinking strategies; diversify learning opportunities

which enable an expectation of success; and socialize the learning within created caring

communities (Peel, 2020). This discovery by Peel seems to indicate educators are setting

students up for success in the classroom when they foster sources of interest, ensure appropriate

scaffolding, enhance positive self-efficacy beliefs, and enable the students' interactions within a

community of learners by building conducive relationships.

Similar outcomes were uncovered by Bernadowski (2017) when researching the myriad

of learning differences. "The need for evidence-based literacy instruction is essential in

supporting emergent readers and writers, and reading specialists often hold the key to success for

young readers. This additional knowledge can serve as the framework for successful literacy

instruction in 21-century classrooms" (Bernadowski, 2017). For students with various learning

styles to succeed, they need a teacher who is well-trained on how to best reach these students. In

this study, fifteen teachers engaged in specialized training regarding the implementation of

phonetic instruction for various learning styles. Qualitative post-survey data indicated an

increase in confidence levels because of the training. Teachers reported a sense of self-awareness

and self-assurance after they were trained in specific pedagogical techniques. Regarding knowledge of methods and accommodations for various learning styles, multisensory methods, and explicit instruction in letter/sound correspondence, pre-survey data indicated a mean of 2.53. Post-survey data indicated a mean of 3.33, thus there was an increase of +.80.

Furthermore, in a study by Hawk & Shah (2007), the theory that students learn in diverse ways and that one approach to teaching does not work for every student or even most students is further proven. Findings showed neuroscience research supports the whole brain involvement in effective learning. Divergers are strong in concrete experience and reflective observation. They have a strong imaginative ability, are good at seeing things from different perspectives, are creative, and work well with people. Assimilators are strong in reflective observation and abstract conceptualization. They have abilities to create theoretical models, prefer inductive reasoning, and would rather deal with abstract ideas. Convergers, who are strong in abstract conceptualization and active experimentation, have a strong practical orientation, are generally deductive in their thinking, and tend to be unemotional. Accommodators, strong in active experimentation and concrete experience, like doing things, are risk-takers, are in the here and now, and solve problems intuitively (Hawk & Shah, 2007).

Using learning style instruments to inform the choice of learning activities and approaches will enhance the effectiveness and quality of learning for students. Although this study was performed on a group of adult learners, it has important ramifications for learners of all ages. If adult learners thrive from a differentiated approach to learning, the possibilities for success are even more bountiful for young learners.

However, according to Ding et al. (2013), a basic level of understanding and demonstration in early literacy is not sufficient. "A great number of fourth-grade students

performing only at the basic level of reading may be indicative of early reading-cognition deficits that manifest in low reading achievement through at least Grade 4" (Ding et al., 2013).

This means of the 35% of fourth-grade students performing on or above grade level in Iowa as mentioned previously, many may barely be comprehending and retaining these literacy skills. This makes it even more imperative for educators to implement components of differentiation to allow for greater retention. "Learning to read is one of the most important academic skills that students develop during the early years of school and is known to predict performance in later grades in reading as well as other areas" (Ding et al., 2013).

Similar findings were uncovered by Cohen-Mimran et al. (2016) when examining the effect of language on a small-group intervention based on the naturalistic approach, a teaching strategy incorporating differentiation through real-world experiences. "Research indicates that early educational interventions during the preschool years lay the foundation for future educational and social success" (Cohen-Mimran et al., 2016).

220 kindergarten students were assessed on the literacy subtests of narrative and vocabulary. During the first two sessions, a piece of age-appropriate literature was read to the children supplemented by illustrations and demonstrations, and the educator explained particular words from the book likely to be foreign to the children. A variety of related activities then occurred, lasting four sessions. These activities included making a fruit salad, germinating a bean, playing at building a farm, creating a poster showing things belonging inside or outside a house, and creating and acting out a play (Cohen-Mimran et al., 2016).

The main finding of this study was children in the intervention groups showed considerably greater gains from pre- to post-test relative to children in the comparison group.

Narrative scores of the intervention group in the post-test were significantly higher compared to their scores in the pretest (t = 2.44, p\0.05). Vocabulary gain in the intervention groups produced greater gains as well. Results of this analysis showed a significant main effect of Group [F(1, 112) = 9.03, p\0.01]. The control group scored significantly below the intervention group on vocabulary only in the post-test. For both groups, vocabulary scores in the post-test were higher compared to scores on the pre-test (Cohen-Mimran et al., 2016). Gains in the intervention groups were remarkable when considering the language learning rate among these children accelerated beyond the typical developmental to demonstrate standard score gains.

These findings further support how beneficial it is for educators to differentiate learning experiences for students. When contemplating various approaches to differentiated literacy, it is also valuable to consider the natural development trajectories of children and how this predicts outcomes in reading achievement. In the study employed by Ding et al. (2013), researchers analyzed word literacy growth and offered evidence for precursors of low reading achievement after a period of regular classroom instruction; in other words, the study was to assess the growth patterns of various groups of children to understand emerging gaps in language development.

Each child was assessed three times (beginning of year, middle of year, and end of year) on various subscales of the Dynamic Indicators of Basic Early Literacy Skills (DIBELS). DIBELS was designed to assess three key early word literacy areas: phonological awareness, alphabetic principles, and fluency with connected text. The measures included the following subscales: initial sounds fluency, letter naming fluency, phonemic segmentation fluency, nonsense words fluency, oral reading fluency, retell fluency, word use fluency.

During kindergarten, the average growth rate was 5%, -13%, and -4% for typical achievers, slow achievers, and low achievers, respectively. During Grade 1, the average growth

rate was 12%, -1%, and -3% for typical achievers, slow achievers, and low achievers, respectively. During Grade 2, the average growth rate was 16%, -6%, and -14% for typical achievers, slow achievers, and low achievers, respectively. "Regardless of whether different developmental patterns may be observed for children in different word literacy groups, the education implication is the same: Schools and families need to provide a favorable climate to help children achieve more optimally. Although our data do not disentangle the cognitive factors underlying the differences among children's learning disabilities, the results from the present study suggest children at risk have a learning disability or are in poverty. An important point is although these children come into kindergarten with different word literacy statuses, the differences are not persuasive. However, the division between low- and typical-achiever status become much clearer by the end of Grade 2" (Ding et al., 2013).

In other words, this study ties together the importance of early and purposeful literacy instruction and differentiation. While educators cannot ensure every single learning gap will be eliminated or vastly improved upon, by taking into consideration the various learning styles and learning needs of students, educators can purposefully attempt to allow for more early literacy success with each student.

Positive Teacher-Student Relationships

Taking into consideration the various learning needs of students also involves getting to know students on a personal level and building positive relationships with each student. Differentiation does not solely involve academics. "To differentiate effectively, we need to know children" (Cornett et al., 2020). In a study by Blazar & Kraft (2017), 310 fourth and fifth-grade teachers' teaching practices were analyzed to determine to what extent these practices affected students' attitudes and behaviors in class. A 1 SD increase in teachers' emotional support was

associated with a 0.14 SD increase in' students' self-efficacy in math and a 0.37 SD increase in students' happiness in class. These discoveries make sense given emotional support encompasses teacher behaviors such as compassion for students, consideration for students' perspectives, and the amount in which they create a positive climate in the classroom. A positive relationship is significant and impactful on a child and his or her academics and social-emotional well-being.

Henry & Thorsen (2018) uncovered similar findings when researching teacher-student relationships and their effect on student engagement and motivation. In this study, four English teachers collected data for fifteen days during moments of teacher-student interaction. Through field data, interview data, and documentary data, research discovered positive results. The actual presence of a relationship partner will be the strongest possible prime for a relationship representation, meaning its effects—the activation of interpersonal goals—will also be stronger. In a moment of contact when a close connection is experienced, the effects will be strongest of all. In comparison with conscious forms of motivation, the unconscious influence of interpersonal goals on behavior and motivation may endure beyond (Henry & Thorsen, 2018). These findings truly reinforce how important an educator's job is and how meaningful an impact one can have on the life of a child. "People have a fundamental psychological need to feel connected to others, and the desire to form social bonds is among the most powerful of all human motives" (Henry & Thorsen, 2018).

In a study by Uibu et al. (2018) involving 220 primary school students and their teachers, motivation to learn correlates with the ability to comprehend text as well. "Reading interest has an important role in text comprehension because it acts as the basis for students to move towards their reading goals. While comprehending the text, it is vital students have an interest in reading. The authors considered reading interest the most important part of text comprehension because it

motivates students to read for enjoyment. Reading interest was found to be positively correlated with text comprehension – the more students read, the more they understand" (Uibu et al., 2018).

The greatest association transpired between students' vocabulary knowledge and understanding of the meaning of the text (r= .55). A low but statistically significant correlation happened between interest in reading and understanding of the meaning of the text (r= .20). This result showed students' interest in reading supports text comprehension. A slightly substantial correlation was identified between interest in reading and vocabulary knowledge (r= .17). Students' average level of interest in reading was 2.40*100/3= 80%. The results reveal interest in reading was high. The average level of vocabulary knowledge was 7.14*100/9 = 79%. This is considered an ideal result for this age group.

In contrast to positive teacher-student interactions within the classroom, a study by Cornett et al. (2020) pursued this matter utilizing home visits. "For U.S. teachers to meet the needs of an increasingly diverse population of students, researchers have consistently highlighted the importance of differentiating instruction. Essential to differentiated instruction is that teachers know their students, which poses a challenge to teachers (typically White, female, middle class) who may come from differing backgrounds than their learners and, for a variety of reasons, may not possess an in-depth understanding of the students and families that they serve" (Cornett et al., 2020). This study utilized one elementary teacher, Ms. Sanchez (pseudonym), and four students, and researched how knowledge obtained through students' home lives can impact a teacher's differentiated literacy instruction.

Qualitative data analyzed through a single-case holistic design found Ms. Sanchez translated what she learned from her home visits into the classroom context in a few specific ways to support each focal student so the child could learn as deeply and quickly as possible.

With Jarred and Sebastian (pseudonyms), both of whom struggled with self-regulation, Ms. Sanchez learned specific, different strategies (i.e., drawing on home dynamics and adjusting her positionality) to help each boy manage his body and emotions. In the case of Talyah and Fisher (pseudonyms), Ms. Sanchez learned about their interests as well as their strengths and challenges (i.e., connecting with the students) to assist them with writing and reading. Ms. Sanchez's differentiated instruction also appeared to increase the relevance of the focal students' learning experiences during Daily Five literacy instruction.

Information and strategies (i.e., knowledge about students), obtained from home visits, can be used to inform an elementary teacher's decisions regarding differentiated instruction in the classroom. While a home is not the only source where teachers can obtain knowledge about students, home visits do provide a more nuanced (sometimes complexified) view of children and families. Differentiation can occur without home visits; however, home visits positively support differentiation in a way that draws upon a student's place. The home visits had made Ms. Sanchez more aware of the children's whole selves and more open to interpreting children's actions through a wider and more compassionate lens.

While implementing and maintaining positive relationships with students is proven from these research studies to lead to more academic and social-emotional success among students, a study by Jamil et al. (2015) sought to research this topic by taking measures to assess teachers' skills in detecting and identifying effective interactions in the classroom, the Video Assessment of Interaction and Learning (VAIL). To better understand which personal and professional characteristics of teachers were significantly related to their skill in detecting and identifying effective classroom interactions, 270 preschool teachers viewed videos highlighting specific dimensions of instructional support in the classroom and responded to prompts focusing on these

dimensions. Each prompt asked teachers to identify five strategies the teacher in the video is using to facilitate a particular type of effective instructional interaction in the classroom as well as specific, behavioral examples of each strategy. Teachers' skills are then coded based on the ability to identify correct and specific instances of effective interactions of the required dimension and the extent to which the answers represent a breadth of understanding across the dimension.

The primary VAIL indicators included instructional learning formats (ILF), quality of feedback (QF), and language and literacy prompts (LL). Results based on coding included a .51 increase for ILF, a .66 increase for QF, a .53 increase for LL1, and a .64 increase for LL2. A meaningful finding of this study concerns the association of teachers' skills in detecting effective interactions and the quality of the interactions observed in their classrooms. Based on theories of social cognition, the researchers hypothesized teachers who could identify effective interactions from a video would also be more effective at interacting with students during their own teaching. Teachers who were more skilled at detecting effective interactions, as measured by their performance on the VAIL, were more instructionally supportive in their interactions with students. VAIL is associated with the quality of instructionally supportive interactions observed in teachers' classrooms, putting it forth as an instrument to inform teacher selection and hiring. Furthermore, there is evidence from past research. The VAIL measures a skill which can be improved with practice and is at the core of several successful professional development interventions for teachers.

Explicit Phonics Instruction

When reflecting upon successful teaching practices for student success, specifically early literacy success, explicit phonics instruction is at the core of this topic. "The ability to read well

is key to success in school, and in life. Despite the importance of reading to a variety of academic and professional outcomes, the ability to read with accuracy and proficiency still eludes many students" (Cohen et al., 2017). In a study by Carter (2020), 59 elementary teachers participated in a questionnaire pertaining to their professional opinions on the importance of phonics. Teachers identified phonics as their main approach to the teaching of reading in the questionnaire data, which showed 97% of teachers (n = 57) either agreeing or strongly agreeing with the statement that teaching phonics knowledge was essential for the teaching of reading. 3% of teachers (n = 2) were neutral about phonics as essential, but none of the teachers disagreed with the statement. "There is 'general acceptance that systematic synthetic phonics instruction has a part to play in promoting early reading as one element in a rich literacy curriculum" (Carter, 2020).

In a similar study by Cohen et al. (2017), 94 elementary teachers (60 participants in the code-based reading program and 54 in no code-based reading program) compared their definitions and application knowledge of language structure, phonics, and other code-based concepts, as well as their perceptions of their own knowledge as operationalized in a scale designed to measure participants' confidence in their responses. Multivariate analysis of covariance revealed no significant differences between groups in definitions or application knowledge, once demographic differences were accounted for. Analyses of covariance revealed no significant differences in perceptions of knowledge after accounting for relevant covariates. Multiple regression analyses demonstrated the variance contribution of condition and demographic variables to obtained knowledge to be non-significant, and partial correlation analyses showed only weak, often non-significant correlations between perceived knowledge and obtained knowledge.

Overall, poor survey performance indicated the majority of teachers in both conditions did not possess the necessary code-based reading knowledge or application skills to effectively teach struggling readers. These findings seem to indicate teachers are not provided with knowledge of the structure of language and code-based concepts adequate to provide effective instruction to struggling readers. "Even with well-designed teaching materials to guide instruction, teachers still require 'specific and explicit linguistic knowledge' to address students' needs adequately and appropriately" (Cohen et al., 2017).

Merely recognizing and discussing the importance of explicit phonics and teachers' perceptions on the matter is not enough. In a study by Double et al. (2019), research was conducted on the longitudinal reading comprehension performance of students who were able to increase their phonetic decoding to the expected standard. Students who passed the first phonics check were classified as the pass category. Students who did not pass the first phonics check, but then passed the phonics check on their second try were classified as fail-pass. Finally, students who failed both the first and second phonics check were classified as fail-fail.

The fail–pass group significantly outperformed the fail–fail group (b = 0.18, t = 12.80, p < 0.001). Furthermore, the pass group performed significantly better than the fail–pass group (b = 0.34, t = 23.12, p < 0.001). Re-running the model with the fail–fail group as the reference group indicated the pass group significantly outperformed the fail–fail group (b = 0.62, t = 29.81, p < 0.001), as expected. These results suggest the phonics check is a major predictor of later reading comprehension performance. It is vitally important phonics problems are addressed and alleviated quickly for reading performance in later schooling years.

When contemplating and planning phonics instruction, does the order of phonics and sight word instruction have different effects on the reading skills of children? McArthur et al.

(2015) sought to answer this research question. Seventy-two students ages seven to twelve were split into two groups for this study. Sight word training led to significant gains in sight word reading measures larger than gains made from phonics training, phonics training led to statistically significant gains in a phonics reading measure larger than gains made from sight word training, and both types of training led to significant gains in general reading similar in size. Training phonics before sight words had a slight advantage over the reverse order.

In trained regular word accuracy, 16 weeks of phonics and sight word training had a very large and significant training effect on trained irregular word accuracy. The repeated measures ANCOVA revealed an effect of gain because the T1T4 gains were larger than T1T3 gains, $F(1, 100) = 12.06$, $p < .01$. There was also a significant effect of group because the T1T3 and T1T4 gains (averaged) were larger in groups completing sight word training before phonics training (i.e., the sight word + phonics group), $F(2, 100) = 3.28$, $p = .04$. More interesting, there was a significant group by gain interaction, $F(2, 100) = 8.35$, $p < .01$. This occurred because the phonics + sight word group made smaller gains in their first 8 weeks of training (phonics) than the two groups completing sight word training, but then made much larger gains than these groups when they did sight word training in the last 8 weeks. In other words, training order had a significant effect on untrained irregular word accuracy test. This was in the predicted direction as the groups completing phonics before sight word training made significantly greater gains than the group who did sight word training and then phonics training.

Schaars et al. (2017) aimed to investigate the development of word decoding skills for 973 elementary students during incremental phonics instruction as a transparent orthography. This study explored how accurate and efficient incremental curriculum embedded word decoding skills are of children during phonics instruction, and how stable its development is over time. At

the end of kindergarten, an individual assessment of about thirty minutes was conducted to screen baseline precursors, which were assumed to be involved in reading development. The tasks were conducted in the same fixed order for all children. During the practice items, some help and feedback was allowed, but during the actual tasks, no feedback on the correctness of item scores was provided to the children.

Children achieved on average over 90% accuracy (M = 92.38%, SD = 10.78) in word decoding from the first measurement moment on (i.e., after 4 weeks of formal reading instruction). For word decoding efficiency, repeated measures analysis of variance (ANOVA RM) with measurement moment of Word Decoding efficiency (WDc) as independent variable showed a significant effect of measurement moment, F (5,4280) = 507.61, p\.001, g2 = .37. This indicated there was a significant increase of word decoding efficiency. It was found from the very first month, mean accuracy levels reached ceiling levels while the mean efficiency of word decoding continued to develop after each training block. The autoregression in the longitudinal path model also showed the individual differences calculated by the word decoding efficiency measurements during the first 5 months of instruction had a high level of stability over time. In other words, from the very beginning of learning to read, the word decoding efficiency later in time could be predicted by levels earlier in time. Curriculum embedded word decoding efficiency strongly predicted the independent standardized word decoding performance after five months of phonics instruction, which suggests a shift of gradually built-up word decoding skills to the effective decoding of new, non-trained words.

Methods

Participants

This research site is a public elementary school with approximately five hundred students in an urban setting in Des Moines, Iowa. 14% of students at this site receive special education services, 27% are English Language Learners, and 84% of students receive free and reduced lunch (DMPS Data Snapshot, 2019).

The research participants would include twenty-two kindergarten students. There are fifteen girls and seven boys. Seven students receive ELL (English Language Learner) services. One student receives speech services. The teacher completing this research is in her sixth year of teaching. She has five years of experience teaching kindergarten, and one-year experience as a reading interventionist for first and third-grade students. The teacher has had numerous professional development trainings for various reading curriculum implementation and teaching strategies.

Measures

The research question is, "What are the effects of differentiated literacy instruction in kindergarten?" The independent variables will be the strategies the researcher implements with the students to differentiate learning in literacy. This includes teaching strategies, incorporating various learning styles of students, and implementing differentiated, multi-sensory curriculum. The data collected for the independent variable will be a phonics pre-assessment through FAST (Formative Assessment System for Teachers) (FAST, 2020). This pre-assessment includes a baseline composite score from kindergarten literacy subtests (letter sounds, onset sounds, nonsense words, word segmenting).

The dependent variables will be the student outcomes in literacy based on the teaching methods implemented. The data collected for the dependent variable will be phonics post-assessment through FAST (FAST, 2020). The timeline for conducting this action research is eight weeks. This will give time for the quantitative phonics pre-assessment, time to plan implement differentiated literacy activities tailored to various learning styles, time to collect purposeful and relevant quantitative data, and time to give a post-assessment on literacy skills based on the differentiation implemented.

The researcher has gained exemption on this study. This action research falls under the exemption category in federal policy §46.104. "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. This includes most research on regular and special education instructional strategies, and research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods" (Electronic Code of Federal Regulations, 2018).

Data Collection

  For this action research, the data collected was quantitative. The data includes a baseline composite score from kindergarten literacy subtests (letter sounds, onset sounds, nonsense words, word segmenting) and ending scores after various differentiation practices explicitly teaching phonics were implanted on top of what the school district was already providing via their curriculum. The data also includes a comparison of the action research participants scores versus peers in the same school district who were not implementing these differentiation practices, rather teaching from a scripted phonics curriculum.

  The baseline composite scores, ending composite scores, and comparison of peers were collected using a FastBridge assessment. FAST data is valid and reliable in that it meets the requirements of the Early Literacy Initiative as part of Iowa Code Section 279.68. "One of the hallmarks of a well-developed MTSS (Multi-Tiered System of Support) process and a balanced assessment system is the utilization of a valid and reliable universal screening and progress monitoring measures. The universal screening of all students, several times a year, enables educators to identify which students are on track to reach end of year outcomes and which students may be at risk" (FAST, 2020).

The letter sounds assessment gives students one minute to state as many letter sounds as possible out of 100 given lowercase letters. The baseline goal was 3 sounds per minute, and 26 sounds per minute for the ending goal, per the state of Iowa's proficiency cut points. During the onset sounds assessment, students view a page with four pictures, and must point to the picture with the correct beginning sound for each of the four pictures, as stated by the administer (i.e., "Point to the picture with the /b/ sound at the beginning." This process is repeated three additional times. The baseline goal was 11 correct answers out of 16, and 16 correct answers for the ending goal. The nonsense words assessment involves students blending three sounds together in a consonant-vowel-consonant (CVC) word, such as "kiv". This helps alleviate students simply memorizing familiar and popular words, such as "cat". To meet grade-level benchmark for this baseline assessment, students must have read 6 nonsense words in one minute, and 12 words for the ending goal. The word segmenting assessment involves the administer stating a CVC word clearly and pronounced. The student is asked to segment the word by pulling the sounds apart in each word and saying each sound individually. For example, for the word "dog", the student would state, "/d/ /o/ /g/". This process is repeated for ten words, giving students an opportunity to state 30 correct sounds total. This is an open-ended assessment with no time limit. The baseline goal was 25 correct sounds, and 30 correct sounds for the ending goal.

Findings

Data Analysis

A dependent samples t-test was conducted to determine whether there was a significant change in students' literacy scores following the implementation of differentiated literacy through explicit, multisensory phonics instruction. A baseline assessment revealed a composite score of 31.09 (M = 31.09, SD = 3.44, *n*=22). The post-assessment revealed a composite score of 53.9 (M = 53.9, SD = 4.25, *n=22*) following eight weeks of explicit, multisensory phonics practice with significant effect size t(21) = -27.81, p<.05. Findings from the dependent samples two-tailed t-test reveal a significant difference between the baseline and final assessment. Explicit, multisensory phonics instruction increased students' overall literacy scores. Furthermore, when comparing research participants mean ending score to grade-level peers who did not engage in the explicit, multisensory literacy differentiation practices, there is more significant growth for the research participants.

Chart 1

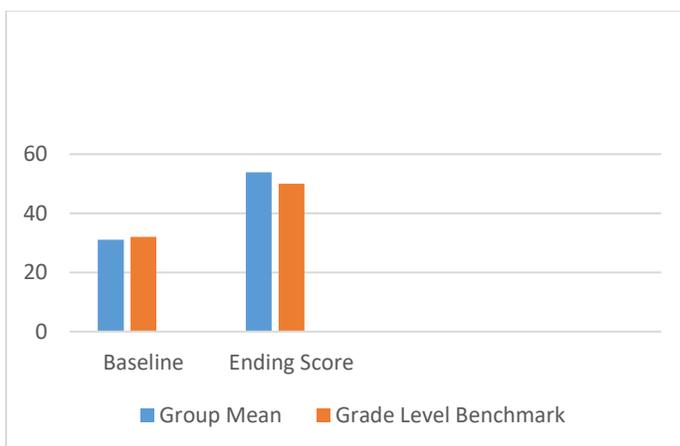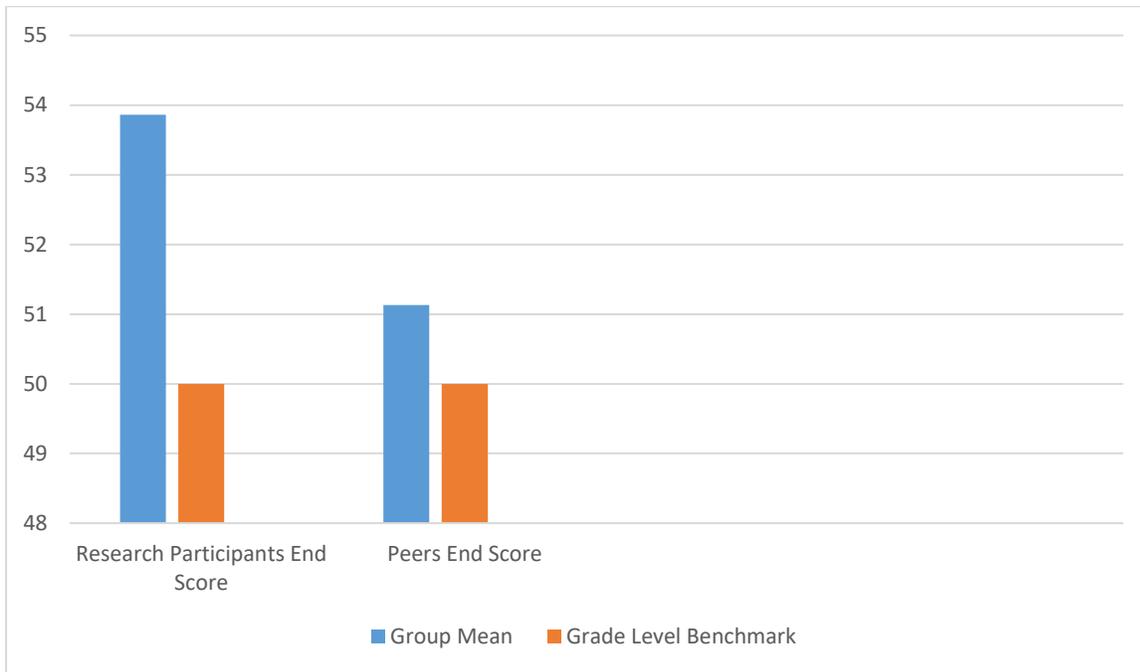*Participants Mean at Baseline and Mean Ending Score Bar Graph*

Chart 2

Research Participants Mean Ending Scores Compared to Grade-Level Peers Mean Scores

Discussion

Summary of Major Findings

The overall analysis of the data collected between the FAST assessment screenings show students made increases in their literacy skills, specifically phonics skills, over the eight-week period. 100% of participants in the research study made growth with their literacy skills based on the four sub-components of the FAST assessment. Participants in this study had an ending score 7.72% higher than the grade-level benchmark indicating whether a student is proficient or not. Students in the research study also had an average ending FAST score 5.3% higher than grade-level peers. These findings indicate differentiated literacy practices, such as multi-sensory learning, explicit phonics instruction, positive teacher-student relationships, and student learning styles, have a positive outcome on student achievement.

Limitations of the Study

Several potential limitations might influence the results of this proposed research. Student absences could be a risk to internal validity as my school has a high rate of absenteeism among students. If students are unable to be present to participate in the learning, then their scores may be less valid. Negative classroom behaviors may pose a threat to internal validity. "They find that exposure to disruptive peers in childhood has significant long-run consequences for both educational achievement and earnings in early adulthood. They estimate that exposure to one additional disruptive student in a class of 25 throughout elementary school reduces math and reading test scores in grades 9 and 10 by 0.02 standard deviations" (Fitzgerald, 2016).

Parental involvement or lack of could be a risk to internal validity. If one child is receiving additional support and resources at home, and another child is not, this could affect the results of the data. "Researchers found a strong correlation between parental involvement and

overall academic achievement. They showed that parental and familial involvement also improved grades when measured for each subject. This research also found that parents' or family expectations and aspirations for their students have the most significant impact on academic achievement. Children whose families take an active role in their children's education—even if that merely means communicating that school matters—have better academic performance than children with less engaged families" (The Relationship Between Parental and Family Involvement and Student Success, 2020).

Student maturity or readiness to learn may also be a potential limitation to the action research. If a child is simply not ready to learn the material, it is more difficult for him or her to retain and recall information. "Children's development is highly uneven, with bursts of improvement in language, fine motor skills, and other capacities coming somewhat unpredictably" (Schanzenbach & Larson, 2017).

Student health could affect the internal validity of the research. Many students come to school without their basic needs being met at home, such as proper nutrition, clothing, cleanliness, and sleep. "Many children experience all of this on a regular basis. (In fact, in the US, 1 in 7 children live with hunger, and in the 2015–2016 school year, more than 1.3 million students were identified as being homeless.) Not being able to meet those basic survival needs— having enough food and water, and a place to go home to and sleep—can severely impact the learning process, setting students up for years of struggling" (Almozara, 2019).

Further Study

The next step will be to implement this action research in other kindergarten classrooms within the researcher's building. Teachers will be presented with the information from the study, such as data, analysis, and findings, highlighting student success. Seeing the amount of student

achievement from this study will hopefully inspire other kindergarten teachers to implement these differentiated literacy practices within their own classrooms. Teachers would engage in various online trainings to understand the processes, materials, and direct instruction related to the various differentiated literacy practices conducted in this study.

Additionally, a future step will be to continue to monitor the twenty-two kindergarten students who participated in this study throughout the remainder of the school year to analyze growth and modify instruction appropriately. The researcher will continue to implement multi-sensory learning, explicit phonics instruction, positive teacher-student relationships, and consider the various learning styles of students.

Conclusion

This study explored the question, "What are the effects of differentiated literacy instruction in a kindergarten classroom?" The twenty-two kindergarten students participating in this action research benefited from engaging in an eight-week intervention to increase their literacy skills, specifically letter sounds, onset sounds, nonsense words, and word segmenting. The participants engaged in multisensory learning and explicit phonics instruction, while the researcher took into consideration various student learning styles, while also building positive relationships with each student. This type of class-wide literacy intervention increases overall literacy scores, specifically a 7.72% increase compared to the grade-level benchmark indicating whether a student is proficient or not, as well as a 5.3% increase compared to grade-level peers.

Furthermore, the information from this study is important for educators, as it emphasizes the impact of differentiated literacy instruction on student outcomes. The research done during this study validates previous research done on this topic, as the success of using differentiated literacy practices has been examined. Further study on this topic will help to offer even more specific data on the effectiveness of each differentiated literacy practice. Differentiating literacy instruction is vital to the success of students. Each student is unique and brings his or her own set of needs to the classroom. The educator must recognize various needs and plan instruction accordingly.

Going forward, further information will lead to a deeper perspective on the effectiveness of differentiated literacy practices and how beneficial these practices can be to student success, not only in kindergarten but for years to come. "Reading is an exercise for the mind. It helps kids calm down and relax, opening doors of new knowledge to enlighten their minds. Kids who read grow up to have better cognitive skills. Reading books also reduces stress, helps you sleep better,

improves health, develops your imagination and above all: it is just fun to do" (Importance of

Reading, n.d.)

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