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The Effects of Art Integration on Math Achievement of 6th Grade Male Students

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Abstract

The United States educational system continues to cut back on art programing; however, international statistics report countries with a stronger art presence continuously perform at higher academic levels. Art integration provides multiple pathways through curriculums and enables engaging learning environment. Art integration refers to three forms of art collaboration: learning in core subjects with and through the arts, creating interdisciplinary connections throughout curriculums and collaboration engagement. When all three of these forms are combined, casual relationships with increased student achievement and higher levels of engagement are formed. This study examined the effects of art integration on math achievement on male middle school students. The control and experimental group completed a pre- and post-test to assess academic achievement. The control group received math instruction from the math teacher using textbooks, teacher created problems, and only math content, while the experimental group received math instruction with art integration. Student engagement was also measured for both groups. It was hypothesized that art integration would increase academic achievement and student engagement in math for 6th grade boys. Results from four independent sample t-tests supported the hypothesis.

Keywords: art integration, male students, academic achievement, student engagement

Art integration is an undervalued tool in the current education system and has been linked to heightened student engagement and academic achievement when correctly integrated into core classes (Carney, Weltsek, Hall & Brinn, 2016; Maguire, Donovan, Mishook, Gaillande & Garcia, 2012; Melnick, Witmer & Strickland, 2011; Robinson, 2013). Melnick, Witmer and Strickland (2011) found that students who attend schools with art instruction have higher levels of academic achievement than students who attend schools with no art instruction, most notably in reading competencies and mathematics. Additionally, art education is believed to benefit school-wide curriculum and school attendance, and can even lead to lower drop-out rates (Fehr, 2008; Melnick et al., 2011). Despite these positive correlations, art education programs have been cut nationally as educational budgets have decreased over the years, and more money is allocated to programs with higher levels of need (Shaw, 2018; Spohn, 2008). Cities such as Buffalo, Milwaukee, New York City and Los Angeles have faced budget deficiencies and executed extreme program cuts directly affecting art programs in recent years (Shaw, 2018). The high stakes test climate that has been created for the educational system through legislature such as No Child Left Behind (NCLB) has demanded that more money and time be allocated to the testing subjects and taken away from non-testing subjects (Shaw, 2018; Spohn, 2008). Many districts are looking to cut back on art programs when districts and administrators should be looking more closely at the benefits of academic achievement and school culture from art integration.

Art Integration

Art integration encompasses learning in core subjects with and through the arts, creating interdisciplinary connections throughout curriculums and collaboration engagement (Robinson, 2013). There are four main approaches to art integration: subservient, coequal integration, affective integration and social integration. While there are four approaches to art integration, coequal integration provides cohesive integration along with the best learning opportunities for students (Robinson, 2013). Art integration requires art standards be combined with the common core standards, but also requires both teachers to have multiple subject knowledge, which is rare. Concepts and standards that work together and mutually build on one another will best encompass coequal integration (Smilan, 2016). Coequal integration requires students to use high level thinking strategies and twenty-first century skills.

Art integration, in the form of coequal integration, provides access to curriculum through multiple pathways and supports whole brain learning (Carney et al., 2016). Successful integration facilitates the discovery of cross-curricular connections, providing students skills across multiple disciplines that can then be built upon independently (Carney et al., 2016). This type of classroom and learn is closely

linked to Vygotsky's concept of the zone of proximal development. Carney et al. (2016) define the zone of proximal development as the type of learning that occurs when a student transitions from learning through teacher assistance to learning on their own. This zone is reached through art integration by allowing students to channel both concrete and abstract thought processes. Lev Vygotsky developed the concept of the zone of proximal development which is still widely used in scaffolding techniques in education (Wass & Golding, 2014). Vygotsky believed that a key process in learning was to facilitate and provide skills to help transition leaners into performing new skills independently (Wass & Golding, 2014). Reaching the zone of proximal development allows students to interact with concepts and tools they normally would not be able to handle in order to develop understanding or master a skill (Danish, Saleh, Andrade and Bryan, 2017). As stated by Carney et al. (2016), art fosters the ability for students to learn new techniques and skills through teacher guidance which easily transfers into individual and independent studio practices.

Similar to Vygotsky's Zone of Proximal Development theory, John Dewey developed the constructivism theory. Dewey believed that learning was obtained through experiences and ideas built upon foundational and prior knowledge (Krahenbuhl, 2016). Krahenbuhl (2016) defines constructivism as the ideology that acquiring knowledge is not an act of discovery but a construction of the mind. Constructivism supports the need for art integration through the use and explanation of student agency. Learning through art integration is a process of growth and innovation (Selkrig, 2017). Within the theory of constructivism, children not only absorb the knowledge, but also build upon that knowledge and through experience and recreate it in a new perspective. Art integration provides that channel to recreate different content knowledge and re-examine what was learned through a new lens (Thompson, 2015). Providing student choice is a common feature of constructivist classrooms, which is ingrained within art integration (Krahenbugl, 2016; Thompson, 2015). Art integration will provide students the means to explore content and connections through numerous different skills and materials or to present their knowledge and understanding of a subject in a variety of ways. Currently in education, the focus is on measuring student learning through narrow parameters of standardized tests and procedures, but many students need more than that to learn and express their knowledge. The inclusion of constructivism practices through art integration create a positive learning environment for both student and teacher.

The model of Bloom's Taxonomy can help support the constructivism learning theory. Bloom's Taxonomy creates a hierarchy of cognitive models that helps to lead instruction through a ladder of learning processes and mastery (Ellis, 2016). In Bloom's Taxonomy, creating is held as the highest level of mastery and regarded as a highly cognitive process (Ellis, 2016). Art integration fosters creativity, which promotes connections throughout different subjects (Ellis, 2016). Creating, the top tier of the revised taxonomy, can include a variety of skills and forces students to recall the five previous steps mastered while constructing new and authentic products. Bloom's Taxonomy has thematic commonalities with art integration in that it strives to break the boundaries of traditional learning and provide a range of educational possibilities across curriculums (Krathwohl, 2002).

Art Integration and Academic Achievement

Art integration has many benefits that affect academic achievement and school culture. Art classrooms typically promote acceptance, exploration, discovery and diversity in opinions through self-expression and collaboration (Maguire et al., 2012). Creating an environment in which students feel respected and able to take risks has also been linked to academic achievement (Maguire et al., 2012; Mikami, Ruzek, Hafen, Gregory & Allen, 2017; Rapp-Paglicci, Stewart & Rowe, 2011). Students who have had negative interactions with peers in the classroom show decreased levels of participation, engagement and confidence, which directly lead to underachievement (Mikami et al., 2017). This environment of acceptance and the ability to take risks inspires self-efficacy with students, which generates problem-solving skills (Claymier, 2014). These characteristics establish respectful and interactive relationships between students, spurring student engagement, and leading to higher academic achievement (Hentges, 2016).

Several studies have found casual relationships between arts integration and academic achievement. Melnick et al., (2011) addressed the prevalence of art instruction as well as additional exposure to art programs outside of school. According to Melnick et al. (2011), neuroscience has recently delved into the cognitive connections that art integration can ignite in the learning process. Most deep learning requires a continual flow of sensory information, making art the perfect catalyst (Melnick

et al., 2011). Melnick et al. (2011) conducted a study that examined the data from the Early Childhood Longitudinal Study K of approximately 8,000 children. Melnick el al. (2011) aimed to examine the academic impact that both school and home-based art programs had on student achievement. Teachers evaluated fifth grade students on reading and math skills using a scale of 1 to 5, excluding students with special needs. Students who participated in art programs both in school and at home scored significantly higher on teacher evaluations of reading and math competencies. Melnick et al. (2011) concluded that family involvement in the arts in addition to school art instruction yielded the highest levels of student achievement but noted that much of the data regarding student performance came from teacher reports, which could present bias.

Maguire et al. (2012) studied four urban high schools to examine the effects of art education. These high schools work with art non-profits to provide art instruction and experience. Maguire et al. (2012) looked into the types of art instruction provided by the schools, and if the instruction was providing positive academic outcomes and engagement, as reported by the students. Maguire et al. (2012) collected data using student surveys, pre- and post-surveys from focus groups and additional information provided by the art program and school district. The focus groups consisted of small groups of secondary students randomly picked to discuss their interpretation of the art instruction provided by the school. The surveys conducted after the focus groups asked questions in regards to practical reasoning, resilience, disposition, integrity, and social awareness. These responses were compared across the participating schools and used to assist in creating follow up focus groups to further understand the students' interpretation of the art instruction received. The results showed that the students with the highest grades had the most exposure to art programs within their schools. The high school with the highest number of students reporting participation in art programs, 57%, also reported having a higher mean of GPAs (Maguire et al., 2012). This data relates to the finding from Robinson (2013) that students with more years of art class experience had consistently higher scores on the SATs. In addition, all five schools in the study reported higher graduation rates than surrounding neighborhood schools which average a 56% graduation rate (Maguire et al., 2012). Maguire et al. (2012) concluded that increased exposure to art instruction provided enhanced overall learning experiences.

Internationally, the inclusion of art classes has increased test scores as well. Countries that typically outscore the U.S. on the international assessments Trends in International Mathematics and Science Study (TIMSS) and Progress in International Reading Literacy Study (PIRLS) provide their students with more exposure and class time within the arts (Robinson, 2013). Countries considered top-performers, such as Finland, Hong Kong and Singapore, value the importance of supplying their students with a well-rounded education and increased time studying the arts (Robinson, 2013). Art education in Finland occurs in 80% of total instructional hours because art is integrated into all subjects and taught as an individual class as well (Robinson, 2013). Asian countries such as Japan, South Korea, China and Singapore report increasing art education through organizations, resources, professional development, and mandating time within the curriculum for art education (Robinson, 2013). Of the previously mentioned countries, in 2011 Singapore, Japan, Korea, and Finland all performed better on the fourth and eighth grade TIMSS and PIRLS assessments (Robinson, 2013). The inclusion of art education and its connection to higher academic performance of many international education systems should raise awareness that the inclusion of art integration within the United States educational system would be beneficial.

Art and Engagement

High levels of student engagement increase academic achievement and student interest levels (Waggett et al., 2017). Developing an artistic understanding in students can produce several types of engagement (Lekue, 2015). Artistic understanding is defined by Lekue (2015, p.2) as "the ability to think and act flexibly" within different subjects and contents. Once students have developed artistic understanding, students can exhibit cognitive engagement through the natural process and steps of creating art (Lekue, 2015). Cognitive engagement is defined as a method of processing knowledge, typically blending new knowledge with current knowledge (Lekue, 2015). In addition, art integration allows culture and student interests to be woven into different subjects, creating greater connections for students to lead to higher levels of engagement (Melnick et al., 2011).

Teachers have begun to assess their method and ability to increase student engagement in order to promote increased student interest and academic achievement. Student engagement is commonly

perceived to encompass good behavior, participation and answering questions; however, Waggett et al. (2017) claim that this common assessment of engagement is incorrect. "True engagement" contains intrinsic connections to self-motivation and realized purpose and value (Waggett et al., 2017). Students need to believe that the learning experience is important and be confident in completing the work (Hentges, 2016). Waggett et al. (2017) created a checklist based on five levels of engagement, which address the student's intrinsic engagement. The five levels of engagement are true engagement, strategic compliance, ritual compliance, retreatism and rebellion (Waggett et al., 2017). Waggett et al. (2017) tested the checklist at a professional development workshop on secondary math and science teachers using a test re-test method. Preceding two model lessons, the educators completed the engagement survey immediately after the lesson and again 18 hours later. There was little variance between the individual answers indicating that the survey accurately recorded the levels of engagement (Waggett et al., 2017).

Having discussed how student engagement is closely linked to academic achievement, there are engagement and motivation differences between boys and girls. Many engagement and learning differences can be attributed to the developmental differences between boys and girls (James, 2015). The brain develops differently for girls and boys, causing an initial imbalance in cognitive development, specifically in mathematics (James, 2015). The hippocampus, which is connected to mathematical calculation and arithmetic, among other skills, develops sooner for girls than for boys (James, 2015). In addition, boys' brains go into a rest state more than girls during instruction (King, Gurian, & Stevens, 2010). The rest state is comparable to a state of boredom or "zoning out" and occurs when there are not enough stimuli throughout the classroom or instruction to keep them focused (King et al., 2010). A significant area of difficulty in the classroom for boys is having low motivation to learn and the belief that the curriculum content is relevant for them which can be partially explained by the higher frequency of "zoning out" (King et al., 2010). The combination of these developmental factors creates the need for curriculum that provides stimulating instructions in multiple ways.

Gender relevant curriculum is a response to the underachievement and disengagement displayed by males in a school setting (Bristol, 2015). Bristol (2015) states that providing experiential learning opportunities and nontraditional academic experiences helps to re-engage boys in the learning process. Boys are often described as graphic thinkers and excel in kinetic settings (King et al., 2010). Male students thrive in environments with stimulating and engaging instruction, which art integration can supply through kinetic learning opportunities (Robinson, 2013). Rawle (2017) states kinetic learning is a highly engaging tactic for motivating students. Kinetic learning often best demonstrated through art instruction, and can provide non-traditional methods in the classroom, fostering student engagement and academic achievement. A shift in learning environments to blend multiple subjects will provide relevant and meaningful instruction that reaches more students and provides heightened engagement and academic achievement.

Art Integration Limitations

Art integration is often unsuccessful because full integration is not met. For art to be fully integrated into a subject the art teacher and classroom teacher must be invested in the collaboration and the content (Smilan, 2016). Typically, an art class is a mix of academic standards and studio practices, but art integration needs to be a collaboration between the classroom teacher, art teacher and if available, teaching artist. True art integration has had positive results with student achievement and engagement; however, those who attempt it without proper training, time or resources usually fall short (Hallmark, 2012).

Even though research on art integration is still in its infancy, lack of time and resources, as described by Hallmark (2012) are the cause of unclear outcomes. Rapp-Paglicci et al. (2011) conducted a quasi-experimental study that centered on a pre- and post-test given to 108 at-risk youths and their parents to determine the effects of self-regulation skills and art programs on academic achievement. Self-regulation skills are defined as a set of skills balancing on both the emotional and functional controls to achieve goals. Many times, these skills are supported within art programs with the addition of life and social skills (Rapp-Paglicci et al., 2011). Rapp-Paglicci et al. (2011) collected data through surveys completed by students and parents monitoring the student's perception of self-efficacy and "school performance variables." The students participated in an art instruction program for two months with teaching artists trained to incorporate self-regulation skills into the curriculum (Rapp-Paglicci et al., 2011). The results indicated no significant improvements overall

in academic achievement with minor improvements scattered throughout math, reading, English and attendance (Rapp-Paglicci et al., 2011). Rapp-Paglicci et al. (2011) consider previous similar studies with a longer timeline and conclude that the amount of time, eight weeks, was not enough to generate the results desired.

Hallmark (2012) sheds light on the lack of consistency in art education among educators regarding ideology and implementation which causes unsuccessful attempts of art integration to often occur. The definition of art integration differs from school to school and even from teacher to teacher in some cases creating uneven results. Hallmark (2012) names the inconsistencies as lack of resources, lack of time and lack of training within both art and classroom educators. Art educators are continuously trained in traditional teaching pedagogy. To have educators ready to initiate the shift to art integration, the training and professional development need to provide that support. Through a study based on a district with high levels of art collaboration, Hallmark (2012) created three frameworks for art integration: arts as craftsmanship, arts as play and arts as inquiry. Within each of these frameworks, the arts collectively blend content and inquiry with other subjects (Hallmark, 2012). Hallmark's (2012) study provides insight into how art integration could be included within high-level training and teacher preparation programs.

Along with a lack of time and resources allocated to art integration, there is currently a lack of research on the art integration and its effects. Robinson (2013) analyzed at seven meta-analyses and out of those seven, only one addressed full art integration. Additionally, Robinson (2012) searched sixteen databases using specific criteria to uncover studies based on art integration with disadvantaged students. Robinson (2013) analyzed forty-four studies on the effects of art integration within one or more subjects. Of these forty-four studies only five of them focused on visual art integration, with one reporting positive effects (Robinson, 2013). In this wide-ranging survey, Robinson (2013) exposes the lack of research, specifically in visual art integration effects.

Purpose Statement

The purpose of the proposed research is to determine whether art integration can raise student achievement and engagement, specifically for male students. Art programs are being cut due to budget constraints, even though art integration can be a tool used within core classes (Carney, Weltsek, Hall & Brinn, 2016; Maguire, Donovan, Mishook, Gaillande & Garcia, 2012; Melnick, Witmer & Strickland, 2011; Robinson, 2013). Results from past research suggest casual relationships of art integration to student engagement and academic achievement (Hallmark, 2012; Maguire et al., 2012; Melnick et al., 2011; Rapp-Paglicci et al., 2011; Robinson, 2012). International education systems with high percentages of art integration continue to outperform the Unites States on international assessments (Robinson, 2013). The awareness of art integration benefits is slowly rising; however, research regarding true art integration is in its infancy due to lack of time and resources (Hallmark, 2012). Single content specific research focused on art integration with specific populations is necessary to provide accurate information about art integration. This author will focus on art integration paired with math instruction with adolescent males to measure the effect it has on academic achievement and engagement. This author's hypothesis is that art integration in math instruction will increase student achievement and engagement for sixth grade boys.

Methods

Participants

Thirty-one students from a private middle school in the Northeast United States were assigned to two equal classes through randomization (one class was the control group and one class was the experimental group). The participants range from ten to eleven years old and are all in sixth grade. Due to the school being an all-boys middle school, the participants are all males. Seventy percent of the participants receive free and reduced lunch. The demographics of the participants are as follows: thirty-seven percent African American, twenty-nine percent Hispanic, twenty-two percent biracial and twelve percent Asian. There were no incentives given to the participants.

Materials

Daily instruction. Throughout math instruction the control group used a textbook provided by the math teacher. Students provided themselves with an individual notebook, calculator, pen and pencil. Throughout math instruction and art integration the experimental group used a textbook, individual notebook, calculator, pencil, pens, colored pencils, acrylic paint, paint brushes and white paper. The art supplies were provided by the art teacher. The math teacher used a whiteboard to demonstrate problems on with whiteboard markers as well as a projector and iPad. The iPad is an iPad Pro, with a

12.9-inch display screen and 64 GB. The projector is Epson VS250 SVGA 3LCD projector, positioned on a table, projecting onto the whiteboard.

Math achievement. The control and experimental groups both used the same exam for measuring math achievement. The pre- and post-test was the math achievement portion of the Education Records Bureau (ERB) Independent School Entrance Exam (ISEE) practice test. This is a paper and pencil test consisting of twenty-five multiple-choice questions. Each participant was given an answer sheet, which was numbered one to twenty-five with the letters A, B, C and D next to each number. Participants are not permitted to use scratch paper or calculators but can write on the test if necessary. The math achievement practice exam covers number operations, algebra, geometry, measurement, data analysis and probability and problem solving. A sample question would be: Which whole number is divisible by 9 without a remainder? A) 2,001 B) 2,003 C) 2,005 D) 2,007. This exam was given prior to the treatment phase to collect baseline data and after the eight-week treatment phase to assess academic achievement. This material was selected because the school uses the actual ERB ISEE exam to assess student learning at the end of each school year.

The ERB ISEE provides an exam that evaluates a student's content knowledge as aligned with the national standards (ERB, 2016). The school in which the participants attend does not participate in the state exams, so the ISEE serves as a credible assessment tool to assess academic achievement. The scoring of the math achievement exam was conducted through the ERB scoring method. A raw score, which is the number of correctly answered questions, was recorded for each participant. Participants do not lose points for incorrect or unanswered questions. When typically taking the ERB exams, students receive a raw score, scaled score and quartile score to compare their score to other students nationwide. Since the experiment compared the control and experimental groups, only the raw score was used. Once a raw score was obtained for all participants, the mean score was compared for both the pre- and post-test. The ISEE provides the answer key for the multiple-choice questions. Since there is only one possible answer and no points are given for amount of work shown, this provides a high level of reliability in scoring and accuracy. The tests produced by the ERB are aligned with best practices for assessment and the National Common Core Standards, which provides validity within the content assessed (ERB, 2016). Since 1927, the ERB has been developing tests for the Northeast region (ERB, 2016). Questions on the ISEE are created by ERB faculty that represent independent schools nationwide and work in collaboration with specialists at measurement incorporated (ERB, 2016).

Student engagement. Student engagement levels were monitored throughout the research study to help support the academic achievement data. The participants in both groups completed a survey (see Appendix A) created by Waggett et al. (2017) to evaluate student engagement after each unit in the eight-week treatment phase. This survey was composed to address the five levels of engagement; true engagement, strategic compliance, ritual compliance, retreatism and rebellion. An example statement from the survey is: I saw this assignment as meaningful and believe something of worth may be accomplished by doing this task. This survey was on a half sheet of paper and completed with pencil or pen.

The student engagement survey (see Appendix A), consisting of five statements, was collected three times for both the control and experimental group. Both groups completed the engagement survey during the first, fifth and last week of the research study. The survey results were tallied up by the number of responses received for each statement on the survey. The statements are labeled with letters A, B, C, D and E; with the highest level of engagement statement being labeled A and the lowest level of engagement statement being labeled E. The number of responses for each statement was recorded in both groups. More responses recorded for statements A and B signify higher levels of student achievement. The student engagement data is an informal assessment tool, used to supplement the academic achievement data. Wagget et al. (2017), the developers of this survey, proved the reliability of this tool through a test-retest method. After giving the initial engagement survey, the same survey was given again eighteen hours later and the results revealed a high degree of correlation between the responses (Wagget et al., 2017). High levels of student engagement are a reliable tool to predict the effectiveness on academic achievement, as student engagement has been positively linked to academic achievement (Hao, Yunhuo & Wenye, 2018). Hao et al. (2018) report a positive correlation between behavioral, cognitive, and emotional engagement and academic achievement. This coincides with the Wagget et al. (2017) assessment and survey basis that engagement goes deeper than just behavioral observation data.

Procedures

Math achievement. The study conducted followed an A versus no A research design. Initially baseline data was collected through a pre-test prior to any art infusion. For the pre-test measure, the participants competed the ERB ISEE practice test. Both groups completed the test in the classroom designated for math instruction. The ISEE test was administered by the math teacher. During administration, scripted directions provided by the ERB were provided orally and in writing on the first page of the test. The administration of directions occurred before the twenty-five minutes allotted for the exam. Additionally, the administrator provided time updates in five-minute increments orally and visually. The post-test was conducted in the same way as the pre-test after eight weeks of art infusion with math instruction for the experimental group and math instruction as it currently exists for the control group.

Student engagement. Student engagement data was collected through a survey as the two groups progress through their units. The survey consisted of five statements on a half sheet of paper (see Appendix A), which was administered by the math teacher at the end of a unit. The survey was the same for both the control and experimental group. Each participant circled the statement they felt best aligned with their thoughts on the most recently completed unit.

Experimental procedure. Once the pre-test was given, the treatment began. Participants in the control group received math instruction as it currently exists. A typical lesson starts out with a warm up question that lasted for five minutes. Students worked independently on the warm up problem. Next, the teacher began reviewing previous concepts or introducing a new concept, which took approximately fifteen minutes. Concepts are gone over verbally by the math teacher using a projector connected to an iPad or a whiteboard. The rest of the class period, which was approximately twenty minutes, classwork instruction was carried out in several ways depending on the lesson. Examples of classwork instructional methods includes: independent work, small group work, teacher assigned pair work, worksheets, textbook problems, use of the whiteboard, and/or problems created by the teacher.

One example of classwork with art integration combined studying ratios and fractions with color theory. To begin the lesson, participants began a warm up, which lasted for approximately five minutes. In the warm up, participants identified different fractions and ratios using shaded shapes and images, by writing the correct fraction and ratio next to the images. The math teacher then introduced the concept of adding fractions, which took approximately fifteen minutes. This concept was taught using the projector or whiteboard and students took notes in their individual notebooks. The classwork portion used art integration to reinforce the student's knowledge of adding fractions and provided additional practice. The participants applied their knowledge of ratios and fractions to color theory, learning about how to properly mix colors using ratios of different colors. Each participant created a new color recording the ratio of colors mixed. The classwork portion was facilitated by both this author and the math teacher. This author discussed color theory and the combination of colors to create new colors through modeling an example in front of the class of mixing the color green. Adding different ratios of yellow and blue produce different shades and tints of green. Participants used the color theory worksheet (see Appendix B) to complete their classwork activity. At the end of the class period the students work was collected.

Data Analysis

The dependent variables, academic achievement in math and student engagement, were assessed using four independent sample t-tests. The scores for the pre-test on math achievement were compared between the control and experimental groups along with comparing the student engagement survey responses. The post-test scores on math achievement were compared between the control and experimental groups along with the student engagement responses. The Education Records Bureau Independent School Entrance Exam mathematic achievement practice test assessed the academic achievement. The student engagement was assessed using a survey connected to the five levels of engagement, developed by Wagget et al. (2017). The mean scores from both the control and experimental group were compared and analyzed via the four independent samples t-test to determine which group had higher levels of academic achievement. Additionally, student engagement data was collected and the number of responses recorded for each statement was compared between the experimental and control groups using an independent samples t-test.

Results

The purpose of this study was to measure the effectiveness of art integration on academic achievement and student engagement in math for sixth grade male students. The students were assigned to two classes through randomization. The control group received traditional math instruction while the experimental group received math instruction with art integration. This researcher was interested to know whether academic achievement and student engagement would be higher with the addition of art integration. Both groups were assessed on academic achievement with the same pre- and post-test using the math achievement portion of the Independent School Entrance Exam practice test. Additionally, both groups completed a student engagement survey created by Waggett et al. (2017) after each unit. Independent sample t-tests were used to compare both groups in academic achievement and student engagement. An alpha level of .05 was used for all statistical tests. The results supported the hypothesis that art integration can create higher levels of academic achievement in math instruction and student engagement.

The independent samples t-test showed that the control group (M = 79.50, SD = 12.97) had a mean score that was 5 points higher than the experimental group (M = 72.80, SD = 13.46) on the ERB ISEE pre-test, $t(29) = 1.412$, $p = 0.169$.

The post-test did not show there was a significance difference between scores on the ERB ISEE mathematics achievement test, $t(29) = -0.381$, $p = 0.706$. The experimental group (M = 83.60, SD = 8.68) scored approximately one percentage point higher on the mean score than the control group (M = 82.25, SD = 10.83). However, the experimental group increased eleven percentages on their mean score, while the control group only raised their mean score by three percentage points. See Table 2 and *Figure 2* for t-test results on academic achievement pre- and post-test.

Results also show that the experimental group (M = 2.19, SD = 0.83) and the control group (M = 2.07, SD = 0.88) scored similarly on the initial student engagement survey with no statistical significance, $t(29) = 0.392$, $p = 0.698$. The experimental group recorded higher scores on the student engagement survey after the third unit with art integration, $t(29) = -8.807$, $p = < .001$. The experimental groups mean score on the final student engagement survey (M = 4.53, SD = 0.64) was twice that of the control group's mean score (M = 2.38, SD = 0.72). See Table 1 and *Figure 1* for t-test results on student engagement.

Overall findings confirmed an increase in performance for the experimental group over the control group for both academic achievement in math and student engagement. Findings suggest that the inclusion of art integration increased academic achievement in math as well as student engagement. The results for mathematic achievement were not statistically significant, however, the experimental group increased their mean score more than the control group. Therefore, the hypothesis that art integration will increase academic achievement and student engagement in math for sixth grade boys is supported.

Discussion

When employed correctly, art education is a tool that can help raise student engagement and academic achievement for middle school students (Hentges, 2016). Art education can provide multiple access points to curriculums, therefore allowing more points of understanding for students (Carney et al., 2016). Art integration provides students the opportunities to present their learned knowledge through alternative materials and approaches (Thompson, 2015). The results of this study demonstrated a positive increase in academic achievement in math for the experimental group. After receiving eight weeks of art integration, the experimental group made larger gains than the control group, by increasing their mean score by eleven percentage points. Both groups reported similarly low scores on the first measurement of student engagement; however the experimental group surpassed the control group by almost doubling the student engagement scores, showing that art integration has a substantial impact on student engagement. The results confirmed the hypothesis that art integration can be used as a tool to increase academic achievement in math for sixth grade male students. Additionally, the results confirmed that art integration can increase student engagement for sixth grade male students.

Art Integration Embodies Constructivism

The results of this study support the constructivist theory that providing more autonomy and choice within the classroom has a positive outcome (Krahenbugl, 2016; Thompson, 2015). Providing math instruction within an art studio setting opens up the possibilities for students to explore new concepts in different ways. Art instruction is often a

mix of lecturing and modeling, followed by student experimentation and exploration. Allowing students to independently work through techniques and skills provides a constructivist classroom experience (Carney et al., 2016). Fostering gradual independence is a key ideology within the constructivist theory as Vygotsky strongly believed in facilitation in the classroom (Wass & Golding, 2014). Facilitation allows the teacher to create an environment that promotes student independence and agency, which is a key characteristic of studio practice (Maguire et al., 2012). The control groups participated in an environment where student independence and choice was not a common factor within their math instruction. The experimental group was able to explore math concepts infused into art lessons during art class along with additional art inspired activities during their math instruction. Learning through art integration is a process of growth and innovation, which allowed the experimental group to take foundational math skills they had learned and recreate them and build upon it (Selkrig, 2017). Participants were able to reexamine content they had already been taught through a different lens, providing a deeper learning experience. Due to this experiential learning the experimental group was able to show more growth than the control group in math academic achievement.

Student engagement has shown positive casual relationships to higher academic achievement, when assessed correctly (Waggett et al., 2017). Most often educators look for physical signs of positive behavior and participation, mistaking it for engagement (Waggett et al., 2017). Initial responses to the engagement survey can be seen in *Figure 1*, showing that the control and experimental group reported similar engagement responses. After connecting math and art, the engagement responses began to increase for the experimental group. Providing clear pathways and connections across contents allows the students to visualize real life connections for both content areas. Participants began to point out other content areas that were prevalent in the projects such as biology, chemistry and history. As participants worked through watercolor techniques they pointed out many connections with science, specifically chemistry. Participants were eager to point out that the movement of water molecules due to temperature had a direct effect on the way their watercolor techniques turned out or that evaporation plays a part in how quickly the paint will dry. These independent connections that were made further reinforce the constructivist ideology that once a student is guided through skills they can begin to expand on them independently (Krahenbuhl, 2016). This study supports the fact that art integration can raise student engagement.

Study Limitations

The two groups that participated in the research study were comprised of only male students due to the fact that the participants attend an all-boys middle school. This allowed the researcher to focus on one specific gender for the duration of the study; however it limits the results to only describing the effects of art integration on males. A replica study with only female participants of the same age would provide comparison data on the effects of art integration between genders and would give a clearer set of data points. Additionally, providing data for a participant sample of mixed gender would round out the results. Although the sample size was limited to only males, the participants were diverse in both ethnicity and socioeconomic status. While the two classes were divided through randomization, the experimental group scored significantly lower on the pre-test than the control group. These results created an uneven starting point to begin the research and raised the question of whether or not the outcome would have been affected and still support the hypothesis once other skills were covered throughout the remainder of the year.

The art integration in this experiment heavily relied on the cooperation of the math teachers. Administration helped to create collaboration time at the request of this researcher, but the math teacher was often absent, leaving no lesson plans which caused delays or gaps within the research study. If the math teacher was absent the class was given a study hall, which meant no concepts were reviewed or learned. This made it difficult to maintain a steady timeline with art projects and also took away class periods that the art teacher could be involved in the math class instruction. True art integration is noted to have the strongest results, and that is only achieved when both educators have been trained appropriately and carry the same investment (Smilan, 2016). The math teacher involved in this researcher's experiment did not have the art knowledge and background required to cohesively collaborate with the art teacher. The art teacher did the planning in its entirety and executed the activities. Art was integrated into the math classroom as much as possible, but was emphasized more with the art lessons that involve math.

The amount of time put aside for solely art education within the school is only two class periods a week out of 38. This means that art education is only present for approximately five percent of instructional time within each regular school week. With the addition of art integration within the four weekly math classes, art is present for 21% of instructional time, which still is not enough in comparison with the international education community. In other countries such as Finland that outperform the United States on international tests, art is present in approximately 80% of instructional time (Robinson, 2013). Data from the study done by Robinson (2013), supported by international testing data suggests a casual relationship between art integration and academic achievement.

Suggestions for Future Research

A continuation on the study of the effect of art integration would be beneficial to provide a stronger set of data. Several factors could be changed in order to further investigate art integration. A larger sample size of both males and females would give crucial data that helps define the role gender plays in learning in relation to art integration. Different grade levels would provide a series of data on whether or not art integration is more effective in different stages of development for students. Art integration with different contents such as reading, science and history could provide additional knowledge on whether specific content areas provided stronger relationships and connections with art integration. Studies on art integration are in their infancy (Hallmark, 2012), so providing data on a variety of variables will only continue to help further understanding on the subject.

In the case of this research study, it would be beneficial to carry out art integration with eighth grade and measure the academic achievement within one content area such as math, because the students would all have been attending the same school for the entirety of their middle school career. This would provide a sample group of students coming from the same teaching styles for the previous three years and would eliminate the element of surprise of having brand new students from a variety of school cultures and curriculum. The participants within the study were approximately half new students to the school and half previously enrolled students, recruiting from private, charter and public schools. Sixth grade is the last year to accept new students into the school which created a sample from a multitude of academic backgrounds. This could have had an impact on the mathematic achievement imbalance on the pre-test.

Choosing the academic content based on the teacher and their background would incite a stronger collaboration bond and participation for the additional teacher working with the art educator. Working with a teacher who has a crafts or arts background would have created stronger collaboration and provided more background knowledge, producing a truer form of art integration. Full art integration requires positive collaboration and investment (Smilan, 2016) and improper collaboration is often cited as the biggest cause for unclear results (Hallmark, 2012).

Implications

The main implication of this study for participants is the fact that art integration can help create clear pathways of understanding and provide meaningful engagement in both art curriculum and additional content areas. Following art integration in math instruction, student engagement scores approximately doubled for the experimental group. Participants transitioned from being provided and guided through the cross curricular connections to independently identifying them and expanding beyond math. The academic achievement intervention also showed a high level of growth for participants after receiving art integration. Although the results were not statistically significant, the experimental group had more growth in their mean score on the post-test.

An additional implication for educators is that art integration training and knowledge should be provided by administrators. When given the necessary tools and time, art integration has the possibility to increase academic achievement and student engagement. More collaboration time built into the academic year and professional development targeting art integration to provide quality training to both art educators and other content areas would be beneficial. This training would need to begin for art educators by creating common terminology and pedagogy nationally. Many art educators have different interpretations of processes such as art integration causing a lot of confusion and inconsistent data regarding the positive effects of art education (Hallmark, 2012). Once art educators create a common pedagogy, professional development can begin to help create positive collaboration opportunities to begin effectively and correctly creating art integration. The current study suggests that incorporating art integration will provide students the tools to independently make cross curricular connections and perform higher academically.

Implications exist at a national level as well for legislators. Many countries consistently outperform the United States on international tests and report higher levels of art education by increased instructional time, additional art programs in schools and professional development (Robinson, 2013). Providing higher quality art education and introducing more minutes of art integration into the total instructional teaching times will help the United States to perform equally if not better than other countries internationally within education.

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Getting into character: A qualitative study on readers' theater and fluency

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Abstract

The need for fluent readers is clear in schools today as many readers are lacking reading fluency. This qualitative study examined the influence Readers' Theater, a reading strategy, has on reading fluency. The following questions were addressed: 1) How does Reader's Theater influence reading fluency? 2) How did students' self-assessment influence reading fluency? 3) How did teacher assessment influence reading fluency? The participants included four third-grade students from an elementary school in the Midwest. The findings suggested that Readers' Theater positively influenced student's reading fluency. Students' self-assessment was helpful in getting students to become more aware of their reading. Teacher feedback and assessment was the most beneficial to student's reading during this study. Role duality and a shorter data collection timeline were limitations to this study. Given the positive results of this study, further research using the Reader's Theater strategy in other content areas should be explored.

Keywords: readers' theater, fluency, reading, self-assessment

A group of third graders gather around in a circle practicing reading their lines from their script. One person reads at a time, until it is the next person's turn. The teacher walks by listening in to see if the students are using the expression that they had practiced in their previous lesson together. They have been practicing for many days now, preparing for the big performance.

It is finally time to show off their hard work. Everyone grabs the script that they can now almost read in their sleep. The performance begins, each reader taking turns reading their lines clearly, smoothly, and expressively. They eagerly try to make the audience believe them as they read in character. The audience is silent. Their eyes moving from reader to reader, fully engaged in the story that they are telling with their words.

Finally, the last line is read and the audience claps for the performers. The readers feel confident, and proud as they bow to their audience. The teacher beaming from ear to ear, for she has just heard fluent, confident, expressive readers. This is a moment for which each teacher dreams.

Educators want their students to see themselves as readers and feel confident in their reading abilities. Building student's reading fluency is a part of the process. In order to help students with word recognition, rate in reading, comprehension, and overall reading confidence, fluency must be on the forefront in our reading instruction. Described above, is a group of readers using the strategy called Readers' Theater (RT). This type of practice often done when prepping for a play performance, could also be applied to other reading contexts.

Readers' Theater History

According to Corcoran and Davis (2005), "fluency is the ability to read a text with speed and accuracy, recognizing each word effortlessly and beginning to construct meaning from each word and group of words as they read" (pg. 105). Fluency plays a huge part in student's reading abilities and comprehension skills. While speed and accuracy are important for students to master in reading, other factors are just as important. Educators seem focused on student accuracy and automaticity when it comes to assessing student's reading ability. But at what point do we address that students are reading like robots? Educators need to take into consideration the importance of prosody or student's expression and appropriate phrasing to convey meaning within a text. A student's fluent oral reading sounds like natural speaking (Young and Rasinski, 2009).

The importance of catching readers' fluency early on, and providing them support, is vital. Corcoran and Davis (2005) stated that "Approximately 75 percent of students who are

poor readers in third grade continue to be lower achieving readers in ninth grade and, in essence, do not recover their reading abilities into adulthood" (p. 105). If we want to increase the number of third grade proficient readers, we must be open to finding new ways to increase reading ability. Reader's Theater is a place to start as a way to motivate students in reading.

Reader's Theater has been around for a long time. In the 1800's, it was used by Charles Dickens to turn literacy into performing arts (Gentile, 1981). It was a performance that told a story. With no stage nor props, Dickens wooed crowds of people with his performances. His performances became very well known in his time, and this tradition of Readers' Theater became more popular as time went on. Today, RT begins by turning a familiar text into a script with characters and speaking parts for students. Each student is assigned a part to practice during a one to two week timeframe. With repeated opportunities to practice reading independently and collaboratively, students are also provided with feedback from their teacher to support their reading growth. This feedback reflects on students' expression, fluency and accuracy. After practice and feedback, students perform in front of their peers as an audience. Reader's Theater brings reading to life in classrooms today as it once historically entertained crowds of people.

Reader's theater benefits

A common strategy deemed to enhance fluency is known as repeated readings, a strategy in which students are allotted time to practice reading the same text multiple times. Repeated readings are designed to increase reading fluency in the following ways: word recognition, rate, and understanding of the text (Corcoran & Davis, 2005). When it comes to student engagement and motivation, this strategy took its toll. When students simply read something repeatedly, their motivation declined. Reader's Theater is one way to incorporate this strategy, while enhancing student motivation in reading, and increasing reading fluency. According to Kabilan and Kamaruddin (2010), this method was helpful in enhancing student's motivation in reading and building a classroom environment where the interest is high to experiment and learn through literature rich experiences. They found RT to be an authentic approach to exposing students to rereading for enhancement in fluency and it provided more of a purpose to repeated readings. It is more authentic because there is an audience for the students to perform in front of and a script of lines to practice. Vasinda & McLeod (2011) found reader's theater offered a stronger purpose for their repeated readings and students were motivated.

Chou (2013) wrote that Reader's Theater was a method to motivate students to become more engaged in reading through creativity and enjoyment . Lewis and Feng (2014) stated, "Reader's Theater gives the students the opportunity to have fun by bringing the characters to life in the classroom" (p.9). It allowed students to feel free to be open and express themselves in such a fun and exciting way, while still providing a purposeful learning experience and building reading fluency. Students also have some ownership of making their characters come to life.

This method helps English Language Learners become more familiar with the content, vocabulary, and comprehension as well (Chou, 2013). Reader's Theater is also a tool that helped all students feel success in reading, which was beneficial for varying ranges of readers and abilities in the classroom. Because students use listening, speaking, and reading skills, RT is helpful for English Language Learners. Reader's Theater is adaptable to a range of learners and abilities, which makes it a great tool to use in the classroom (Lewis & Feng, 2014).

One more benefit to Reader's Theater is social learning. Lin (2015) researched students as they worked with each other in groups to read the script aloud and understand the story. They gave each other help when needed, and they listen to each other speak their parts. This form of social learning engages students in their reading and motivates them to work hard for a common purpose. It becomes a team effort to work to improve their performance as a whole, while individually enhancing student's reading fluency.

As the teacher-researcher, I have seen many students struggle with reading fluency and decided to formally study the process of fluency development during Reader's Theater. This research studied the influence of third grade student's participation in Reader's Theater and the

role that plays in their reading fluency. The following questions will be addressed: 1) How did RT influence reading fluency? 2) How did students' self-assessment influence reading fluency? 3) How did teacher assessment influence reading fluency?

Method

The teacher-researcher chose to do a multi-case study in her classroom that followed four third-grade students and studied their reading fluency development. A multi-case study is designed to focus on one case with the intention to present the problems that arise with that case (Creswell, 2016). The teacher-researcher chose to explore how Reader's Theater influences reading fluency. She also studied participants' self-assessment of their reading fluency after participating in Reader's Theater.

Before the study began, approval was granted from an Institutional Review Board and from the school district where the study took place. The study took place in a Title 1 elementary school in the Midwest. The school consisted of 520 students including preschool, special education, and general education classes. The participants were selected based on purposeful sampling from students of the teacher researcher's classroom. The students chosen through purposeful sampling of students who were approaching grade level in reading. The following students were selected with assigned pseudonyms to assure anonymity: Michael was a 9-year-old African American, ELL male student. Ben was a 9-year-old white male student. Sam was a 9-year-old African American, ELL male student. Finally, Penny was a 9-year-old white female student.

The study took place in a general classroom consisting of six African American students, four American Indian students, six Caucasian students, two Hispanic students, and three students who are identified as biracial. The study was held during a flexible time in the classroom when students had time to practice. Students had many opportunities to read their Reader's Theater script independently. Students also met with their RT groups to practice their performance together as they would read it during the final performance. As stated by Corcoran and Davis (2005, p.106) about Reader's Theater, students "rehearse until they are able to perform it fluently and with expression for an audience". The rehearsal timeframe was usually about two weeks to be ready to perform.

Over the three months of the study, the teacher-researcher tracked student reading fluency using fluency rubrics, took observation notes/field notes, and collected written conference notes. There were two fluency rubrics, one was used to track student reading fluency for the teacher-researcher to assess reading fluency. It included (a) pacing, (b) accuracy, and (c) expression. The teacher-researcher tracked to see if students were reading the text smoothly while paying attention to punctuation, reading the text with little to no errors, and if the students were changing their voice to match the tone of the text.

The second rubric was to help the students with self-assessment of their own reading fluency. This rubric was broken into four questions for the students to answer. Each of the following questions were presented in student-friendly language. a) Did I read the words correctly? b) Did I read the words not to fast, but not too slow? c) Did I read with feeling and not like a robot? d) Did I follow most or all of the punctuation marks? Students filled in a smiley face if they felt that they were successful with each area, or a sad face if they felt that they still needed some more practice. Finally, observations and conference notes were written to track fluency patterns and to communicate with students in the study. Those notes included observations of the students' reading, as well as feedback and comments provided by the teacher-researcher. This form of triangulation, or using multiple data sources, was done in order to make sure the teacher-researcher achieved validity and reliability in the data analysis.

At the beginning of this study, the teacher-researcher presented students with a poem to introduce them to the Reader's Theater process. Students were given a role for each script for a two-week time period. Parts were chosen for students for success by adjusting to student's ability. For all of the RT plays, each student was put into a group and given a role or part to play. Students had many designated times to practice independently. The teacher-researcher would check in and listen to students reading their lines

individually to provide feedback and take written notes. She also pulled students back as a group to practice all together, as well as independently. This would be another time when the teacher-researcher provided helpful feedback and took written notes. At the end of the second week, the students had rehearsed and were ready for the final performance. For the first Reader's Theater, students performed in front of their classmates. As students became more confident in the RT process, students eventually performed for other classes.

The teacher-researcher coded the data that were collected during the study including rubrics, observation notes, and conference notes. After the coding process, themes were developed through triangulation during constant comparative data analysis. The findings were written through thick description to add trustworthiness to the study. The teacher-researcher reviewed the data and codes developed several times to ensure validity. The teacher-researcher talked through these codes with colleagues and advisors. Any adjustments made to the original research plan were added.

The teacher-researcher took the data collected during the research study and looked for common themes. She looked at each student's data one by one. The teacher-researcher then collected patterns and tracked their progress on a written document that showed each student and their observations from the beginning of the study, to the end. This helped her see each student's fluency performance as well as how students were feeling about their reading performance as well. Once the data was collected on each student, the teacher-researcher looked for reading fluency, as well as expression in reading.

Findings

The findings of this study are reported for each case study participant and chronologically according to the timeline of the study. Pseudonyms are used in place of the student's names to protect the student's identities. The findings are presented in the timeline in which they occurred in the study.

Michael

Michael was nine years old during the study and enjoyed reading. During reading time, he was on task and enjoyed finding new books. In reading group, he worked hard and had high participation. Michael was an ELL (English language learner) student, who asked clarifying questions about what he was reading. He tried hard in school and had a good attitude towards learning. Michael was chosen for this study because he was moving towards grade level expectations.

Michael did not have a lot of experience with Reader's Theater. He had only experienced it once in second grade. In the beginning of the study, Michael read in a very monotone and choppy voice. He often read word by word, or sometimes in short phrases. When he came to a tricky word, he slowed down, which caused some unnatural pauses in his reading. It sounded robotic. He kept on reading without going back to check if it made sense in the sentence. He needed a lot of practice for fluency. His first time reading the readers' theater scripts were a struggle for Michael.

During conferences the teacher-researcher showed Michael the difference of reading in a monotone voice (one voice tone with no inflection), and in a way that included a smooth, expressive flow. She then modeled his part of the script, with an emphasis on reading the text smooth, and paying attention to punctuation. Michael practiced reading it back, "echoing" the teacher-researcher. As Michael worked hard practicing his lines, he felt more comfortable, and made fewer errors. Michael mentioned that the part he enjoyed the most about RT was, "Practicing. If you don't know the words, it makes you know the words". When he met in his group, or with the teacher-researcher, it was evident that he had practiced and often would read it more smoothly than the first time reading it. He became more familiar with the text in each of his scripts after a few times through. Because he was familiar with his lines, he made fewer errors.

As time went on, and the more he practiced for each script, his reading became smoother. His reading began to sound like natural talking. Once he was able to read the text with greater fluency and fewer errors, he worked on adding expression to his reading. The teacher-researcher again modeled his part of the script, this time with an emphasis on expression, and paying attention to the character's feelings. Michael practiced reading it back, "echoing" the teacher-

researcher. He started to read more fluently and he attempted expression on his own. Michael had moments where his expression would be talking really loud in one pitch. This was something that the teacher-researcher had to work on with Michael. It took a lot of echo reading, and practice.

At times, his expression did not match the character's feelings in the story. This took some practice to pay attention to text clues of how the character was feeling throughout the text. The teacher-researcher and Michael would go through each of his parts of the play and talk about how his character was feeling, and the emotion he should have in his voice to match it. This took some time, and he still was not able to do it independently by the end of the study.

When it came time to perform each script of the RT play, Michael got very nervous. He lacked expression in his reading, and often read in a choppy way. He did however, read most of the words accurately. After each performance, not only did the teacher-researcher evaluate how Michael performed, but Michael self-assessed his work. Through the self-assessment process, Michael was reflective of the things with which he felt confident, and the things he knew he could still practice. He knew that expression and fluency were the two areas which needed improvement and circled those areas on his rubric. The teacher-researcher's assessment and Michael's self-assessment did not always align when it came to evaluating his performances. Michael often failed to accurately rate his performances. Michael's confidence about himself as a reader showed some growth. When given the chance to reflect on if he has grown as a reader, Michael stated, "Yes, when it shows a question mark or an excited mark, you need to act excited".

The teacher-researcher saw a more confident reader in Michael during his practice. As far as his performances, it was merely a case of stage fright. Michael demonstrated that he was inconsistent with his smooth, fluent reading and adding expression in his reading to match the character feeling. The teacher-researcher observed he is capable of including fluency and expression in his reading, but he still needed to practice reading fluently independently and with consistency.

Ben

9-year-old Ben loved reading. During reading group, he focused most of the time, and enjoyed having discussions over the book. When it came time for independent reading, he buried himself in his book. He loved all sorts of genres. Often times, Ben had trouble staying focused. He got distracted talking to friends. He was, however, a very hard worker and enjoyed school. Ben was chosen for this study because he was moving towards grade-level expectations.

Ben had some experience in the past of participating in Reader's Theater. He participated in RT a few times in first grade and once in second grade. He understood the process of RT. In the beginning of the study, Ben read in a monotone way, with no expression at all. His first reading of each script was often read word by word, or in short phrases. Other times, his sentences were smooth, but lacked feeling in his words. When he read his lines of the script, he lacked awareness of how the character's felt in the story. He needed practice with fluency, expression, and a focus on character's feelings.

The teacher-researcher met with Ben and talked about his character throughout the script. They practiced Ben's lines together, and discussed how his character felt at each part of the story. Once Ben got a solid understanding of his character, he then went back and re-read his lines with a focus on speaking how the character was feeling. The teacher-researcher used echo reading, a procedure in which she read a part and Ben repeated, using the exact tone and expression of the teacher-researcher. This helped Ben a lot with his reading and led to a focus on adding more expression in his reading. Ben enjoyed this part of Reader's Theater, stating, "I enjoyed that you get to read what the character says".

During the study, the teacher-researcher saw Ben attempting more expression without being reminded to do so, showing this independence. He paid closer attention to the character's feelings, with some help at times. Ben was off task during group practice, which resulted in a performance that lacked expression and feeling. When a student nudged him to help his focus, he rushed through his lines because he realized it was his turn. The teacher-researcher reminded him how important it

was to be fully engaged and focus during practice, so that when he performed it would be his best work.

He handled feedback very well, and worked hard to get better during his independent time and his group practice. He eventually became more focused and engaged in his reading. He included some expression and more fluency in his reading by the time he performed in front of an audience. Ben was very calm when he performed. He made little to no errors, would read at a smooth rate, and included some expression. After the performances, he self-assessed himself. He felt confident in the areas of accuracy and fluency but knew he could still improve his expression.

The teacher-researcher's assessment rubric showed Ben became more aware of his character's feelings and he used some expression to match that in his reading. He also paid attention to punctuation, like bold words and exclamation marks for a dramatic emphasis. The teacher and student's self-assessment rubrics did align more accurately in Ben's case. In the end of the study, Ben showed that he still had room to improve in adding more expression. He worked hard and was open to criticism and feedback. He was more confident in his reading by the end of this study, and was aware of the importance of expression, and smooth reading. When asked if he had grown as a reader, Ben stated, "yes, reading the words right".

Sam

Sam was a very energetic 9-year-old boy who enjoyed reading books. During reading time, he was always on task. He was the student who read out loud, practically yelling because he was into his book. Sam was an ELL (English language learner) student. He liked to talk about his reading during reading group. He was a joyous person, who enjoyed school a lot. Sam was selected for this study because he was moving towards grade level expectations.

Sam had some experience in the past of participating in Reader's Theater. He participated a few times in first and second grade and had a positive experience with the process. At first, Sam read right through punctuation marks in the sentences. He did not stop at periods so his reading became one long ramble. His first reading through each script was a little fast and in a monotone voice. At times he would include some expression, but not much. Sam needed to focus on paying attention to the punctuation marks, and to include some expression in his voice.

When meeting with the teacher-researcher, Sam practiced slowing down to look at punctuation marks in his reading. The teacher-researcher modeled reading with a focus on appropriate pauses, and appropriate rate of reading (not too fast). Then Sam practiced by echo reading the way the teacher-researcher read the lines. Sam was focused when it was time to practice with his group in addition to independent practice. After time went on, it became clear that Sam worked hard to improve. When the teacher-researcher observed his group, he paused at the appropriate spots, and included more expression at exclamation marks and bold words.

At times with new reader's theater scripts, he had a few errors. After a few days of practice, he increased his fluency while reading his lines, with little to no errors. Sam attempted to add some expression when he read aloud. The teacher-researcher helped Sam to focus on how his character was feeling in the story, and even when he was the narrator, and to pay attention to the feeling at that part of the story. Sam was fond of this part of readers' theater, as he stated, "I like to be the characters".

For the first RT performances, he included some expression, and at times would still read right through punctuation marks. With practice and feedback, Sam showed a lot of improvement in his expression and smooth reading rate. He evaluated himself with confidence in his abilities, mentioning his growth when he stated he liked, "pretending and acting like the characters". He also be reflected on things he needed to work on, such as using more expression. For Sam, most of the time his self-assessment rubrics aligned with how the teacher assessed his performances.

By the end of the study, Sam showed real excitement for Reader's Theater and passion about demonstrating the character's feelings. He showed growth in reading at a smooth fluent rate. He also started to focus on punctuation in a text and included expression in his reading to match his

character's feelings or part. Sam was a hard worker and very passionate about improving.

Penny

Penny was vivacious 9-year-old, who enjoyed reading and discussing books. During reading time, she was on task. She read a variety of genres and went through books quickly. Independent time was her favorite. She also enjoyed working in a group setting. She was a very passionate student who enjoyed school. Penny was chosen to participate in this study because she was still working towards grade level reading.

Penny was familiar with Reader's Theater before starting the study. She understood what the process looked like and was excited to try it again. In the beginning of this study, Penny read at a fairly smooth rate after her first time reading through the script. She included some expression but her expression didn't match the feeling of the character in the play. She did not pay attention to punctuation in the text, including bold words or exclamation marks.

During conferences with the teacher-researcher, Penny practiced looking at punctuation in the text. The teacher-researcher modeled the appropriate expression, and Penny echoed it back. She and Penny also worked on paying close attention to how her character was feeling throughout the play, and to match that when she read her lines. She was quick to understand that characters feelings will change, and she matched her voice accordingly. She was a quick learner. All it took was a few reminders, and Penny became very independent as the study went on.

At times, Penny had a few errors monitored while she read and corrected her reading during practice. Once she had several practices completed, she often read her lines with no errors at all. She utilized her independent practice time and was on task with her group as well. The teacher-researcher saw a confidence in Penny's reading. When asked if she had grown as a reader, Penny said, "Yes, the first Reader's Theater was Goldilocks, then as we went on it made me better that I practiced". She was becoming more reflective in her reading. It was clear when it was time to perform. During her performances she would take her role very seriously. She would read her part smoothly, with no errors, and included great expression in her voice. She really got into the RT plays.

It was evident that Penny showed growth in her fluency. She started to include expression independently, and her emotions matched the feelings of her character. She paid more attention to punctuation, with few reminders. When it came to evaluating, Penny's self-assessments matched up with the teacher's assessment of her performances. Penny really enjoyed this process, and worked hard to be successful in each play. Penny's favorite part of Reader's Theater was, "that we can do it together. If I was just doing it by myself without anybody, I would be so nervous". All of the practice independently, as well as with her classmates, made her became more confident.

Conclusion

Reader's Theater helped students grow in reading fluency. Each student's reading became more fluent throughout the study. Opportunities for students to practice independently, with the teacher-researcher, and with their groups, supported that growth. Practicing oral reading was beneficial throughout the RT process. The student's final performances showed that they made improvements in their ability to smoothly read the text. Feedback from the teacher-researcher on their fluency was helpful for student growth as well. By the end of the study, not all students were independent at this skill, but all students were more aware of their fluency development.

Students' self-assessment was helpful in getting students to become aware of their reading fluency and expression. It was beneficial for students to reflect on their work, without the teacher-researcher telling them how they did. However, data analysis did not support that it was a major factor in student's reading fluency. There would be times when the student's self-assessment rubric did not align with the teacher-researcher's assessment. It was also hard for the students to remember how they did during the performance, to be able to reflect and assess themselves.

Teacher feedback and support had the most influence on student's reading fluency. Students responded best when they were able to see a model of what fluent reading sounded like.

Student's needed support on focusing on character's feeling and using more expression in their voices to match that feeling. The teacher-researcher provided support for readers to become more successful. For each conference time with the teacher-researcher the students reviewed what they worked on the previous time, and that became the focus to lead the next instruction. The teacher-researcher was able to identify the needs of the students and provide the best immediate support during the study.

Fluency is an important aspect of reading. A successful reader should sound smooth, expressive, and read the words accurately at a normal reading rate. Reader's Theater influences student's ability to read more fluently. Repeated reading practice allows students to become more comfortable with the text, getting students to focus on the character's emotions. Vasinda and McLeod (2011) reported that Reader's Theater also "is an important tool that brings authenticity and engagement to the process of repeated readings, resulting in remarkable and measurable comprehension gains".

Reader's Theater is an engaging way to get students excited about improving their reading. It is a purposeful and enjoyable way for students to feel success in reading. "The complexity of the text varies depending on student's independent reading levels and capabilities" (Lewis and Feng, 2014, p.9), so every student has a chance to feel like a confident reader.

Limitations

The teacher-researcher acknowledged that there were limitations to this study. Role duality was difficult when analyzing data. Being in the role of the teacher and the researcher could have impacted the study. It may have been more beneficial to simply be the observer or researcher during the Reader's Theater process. There may have been routine behaviors that the teacher-researcher could have easily overlooked when taking on both roles. For example, because the teacher-researcher was familiar with students' reading abilities, she may have used past data to assess students on their Reader's Theater performances. An outside evaluator might have provided an alternative view of student's reading performances.

Another limitation was that there may not have been enough data helping to support the research questions. There is always room for more data collection, and more time to do so as well. The teacher-researcher could have used additional ways to track student's reading fluency growth to help in the study than the tools used. Other ways might include the use of video recording for students' self-assessment. Also, a longer time period of the study could have been beneficial. A year long time-frame for this study would be a recommendation. This would allow for additional practice and transfer in students' everyday reading abilities, as well as the use of Reader's Theater in other subject areas.

Suggestions for further research

Educators who have students who struggle with reading fluency and have students who are approaching grade level, may benefit from reading this article. Reader's Theater is a tool to help students who are approaching grade level, improve their reading fluency. Educators should continue the research on the influence that RT has on reading fluency through different grade levels. Primary teachers may find this strategy helpful when intervening early on student's reading fluency.

Incorporating the self-assessment rubric for students helped them become more aware and alert to their learning. It was a tool that helped students take ownership of their reading progress. However, it was not the most effective when it came to fluency growth. Educators are encouraged to continue to find better ways for students to be more engaged in the self-assessment process, particularly, how it will help student's reading fluency.

Use of technology could deem to be helpful in making the Reader's Theater process more engaging for students in the future. Students may benefit from hearing themselves practice or perform their scripts. There may be other technology tools or apps that help enhance this study for future research as well.

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Thematic Analysis of Social Issues in Ten Young Adult Novels

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Abstract

The purpose of this study was to complete a thematic analysis on ten randomly selected young adult novels published in the year 2018. Novels were selected based on the criteria of (1) being published in the year 2018, (2) age-appropriate for middle and high school students, (3) written in English and (4) not being a part of a series. The novels were published in the United States or Canada. The thematic analysis was conducted to determine recurring social issues presented in the novels that are affecting young adults. The novels examined in this study are: *What If It's Us, Swing, Unclaimed Baggage, When Elephants Fly, Meet the Sky, The Chaos of Now, A Very Large Expanse of Sea, Broken Things, Words We Don't Say,* and *Sadie*. This study suggested how to integrate the novels in a middle or high school setting and whether the novels could be used in a lesson or should be housed in a school library. Each novel was read, analyzed for themes, and categorized to determine main themes of the text. Every novel dealt with a different social issue including: addiction, death, loss, friendship, and school.

Keywords: *Thematic analysis, social issues, young adult novels, Common Core standards*

Today's adolescents are affected by daily stressors such as school, family, friends, and relationships (Short, Lynch-Brown, & Tomlinson, 2018). But some of them are dealing with more serious issues of mental health, sexuality struggles, loss or death, suicide or other traumatic ordeals (CDC, 2017). Adolescents struggle to cope with stressors and seek comfort and understanding from someone or something that helps them make sense of the situations they face. One way teens can cope with their stressors is by connecting with a character in an adolescent novel facing the same challenges. The adolescent novels that are being published shed some light on teen life and demonstrate how characters deal with their daily struggles. Characters in adolescent fiction are able to live out the lives of today's adolescents and give readers hope that they are not alone.

Adolescent novels may bring comfort to young adults and allow them to express bottled-up emotions with characters experiencing similar problems (Larson & Hoover, 2012). The novels become a sounding board and a way to connect with others and help them cope or speak out about their stressors (Johnson, Koss, & Martinez, 2017). Literacy educators can use adolescent novels in the classroom to aid students in their journey through life struggles. Educators will be able to incorporate young adult novels into their classroom libraries, read alouds, or unit lessons. Realistic fiction provides young adults with characters who are experiencing significant life changes (Short, Lynch-Brown, & Tomlinson, 2018). "Children need to share their personal connections and discuss the issues they find significant within a particular book and then revisit that book to consider the ways in which the author has developed intriguing characters" (Short, Lynch-Brown, & Tomlinson, 2018, p. 123).

Young adults connect better with a character that is going through a relatable circumstance. Authors who develop relatable characters create a trusting relationship between the reader and the character. After seeing how a character reacts to a difficult life situation, a reader may be more comfortable discussing what is bothering them. Young adults are capable of handling real-world problems presented in adolescent novels (Groenke, Maples, & Henderson, 2010). Adolescents may know peers who are struggling with life events such as bullying, suicide, mental health, and sexuality. Peers play a vital role in supporting other teens with daily stressors (Crawford & Calabria, 2018). There are a number of social issues that are addressed in adolescent literature that may be experienced by today's teenagers.

Bullying

Adolescent peers can be the victim of bullying or cyber bullying. According to the Center for Disease Control (CDC), bullying has been reported by approximately 20% of high school students between 2007-2017. Additionally, in 2017, the CDC reported 14.9% of teens were

bullied online. Adults such as literacy teachers can be the first line of defense to stop bullying or cyber bullying. Literacy teachers have the power to incorporate young adult novels that address bullying in the classroom which may spark conversation and create safe environments for students to share resources or connections (Pytash, Morgan, & Batchelor, 2013). Bullying is not the only issue that can be addressed in the classroom however.

Suicide and LGBTQ

Suicide is another issue adolescents are facing (Fisher, 2005). Novels including suicide may support students in healing from the loss of a friend to suicide or help them deal with their own suicidal thoughts (Mauk, 2011). Suicide prevention can begin in the classroom by exposing students to novels that address this issue. The CDC reported an increase in teen suicides from 14.5% in 2007 to 17.2% in 2017. Young adults commit suicide for many reasons, but suicides have increased for adolescents who are in the LGBTQ community (Bittner, 2012). In 2017, 47.7% of lesbian, gay, or bisexual adolescents have contemplated suicide (CDC, 2017). A partial explanation may be that young adults do not feel supported in their life choice decisions or are confused about their sexuality. LGBTQ novels are challenging to bring into a classroom setting because of their controversial nature. These novels may be considered taboo in school, and some teachers might avoid using these types of texts in a lesson. This may make members of the LGBTQ community feel more isolated and feel that their only choice is to live a lonely life (Clark & Blackburn, 2016).

Mental Health

Mental health can also be a stressor for young adolescents and another reason a teenager may contemplate suicide. According to the CDC, 90% of suicide deaths are due to an underlying mental health illness. Young adults ages 13-18 have a 20% chance of developing a mental health condition (CDC, 2017). With one in five young adolescents developing a mental health disease (CDC, 2017), young adult authors have become vigilant in creating positive portrayals of mental health issues (Short, Lynch-Brown, & Tomlinson, 2018). This in turn helps adolescents connect to characters in novels and gain an understanding of someone with a mental health condition. With a significant portion of teens struggling with a mental condition today, acquiring an understanding of people with mental illness can be created through literacy. Educators can use these types of novels to allow students to feel empathy, patience, and acceptance.

Literacy educators can aid students in finding novels that will help them connect to characters facing the same challenges they are facing. Adolescents may feel alone in their daily challenges and need comfort in knowing they are not alone. Young adult novels are one solution to helping adolescents deal with daily struggles. Young adult novels offer guidance and peace through difficult times. The purpose of this study was to identify social themes in adolescent literature and to provide literacy educators with resources to tackle tough topics in the classroom. Educators will be able to connect Common Core standards with current adolescent novels to provide students with background and connections to social issues they may be facing.

Methods

This study was a thematic analysis of ten young adult novels. The selection criteria included (1) written in English (2) novels published in 2018, (3) novels focused on age-appropriate middle or high school students, and (4) novels not part of a series. Books that met all the inclusion categories were listed and the first ten on the list were selected for the inclusion in this study. The novels selected included: *What If It's Us, Swing, Unclaimed Baggage, When Elephants Fly, Meet the Sky, The Chaos of Now, A Very Large Expanse of Sea, Broken Things, Words We Don't Say,* and *Sadie*.

The researcher read each novel and then went back through the book and identified social issues using in vivo or inductive codes (Creswell, 2013). All codes from the novels were identified and counted using a spreadsheet application. Codes were grouped and then collapsed; starting at one and ending at twenty-six. Social issues were detected based on situations the characters of the novel experienced. Themes were coded in the novel based on major incidents of that theme. For example: in *Unclaimed Baggage*, the theme addiction (alcohol) was not coded every time alcohol was mentioned, but at incidents in which Grant abuses alcohol. Themes were declared a major theme in the novel if they occurred more

than ten times in a novel or if they were the most prevalent themes in a novel. The themes that were identified in this study included: love, loss/death, friendship, school, family, LGBTQ, sports, addiction, mental health, accidents, fear/danger, bullying (cyber), racism, and murder.

Results and Discussion

The results of this study are based on the themes presented in each of the novels. Each novel dealt with the themes of: love, loss/death, friendship, school, and family. These themes were present in each novel and were themes that occurred throughout the text or in parts of the text. The theme of family discussed as being a positive or negative situation for the character was common. The love theme was discussed as love for a companion, family, or friends. The theme of school is evident because all of the characters are young adults in either middle or high school. Friendship plays a huge role in most of the texts because the friends are supportive of the characters actions or their situation. Loss/death is evident in the novels because each character expresses a loss or a death of someone they loved. In most books, loss was the result of losing a friend, loved one, or situation due to circumstances of a social issue.

In Table 1, the book titles are organized alphabetically by author's last name. The table provides a description of each novel, major and minor themes discussed. Major themes are topics presented multiple times throughout the text. Whereas, the minor themes are topics that contribute to the plot of the novel, but are not as prevalent as the major themes. Some of the minor themes may contribute to a major theme, but lacked evidence to include as a major theme.

Each of these themes relate to young adults and may help them understand the situations they are in. The novels individually would be a wonderful addition to a young adult classroom. Most of the novels deal with sensitive topics and would need to be used cautiously in classrooms. In Table 2, the novels are presented in alphabetical order according to author's last name. The grade level of the novels and suggested uses are in the left hand column. One grade level was picked based on the content of the novel to incorporate the Common Core State Standards (CCSS). In the right hand column are the CCSS for literature and the standards most prevalent to the novel were chosen. A majority of the novels can be used in multiple grade levels and CCSS. Each novel can be used to increase students' independent reading and proficiency. Table 2 was written to provide easy incorporation of CCSS into a middle or high school classroom.

This study does have some limitations. The study was conducted using ten young adult novels published in 2018. The results might vary using more novels to determine other themes and themes that occurred more often. More novels might show certain themes as more significant. This study also did not use any novels that were a part of series thus changing the results as well.

Another limitation would be a different researcher may find different codes or find different social issues occurring in the novels. Other researchers may also determine the importance of a major and a minor theme in a different way. Had the researcher has a co-investigator; she could have compare codes and social issues.

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Table 1.
Book Descriptions and Themes

Book Title	**Description**	**Themes**
What If It's Us by Becky Albertalli & Adam Silvera	Ben has recently broken up with his boyfriend, Hudson. On his way to mail his break-up box, containing his ex boyfriends' stuff, Ben meets Arthur. Arthur is in New York City for the summer, interning at his mom's law firm. Their meet sends them on a whirlwind summer romance. The romance is filled with ups and downs, but the biggest question to be answered is what if it's us?	**Major:** *LGBTQ *Friendship *Love **Minor:** *Family *Loss/Death *School
Swing by Kwame Alexander with Mary Rand Hess	Walt and Noah have been best friends for years and are searching for popularity at school. Walt is determined that he and Noah are going to make the school's baseball team, find love, and discover the positive influence of jazz. While the boys are waiting for cool to find them, someone in town has been leaving American Flags everywhere. The town begins to wonder if a terrorist attack is imminent and what the meaning behind the flags is.	**Major:** *Love *Friendship *Sports *Family **Minor:** *Loss/Death *PTSD *Swing music *School
Unclaimed Baggage by Jen Doll	*Unclaimed Baggage* follows the lives of three teens in a small southern town during a long summer at an Unclaimed Baggage store. The Unclaimed Baggage store is where all unclaimed luggage from airports is donated and sold. Doris is different than her peers and her family. She is still reeling from the sudden death of her beloved Aunt Stella. Doris is the new manager at Unclaimed Baggage. She meets Nell, who has just recently moved to town and they become instant friends. Grant is struggling with an accident that leaves him off the football team and no memories of what happened. Together, the teens become friends through their work at Unclaimed Baggage. Their summer is filled with adventure, friendship, and romance. In addition to working at Unclaimed Baggage, each deals with their own unclaimed baggage.	**Major:** *Friendship *Addiction (Alcohol) **Minor:** *Love *Racism *Moving *Loss/Death *School *Family
When Elephants Fly by Nancy Richardson Fischer	Lily Decker has been administering regular schizophrenia tests and avoiding anything that could potentially trigger schizophrenia. It's in her genes, her mother tried to kill her when she was little, and she will do anything to stop the potential disease. Lily must stick to her twelve year plan of no stress, caffeine, alcohol, and love. She has taken on a newspaper internship in hopes of pursuing a career in journalism after she completes her twelve-year plan. During her internship, Lily is asked to cover the birth of a zoo elephant, Swift Jones. Her job was simple enough, until one day, Swift Jones is rejected by his mother. Together they embark on a journey that will test both of their spirits.	**Major:** *Family *Love *Mental Health **Minor:** *Schizophrenia *Friendship *Abandonment *Loss/Death * LGBTQ *School
Meet the Sky by McCall Hoyle	Sophie has taken the world on her shoulders since the departure of her father and her sister's accident. Sophie helps take care of her family's horse ranch, works for perfect grades, and helps care for her sister and mother. Until one day when a hurricane is off the coast of her hometown. On the way out of town, a series of misfortunes prevent Sophie's escape from the storm. She finds herself stranded in the path of the	**Major:** *Accidents *Fear/Danger **Minor:** *Love

	storm with Finn, a boy who broke her heart years earlier. Finn is back in town after dealing with a tragedy of his own. With each of them weathering their own storms, they must put aside their differences and heartaches to survive Mother Nature's storm.	*Friendship *Family *Loss/Death *School
The Chaos of Now by Erin Jade Lange	Even though it has been a year, Eli is still haunted by the fiery suicide of his classmate, Jordan Bishop. Jordan committed suicide to end the bullying.. Ever since that day, Eli's school has been cracking down on bullying. Students are not allowed to experience social media or share any negative or hurtful comments online without monitoring But Eli lives his life online through coding. Eli has been asked to join a coding competition with friends of Jordan. As part of the competition, they must find a way to break through the new social media security. But instead of finding a way to break through the firewall, they find a way to get revenge on Jordan's bullies.	**Major:** *Bullying (Cyber) *Friendship *Family **Minor:** *Suicide *Love *Coding *Loss/Death *School
A Very Large Expanse of Sea by Tahereh Mafi	Post 9/11 America has changed how the world sees the Muslim faith and Shirin, a sixteen-year-old girl caught in the middle. Shirin and her family are constantly moving in search of something better or to protect their family. At yet another high school, Shirin is gawked at because she chooses to wear her hijab. Other students ignore her, treat her like a terrorist, or give into the stereotypical view on Muslims. That is until Shirin meets Ocean James, who really sees who Shirin is and the beauty of her hijab. As Shirin and Ocean begin a harmless love affair, racism in a post 9/11 world may tear them apart. Will Shirin and James' love survive?	**Major:** *Family *Sports *Racism *Love **Minor:** *Friendship *School *Religion (Muslim) *Loss/Death
Broken Things by Lauren Oliver	Mia, Brynn, and Summer are three young teens obsessed with the book *The Way into Lovelorn*. This magical place has been a safe haven for the three girls until Summer turned up dead one day. Mia and Brynn are blamed for killing Summer and their lives were never the same again. On the fifth anniversary of her death, Mia and Brynn join forces to discover Summer's killer. As they track the killer, they learn more about themselves and what happened that summer.	**Major:** *LGBTQ *Murder *Friendship **Minor:** *Family *Love *Loss/Death *School
Words We Don't Say by K.J. Reilly	Joel is stuck doing his mandatory volunteer hours at the local soup kitchen. The soup kitchen serves the homeless including homeless veterans. Joel does not mind the hours because it gives him more time to spend with his crush Eli. After the loss of his friend Andy, Joel becomes antisocial and spends most of his time drafting text messages to send, but he never actually hits the send button. His life changes one day when he meets a veteran named Rooster at the soup kitchen. Together with Eli and the new kid, Benji, they find a way to connect and help Rooster.	**Major:** *School *Love *Loss/Death **Minor:** *PTSD *Homeless Veterans *Friendship *Family
Sadie by Courtney Summers	Sadie Hunter is haunted by the recent murder of her little sister, Mattie. Mattie is everything she lives for and without her sister, Sadie is left with nothing except anger and a taste of revenge. Determined, Sadie will do anything to track down Mattie's killer even if it means risking her own life. Sadie runs away from home and is reported missing. As Sadie investigates, West McCray, a popular radio show host, is tracking Sadie. To West McCray, Sadie is just a missing girl, who ran away from home. But as Sadie gets closer to catching Mattie's killer, West McCray closes in on Sadie.	**Major:** *Murder *Family *Loss/Death *Love **Minor:** *Abuse *Drugs *Abandonment *School *Friendship

Table 2.
School Uses and Common Core Connections

Books	**Suggested Uses & Common Core State Standards(CCSS)**
What If It's Us by Becky Albertalli & Adam Silvera *Grades: 9-12 **Suggested Use:** *School or Classroom Library	**Grades 9-10:** CCSS.ELA-LITERACY.RL.9-10.2 *Determine a theme or central idea of a text and analyze in detail its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text. CCSS.ELA-LITERACY.RL.9-10.3 *Analyze how complex characters (e.g., those with multiple or conflicting motivations) develop over the course of a text, interact with other characters, and advance the plot or develop the theme. **Grades 11-12** CCSS.ELA-LITERACY.RL.11-12.3 *Analyze the impact of the author's choices regarding how to develop and relate elements of a story or drama (e.g., where a story is set, how the action is ordered, how the characters are introduced and developed). CCSS.ELA-LITERACY.RL.11-12.5 *Analyze how an author's choices concerning how to structure specific parts of a text (e.g., the choice of where to begin or end a story, the choice to provide a comedic or tragic resolution) contribute to its overall structure and meaning as well as its aesthetic impact.
Swing by Kwame Alexander with Mary Rand Hess *Grades: 7-12 **Suggested Use:** *Poetry Unit *School or Classroom Library *Read Aloud	**Grade 7:** CCSS.ELA-LITERACY.RL.7.1 *Cite several pieces of textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text. CCSS.ELA-LITERACY.RL.7.4 *Determine the meaning of words and phrases as they are used in a text, including figurative and connotative meanings; analyze the impact of rhymes and other repetitions of sounds (e.g., alliteration) on a specific verse or stanza of a poem or section of a story or drama. **CCSS.ELA-LITERACY.RL.7.5** *Analyze how a drama's or poem's form or structure (e.g., soliloquy, sonnet) contributes to its meaning CCSS.ELA-LITERACY.RL.7.6 *Analyze how an author develops and contrasts the points of view of different characters or narrators in a text.
Unclaimed Baggage by Jen Doll *Grades: 6-12 **Suggested Use:** *School or Classroom Library *Read Aloud	**Grade 6:** CCSS.ELA-LITERACY.RL.6.1 *Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text. CCSS.ELA-LITERACY.RL.6.2 *Determine a theme or central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments. CCSS.ELA-LITERACY.RL.6.3 *Describe how a particular story's or drama's plot unfolds in a series of episodes as well as how the characters respond or change as the plot moves toward a resolution. CCSS.ELA-LITERACY.RL.6.5 *Analyze how a particular sentence, chapter, scene, or stanza fits into the overall structure of a text and contributes to the development of the theme, setting, or plot.

When Elephants Fly by Nancy Richardson Fischer *Grades: 6-12 **Suggested Use:** *School Or Classroom Library *Read Aloud	**Grade 8:** CCSS.ELA-LITERACY.RL.8.1 *Cite the textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text. CCSS.ELA-LITERACY.RL.8.2 *Determine a theme or central idea of a text and analyze its development over the course of the text, including its relationship to the characters, setting, and plot; provide an objective summary of the text. CCSS.ELA-LITERACY.RL.8.3 *Analyze how particular lines of dialogue or incidents in a story or drama propel the action, reveal aspects of a character, or provoke a decision. CCSS.ELA-LITERACY.RL.8.4 *Determine the meaning of words and phrases as they are used in a text, including figurative and connotative meanings; analyze the impact of specific word choices on meaning and tone, including analogies or allusions to other texts.
Meet the Sky by McCall Hoyle *Grades: 7-12 **Suggested Use:** *School or Classroom Library *Read Aloud	**Grade 7:** CCSS.ELA-LITERACY.RL.7.1 *Cite several pieces of textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text. CCSS.ELA-LITERACY.RL.7.2 *Determine a theme or central idea of a text and analyze its development over the course of the text; provide an objective summary of the text. CCSS.ELA-LITERACY.RL.7.3 *Analyze how particular elements of a story or drama interact (e.g., how setting shapes the characters or plot). CCSS.ELA-LITERACY.RL.7.6 *Analyze how an author develops and contrasts the points of view of different characters or narrators in a text.
The Chaos of Now by Erin Jade Lange *Grades: 8-12 **Suggested Use:** *School or Classroom Library	**Grade 8:** CCSS.ELA-LITERACY.RL.8.1 *Cite the textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text. CCSS.ELA-LITERACY.RL.8.2 *Determine a theme or central idea of a text and analyze its development over the course of the text, including its relationship to the characters, setting, and plot; provide an objective summary of the text. CCSS.ELA-LITERACY.RL.8.3 *Analyze how particular lines of dialogue or incidents in a story or drama propel the action, reveal aspects of a character, or provoke a decision. CCSS.ELA-LITERACY.RL.8.6 *Analyze how differences in the points of view of the characters and the audience or reader (e.g., created through the use of dramatic irony) create such effects as suspense or humor.
A Very Large Expanse of Sea by Tahereh Mafi *Grades: 9-12 **Suggested Use:** *School or Classroom Library	**Grades 9-10:** CCSS.ELA-LITERACY.RL.9-10.2 *Determine a theme or central idea of a text and analyze in detail its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text. CCSS.ELA-LITERACY.RL.9-10.3 *Analyze how complex characters (e.g., those with multiple or conflicting motivations) develop over the course of a text, interact with other characters, and advance the plot or develop the theme. **Grades 11-12** CCSS.ELA-LITERACY.RL.11-12.3 *Analyze the impact of the author's choices regarding how to develop and relate elements of a story or drama (e.g., where a story is set, how the action is ordered, how the characters are introduced and developed). CCSS.ELA-LITERACY.RL.11-12.6 *Analyze a case in which grasping a point of view requires distinguishing what is directly stated in a text from what is really meant (e.g., satire, sarcasm, irony, or understatement).

Broken Things by Lauren Oliver *Grades: 9-12 **Suggested Use** *School or Classroom Library	**Grades 9-10:** CCSS.ELA-LITERACY.RL.9-10.3 *Analyze how complex characters (e.g., those with multiple or conflicting motivations) develop over the course of a text, interact with other characters, and advance the plot or develop the theme. CCSS.ELA-LITERACY.RL.9-10.5 *Analyze how an author's choices concerning how to structure a text, order events within it (e.g., parallel plots), and manipulate time (e.g., pacing, flashbacks) create such effects as mystery, tension, or surprise. **Grades 11-12** CCSS.ELA-LITERACY.RL.11-12.3 *Analyze the impact of the author's choices regarding how to develop and relate elements of a story or drama (e.g., where a story is set, how the action is ordered, how the characters are introduced and developed). CCSS.ELA-LITERACY.RL.11-12.5 *Analyze how an author's choices concerning how to structure specific parts of a text (e.g., the choice of where to begin or end a story, the choice to provide a comedic or tragic resolution) contribute to its overall structure and meaning as well as its aesthetic impact.
Words We Don't Say by K.J. Reilly *Grades: 6-12 **Suggested Use:** *School or Classroom Library *Read Aloud	**Grade 6:** CCSS.ELA-LITERACY.RL.6.1 *Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text. CCSS.ELA-LITERACY.RL.6.2 *Determine a theme or central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments. CCSS.ELA-LITERACY.RL.6.3 *Describe how a particular story's or drama's plot unfolds in a series of episodes as well as how the characters respond or change as the plot moves toward a resolution. CCSS.ELA-LITERACY.RL.6.6 *Explain how an author develops the point of view of the narrator or speaker in a text.
Sadie by Courtney Summers *Grades: 8-12 **Suggested Use:** *School or Classroom Library	**Grade 8:** CCSS.ELA-LITERACY.RL.8.1 *Cite the textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text. CCSS.ELA-LITERACY.RL.8.2 *Determine a theme or central idea of a text and analyze its development over the course of the text, including its relationship to the characters, setting, and plot; provide an objective summary of the text. CCSS.ELA-LITERACY.RL.8.3 *Analyze how particular lines of dialogue or incidents in a story or drama propel the action, reveal aspects of a character, or provoke a decision. CCSS.ELA-LITERACY.RL.8.6 *Analyze how differences in the points of view of the characters and the audience or reader (e.g., created through the use of dramatic irony) create such effects as suspense or humor.

The Effects of Individualized Literacy Interventions on Eighth-Grade Students' Perceived Self-Efficacy in Content Reading and Reading Achievement

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Abstract

Many middle school students struggle to reach proficiency in reading. The implications of their struggle for success in high school and beyond are far-reaching. Literacy interventions at the middle school level are vital to addressing skill deficiencies and related challenges facing adolescents in the United States. Using individualized literacy interventions featuring fluency, guided reading, word study, and academic vocabulary this study examined grade equivalencies of 41 eighth-grade students over a four-month period. Twenty of the 41 students were randomly selected and randomly assigned to one of two groups: (a) weekly one-to-one self-efficacy debriefing sessions (experimental, n=9) and (b) no debriefing sessions (control, n=10). (One student left the school district during the study.) The Self-Efficacy Formative Questionnaire was administered on a pre-test/post-test basis to the 19 randomly selected students. Results were analyzed using an independent sample t-test to determine the effectiveness of the conferencing interventions and indicated a clear, yet non-significant pattern of a sense of literacy-related self-efficacy on the part of the 9 students who received the weekly self-efficacy debriefing sessions.

Keywords: literacy, intervention, middle school, self-efficacy

Literacy is the foundation for which content mastery can occur (Rose, 2011). Without a solid foundation of literacy skills, students are unable to understand and effectively apply new learning, which ultimately leads to achievement challenges rooted in a basic skills deficit, which may not be explicitly taught at the secondary level (Rose, 2011; Wendt, 2013). The limited focus of literacy skill development within secondary content classrooms compounds the achievement discrepancies between proficient and non-proficient readers (Wendt, 2013). As the number of students with specific literary needs increases across the nation, the number of trained adults and time within the school day to explicitly address those needs is lacking within most middle school and high schools (Balfanz, 2009). Increasing the amount of daily literacy instruction and providing teachers professional development in intensive interventions are key components of an educational system shift that needs to occur in order to support middle school students' literacy and, by extension, content mastery (Balfanz, 2009; Rose, 2011).

The 2017 release of the *Nation's Report Card* (National Center for Education Statistics, 2017) reports that 65% of eighth-grade students in the nation scored below proficient on an overall reading comprehension assessment. Free and reduced lunch eligibility and reading proficiency levels were found to be correlated, with 88% of students who were eligible for free and reduced lunch scoring below proficient while 44% of ineligible students were below proficiency levels (National Center for Education Statistics, 2017). This data suggests a major need for literacy support and skill development at the middle level across the nation especially in student populations that have high rates of free and reduced lunch eligibility.

While content and skill mastery are often the major foci for intervention discussions, students' need to mentally and emotionally be prepared to learn and apply knowledge to new situations confidently (Pajares, 2005). The beliefs students hold about their abilities to perform at high levels and attain success are considered parts of their personal self-efficacy (Bandura, 1994). Bandura (1994) suggests that students' self-efficacy can influence how they engage in learning opportunities due to their perceived potential for success or failure. Students with a high self-efficacy often engaged in more challenging activities for longer, set more ambitious goals, and have more academic tenacity throughout the learning process (Dweck, Walton, & Cohen, 2014).

During key developmental transition times, such as adolescence, self-efficacy shifts can have long term impacts on students that may perceive new challenges as being out of their ability level and ultimately disengage in those opportunities for fear of failure (Bandura, 1994). A students' self-efficacy can affect the types of career options they explore and how they prepare to meet those long-term goals (Bandura, 1994; Pajares, 2005). Researchers argue that middle school is a critical time to reduce the achievement struggles many adolescents face by supporting the development of literacy skills and a positive self-efficacy mindset that is essential for success in high school courses and beyond (Dweck et al., 2014; Southern Regional Education Board, 2012). Pajares (2005) found that successful completion of challenging academic tasks had a positive effect on students' self-efficacy. Unfortunately, when students' have repeated negative experiences with academic tasks, especially over a long period of time, they chose to disengage from challenging tasks and ultimately had lower academic growth and overall achievement (Snipes, Fanscali, & Stoker, 2012). As secondary curricula become increasingly more complex and designed to include more conceptual and crosscutting themes, educators working with middle school students have a difficult task in preparing struggling students to successfully navigate the high academic expectations of high school (Fang & Schleppegrell, 2010; Wendt, 2013).

Adolescent English Language Learners (ELLs) especially struggle with the decoding of complex texts due to reduced foundational language skills and often limited supports within the normal classroom setting (Sibold, 2011). Students that are unable to meet middle school achievement expectations are more likely to drop out of high school (Balfanz, 2009). The dropout rates in 2016-2017 for Iowa high school students classified as ELLs was 6.6% and students with low socioeconomic status had a dropout rate of 5.7% (Iowa Department of Education, 2018). These statistics outline the need for additional support for these sub-groups to gain educational opportunities and challenge educators to address potential dropout indicators, such as reduced literacy proficiency before students enter high school (Balfanz, 2009).

Impact of Literacy Interventions on Achievement and Opportunities

The development of key literacy skills, especially during the adolescent years, can have a direct impact on student success within high school and their entry into the world after school (Rose, 2011; Wendt, 2013). Several investigators suggest there is a disconnect between adolescent literacy expectations, such as students being encouraged to "read to learn," and the fact many struggle with the basic-reading skills necessary to understand content and narrative texts (Marchand-Martella, Martella, Modderman, Petersen, & Pan, 2013; Kim, Linan-Thompson, & Misquitta, 2012). Nonetheless, struggling students can find success if they are explicitly taught the skills necessary to process and decode more complex texts (Marchand-Martella et al., 2013). Wendt (2013) argues that students lacking skills to analyze complex texts and communicate at high levels will feel the effects of their literacy skill deficit related not only to academic mastery but also to societal expectations into adulthood.

The Program for the International Assessment of Adult Competencies (PIAAC) is a large-scale study that analyzes employment status related to skill levels. The 2014 results of the PIAAC show 23% of unemployed adults ages 16-65 did not obtain a high school diploma, with 79% of these participants scoring at a literacy level of two or below on a five-point scale (Rampey et al., 2016). Of unemployed participants ages 16-24, 52% scored at a level two or below related to literacy. These findings suggest there is a direct correlation between employment success and literacy skills. Without access to at least high school education with a solid foundation of literacy, students are working against the odds to find success in the current workforce.

Daggett and Pedinotti (2014) used the Lexile reading scale to analyze reading difficulty levels of texts found in entry-level positions and high school textbooks. Lexile levels of entry-level occupational readings showed higher difficulty than typical high school textbooks. With a difference of 200 lexiles between occupational readings and high school textbooks, students that are able to access even 12th-grade texts are not being exposed to the reading difficulty levels they may experience when entering the workforce (Daggett & Pedinotti, 2014). This finding highlights a major concern for students that are

unable to confidently access and comprehend high school level texts and their ability to be successful in the meeting the literary demands of entry-level positions.

Literacy skills, such as fluency, can also impact a student's ability to pursue post-secondary educational opportunities. Rasinski et al. (2016) found that fluency skills had a direct correlation to students' college readiness levels as determined by ACT reading and composite scores. Eighty college freshman were asked to read a 443-word passage, that was verified to be at an 11th-grade readability level based on the Dale-Chall readability formula, in order assess word recognition and fluency (Rasinski et al., 2016). Rasinski et al. (2016) found that students scored between 96% and 98% related to accuracy with an average of 123 words correct per minute for freshman that achieved at least an ACT score of 21. Word recognition and accuracy levels are one piece of a literacy picture that middle school educators need to be monitoring in order to support students in the pursuit of becoming ready for post-secondary education (Rasinski et al., 2016).

English Language Learners and students with low socioeconomic status (SES) often face challenges related to literacy and academic language that must be considered when designing and analyzing the impacts of interventions (Uccelli, Phillips-Galloway, Barr, Meneses, & Dobbs, 2015). Uccelli et al. (2015) found that higher levels of academic language skill performance can be predicted if students are not ELL and are not classified as low SES.

Uccelli et al. (2015) studied the academic vocabulary skills in a diverse population of 218 students in grades ranging from fourth- to sixth-grade. English proficient students that were in middle socioeconomic standing scored 20% higher than peers that were classified low SES when tested with the Core Academic Language Skills Instrument (CALS-I). English Language Learners of middle SES, although scoring almost 20% below English proficient peers, also scored higher than other ELLs within low SES. These findings suggest a need for specific supports and skill development for students that are in one or both of these populations (Uccelli et al., 2015). There is limited research related to intervention impacts on ELLs within the middle school levels. Additional research needs to be conducted to better differentiate the effectiveness of interventions related to differing English proficiency levels within the ELL population and the effects interventions can have on students with low SES (Hwang, Lawrence, & Snow, 2015).

Word Generation and Academic Vocabulary Interventions

Academic vocabulary is a category of words that occur rarely in conversational language but can be used in multiple ways across disciplines (Lesaux, Kieffer, Faller, & Kelley, 2010). Lawrence, White, and Snow (2010) identified a relationship between academic vocabulary levels and proficiency levels, measured by the Massachusetts Comprehensive Assessment System (MCAS), when studying the effects of the Word Generation (Word Gen) program utilized at the middle school level. Students that participated in 20 weeks of the middle school Word Gen curriculum, focused on the explicit teaching of academic vocabulary, showed a significant increase in their academic word comprehension (Lawrence et al., 2010). After completing 20 weeks of Word Gen, students averaged almost two years of growth difference when compared to students in control schools (Lawrence et al., 2010). Academic vocabulary skill levels showed a direct relationship with reading comprehension scores on the MCAS, suggesting a significant correlation between the two skill sets and a need for the development of both areas in struggling readers (Lawrence et al., 2010; Uccelli et al., 2015).

LaRusso et al. (2016) studied the reading comprehension domains of complex reasoning, perspective taking, and academic language in a population of 2,933 fourth- through seventh-grade students that had engaged in the Word Gen curriculum. LaRusso et al. (2016) used the CALS-I, the Social Perspective Taking Acts Measure, a reflective judgment assessment, and Global Integrated Scenario-based assessment to gather data related to the reading comprehension factors studied. All had positive impacts on student achievement related to deep comprehension. Of the three-literacy domains studied, academic language levels were the strongest predictor of success (coefficient= 20.66, $p <$. 001) related to comprehension achievement (LaRusso et al., 2016).

Hwang et al. (2015) found that students who engaged in the Word Gen curriculum during one school year saw a difference in gains directly related to their English proficiency levels. Word

Gen was implemented at seven schools for one school year, with six middle schools acting as control schools. Academic vocabulary pre- and post-testing was used to measure the impacts of the Word Gen program on student learning. English only students saw a .7 higher post-test score when compared to control students, while limited proficiency students only scored .3 points higher (Hwang et al., 2015). Students that were classified as proficient language minority displayed the most growth, one point higher than the control students, suggesting proficient bilingual students greatly benefit from academic vocabulary focused programming (Hwang et al., 2015). Their findings suggest that English language proficiency levels may affect the benefits and growth observed within the implementation of literacy interventions (Hwang et al., 2015).

Results surrounding ELL achievement gains related to interventions suggest that the Word Gen curriculum may lack necessary language scaffolding strategies reducing the number of ELLs that can fully participate and engage with the materials (Hwang et al., 2015). Hwang et al. (2015) offer the suggestion for additional scaffolding to be created to enhance the accessibility of the Word Gen curriculum materials. In this study, all Word Gen units were modified from their original five-lesson schedule to an eight-lesson cycle in order to incorporate daily vocabulary exercises and background building discussions. Key vocabulary strategies designed to support ELLs include the activation of prior knowledge, repeated exposure, visual associations, and graphic organizers will be utilized throughout the lessons (Sibold, 2011).

Interventions that offer students support with underdeveloped skills can be effective if programming aligns to student readiness levels (Fogarty et al., 2014). The individualized intervention approach of this study offered students multiple pathways for skill development based on their specific needs and initial proficiency levels. Through multiple interventions, offered at a variety of levels, the designed intervention structures were meant to offer students the opportunity to develop skills based on individual needs without comparison to peers at different levels. This flexible grouping strategy supports students' confidence building and perceived ability for success within a small group setting (Bandura, 1994).

Academic Vocabulary Connections

Mokhtari and Niederhauser (2013) studied a fifth-grade population to identify the correlation between students' levels of vocabulary and their reading comprehension achievement as measured by the Gates-MacGinitie test. They found that an increase in vocabulary resulted in a .36 unit increase related to reading comprehension, suggesting that vocabulary development has a direct impact on a student's overall literacy proficiency (Mokhtari & Niederhauser, 2013). LaRusso et al. (2016) identified a need for additional research in order to analyze the effect academic vocabulary has related to overall reading comprehension skill development. This highlights a weakness in the current research surrounding vocabulary at the middle school level, and the effects academic vocabulary development can have on overall reading proficiency levels.

Fang and Schleppegrell (2010) suggest that the cross-disciplinary application of academic vocabulary words makes their correct usage a complex skill that can only happen if students are able to identify the context in which words are used. Through discussions surrounding a variety of applications and uses of academic terms, students are able to construct multiple context schemas that aid in the decoding and analysis of complex texts (Fang & Schleppegrell, 2010). This multi-faceted approach to learning academic vocabulary will be incorporated into the study conducted by this researcher through the usage of the Word Gen curriculum that includes specific examples for term applications related to math, science, and societal situations.

STARI Interventions

Students often do not make the connections between intervention skills and applications outside of the intervention (Balfanz, 2009). Kim et al. (2016) suggest intervention structures that not only engage students in skill-focused tasks but also encourage real-world applications of skills to support and create meaningful learning experiences for struggling readers. Through the development of skills and strategies within authentic learning opportunities, students can see a purpose for their learning. With explicit instruction and practice of key strategies students are more motivated to engage in challenging activities due to increased confidence in their personal ability for attaining success,

ultimately promoting a positive self-efficacy mindset that can be transferred between skill-application situations (Schunk & Pajares, 2001; Schunk 1985). The Strategic Adolescent Reading Intervention (STARI) curriculum offers opportunities for students to develop key literacy skills such as decoding and fluency within the context of themes and authentic discussions to encourage critical thinking in order to increase overall literacy proficiency levels (Hwang et al., 2015; Kim et al., 2016).

Through increased engagement, students have shown gains in reading proficiency levels (Wigfield et al., 2008). Wigfield et al. (2008) used the Gates-MacGinitie Standardized Reading Test and Comprehension Test to assess the literacy levels of 492 fourth-grade students. The Reading Engagement Index was used to collect observational data related to student's engagement when reading in the classroom setting. Wigfield et al. (2008) found that reading engagement scores had a correlation of .57 related to reading comprehension and text strategy achievement. Wigfield et al. (2008) suggest engagement benefits are rooted in the ability of students to utilize reading comprehension strategies strategically in order to understand and decode complex texts. When students are motivated and engaged in reading tasks, their overall comprehension increases (Wigfield et al., 2008).

Student engagement related to intervention materials also can impact the effectiveness of literacy interventions. Kim et al. (2016) found students that actively engaged with the STARI curriculum related to daily activities (guided reading, fluency routines, partner talks) as well as completing the student workbook with fidelity saw the most gains when compared to students that had limited engagement with the interactive writing portions of the interventions. Students that completed less than half of the workbook scored .75 deviations below the mean reading comprehension post-test score, and 1.75 deviations below the mean engagement score (Kim et al., 2016). These findings suggest that the completion of written activities can greatly impact the effectiveness of interventions and students' abilities to actively engage in intervention lessons (Kim et al., 2016). In order to ensure students are engaged in meaningful interventions that focus on specific student needs, an ideal environment for each student needs to be analyzed based on student data.

Fluency and guided reading. Wendt (2013) offers fluency as the skill of being able to comprehend and derive context when reading. Repeated readings and peer practice are common elementary strategies that promote fluency, but these routines may not be best practice to support adolescent learners (Wendt, 2013). Fluency routines and guided reading strategies will be daily components of the STARI intervention lessons. Wendt (2013) contends that additional context and comprehension-based discussions may need to be incorporated to ensure adolescent readers are able to apply the complex patterns of language to new situations. With an increase in text difficulty, students often struggle with fluency due to their reduced ability to comprehend complex texts (Rasinski et al., 2016).

Marchand-Martella, Martella, and Lambert (2015) offer guided reading as a strategy to support struggling adolescent readers related to comprehension strategies. Through clear expectations, routines, and think-a-loud components, explicit guided reading instruction provides students the opportunity to develop fluency, vocabulary, and text-decoding skills (Marchand-Martella et al., 2015). Specific modeling of skills and strategies was found to have a positive impact on students' self-efficacy when presented explicitly (McCrudden, Perkins, & Putney, 2005). McCrudden et al. (2005) studied the effects of the instruction of four reading strategies related to the self-efficacy in a population of non-proficient 4th graders. During the two-week intervention, self- efficacy significantly increased $t(22)= 3.59$, $p < .05$ along with interest in using the provided strategies $t(22)= 2.21$, $p < .05$. This research suggests that engagement in specific strategy lessons with purposeful background building and practice, students can increase their confidence in utilizing reading strategies (McCrudden et al., 2005).

Cirino et al. (2013) suggest that fluency screenings along with additional comprehension testing may offer the necessary data to target skill deficiencies within middle school populations and should be considered when designing potential intervention structures. Through the STARI curriculum, students graph and track their fluency progress throughout the lessons, with the opportunity to increase material difficulty at any

time. Fluency materials and goals are based on initial fluency testing to ensure students are able to achieve reasonable progress in order to build confidence with key strategies and promote skill development ownership (Schunk, 1990). The comprehension questions embedded into the STARI fluency materials will be utilized by teachers in the proposed study to determine correct fluency levels for individual students throughout the intervention process. Individualized reflection questions and feedback related to progress with offer students insight into their skill development process as well foster a culture of learning versus completion (Schunk, 1985).

PowerUp Intensive Interventions

Through thoughtful and purposeful placement into reading interventions that account for student readiness levels, students will be more engaged and motivated to participate if success seems attainable (Kim et al., 2016). Cirino et al. (2013) studied skill correlations within a struggling reader population of students scoring in the 25th percentile or below. The literacy areas of fluency, decoding, word level reading, and comprehension skills were tested using the Texas Assessment of Knowledge Skills test. They found that a majority of students struggled within more than one skill area with 19.6% of students displaying difficulties in at least two areas, and 48.5% showing difficulties in three or more (Cirino et al., 2013). The results suggest an overlap in skill relationships that can directly affect student proficiency levels. Their findings showed that the area of greatest difficulty for struggling readers was reading comprehension (89% of students), but suggest that interventions for middle school students should address multiple literacy components and not solely focus on comprehension (Cirino et al., 2013).

PowerUp by Lexia Learning is a new computer-based program that offers individualized literacy instruction through the domains of word study, grammar, and reading comprehension (Lexia Learning, 2018). Students engage in this program on an individual basis, with options of specific skills lessons taught by a teacher. Students will progress through the adaptive PowerUp program at their own pace, with the path to mastery determined by student responses and initial placement testing (Lexia Learning, 2018). With the release of the program occurring in July 2018, there is limited peer-reviewed research surrounding the effectiveness of PowerUp program.

Goal Setting and Feedback

Self-efficacy researchers suggest a mindset shift from overall self- enhancement to specific skill-based goals can have a positive impact on students' self-efficacy as they engage in academic interventions (Pajares, 2005; Schunk, 1990). When goals are created with a students' current readiness in mind, students are able to directly see how their effort affects their progress towards those attainable goals, providing positive interactions with the learning process and increasing a students' self-efficacy (Schunk, 1990). Shunk (1990) suggests that as students engage in the data tracking process towards specific goals, they are more likely to stay with challenging tasks longer and show more overall achievement. Teacher-student interactions that highlight performance outcomes and progress support students' buy-in to the learning process and development of positive self-efficacy beliefs (Dweck et al., 2014).

Gaps in Current Research

According to NCES (2017), 65% of eighth-grade students scored below proficiency related to reading in 2017, showing a need to support a wide range of literacy ability levels at the middle school level. Interventions that incorporate multiple components of literacy such as fluency and vocabulary need to be studied at the middle school level to identify strategies that best support struggling adolescent learners (Cirino et al., 2013). Current research offers insights into the role literacy skill development has in supporting adolescents as the complexity and difficulty of literary tasks increase throughout secondary levels (LaRusso et al., 2016; Rose, 2011; Wendt, 2013). Adults ages 16-24 made up 33% of the unemployed population studied, and only 8% were able to test at literacy levels of four or five in the 2014 PIAAC study (Rampey et al., 2016). These results suggest that literacy is directly related to success in the workforce, and the supports young adults need to achieve at high levels.

Educators are looking for literacy interventions that can support multi-skill development in order to increase the low proficiency achievement within middle school populations along with effective implementation strategies for such interventions (Fogarty et al.,

2014). Academic vocabulary, fluency, and decoding skill-focused interventions have positive impacts on students' literacy proficiency levels, especially for students in at-risk populations such as ELLs and students with low SES (Cirino et al., 2013; Hwang et al., 2015; Kim et al., 2016; Lawrence et al., 2010).

Interventions that incorporate multiple literacy components have a limited research base for students at the middle school level (Fogarty et al., 2014). This study will address the limited research by analyzing the effects of support systems related to fluency, guided reading, academic vocabulary, and specific word study skills in a diverse eight-grade population. Often the subject of separate studies in current research, this study will analyze the collective effects of multiple interventions to include STARI, Word Gen, and PowerUp. While many studies of STARI and Word Gen curriculums show positive impacts on general students' literacy levels, there is limited research surrounding the effects of the interventions related to ELLs and students with Individualized Education Programs (Hwang et al., 2015; Kim et al., 2016). Moreover, very little is known about the effects of literacy interventions on students' perceptions of their self-efficacy as readers.

Current academic vocabulary research surrounding the Word Gen curriculum only includes the implementation effects related to one of the three curricula: fourth-grade, fifth-grade, and middle school levels (Hwang et al., 2015; LaRusso et al., 2016; Lawrence et al., 2010; Mokhtari & Niederhauser, 2013). The structure of the proposed intervention system will engage students in one or more of the available curricula levels, determined by a multi-leveled vocabulary pre-test. This study will address the limited research surrounding the effectiveness of Word Gen by utilizing multiple leveled materials within the same population.

Fluency and guided reading strategies have been shown to support struggling readers in the elementary setting, with a need for middle school focused research to determine best practices for adolescent readers (Marchand-Martella et al., 2015). This study will address the limited research related to adolescent guided reading strategies and fluency routines through the implementation analysis of STARI interventions. Group sizes related to interventions also have been primarily elementary focused with a limited body of research surrounding the effectiveness of small group literacy instruction (three-five students) within a middle school setting (Kim et al., 2012). This study will provide insight into the effectiveness of small group instruction (five students or less) through the implementations of PowerUp lesson sessions to be conducted by English or ESL licensed teachers with non-proficient students.

Self-efficacy has been shown to be an important factor in the academic achievement of students (Bandura, 1994). Research highlights the importance of effort and progress feedback, but with limited data surrounding the effectiveness of one-on-one conferencing interventions (Schunk, 1985). There is also limited research surrounding self-efficacy interventions that are correlated with multiple-strategy instruction (McCrudden et al., 2005). This study will address the limited research by analyzing the effect one-on-one conferencing related to individualized interventions can have on students' self-efficacy and overall reading achievement.

Purpose of Study

The purpose of this study was to test the effects of the delivery of individualized literacy interventions on the perceived self-efficacy of eighth-grade students in a rural school district. The district had not implemented any prior literacy interventions. Eighth-grade students were provided multiple literacy interventions in the areas of fluency, guided reading strategies, word study, and academic vocabulary in addition to normal literacy instruction over a four-month span. Students were tested using the STAR reading test by Renaissance Learning (2018a, 2018b) three times during the study (August, October, and December). In addition to the literacy interventions, ten students engaged in weekly one-on-one conversations related to their progress towards personal literacy goals for eight-weeks in order to test the effects of goal conferencing related to the students' perception of self-efficacy related to reading abilities.

Method

Participants

This study was conducted in a small, rural Midwestern school district. Individualized literacy interventions were developed and delivered to a population of 41 eighth-grade students, 80% of whom qualified for free and reduced lunch in the

2017-2018 school year (Iowa Department of Education, 2018).

A sample of 20 eighth-grade students was chosen from the 41-student eighth-grade class using a random number system. All students were assigned numbers 1-41 using alphabetical ordering. A random number generator was used to select the 20 participants. The participant group was then renumbered and a random number generator was used to select 10 students to act as the experimental group, with the remaining ten being assigned to the control group for the self-efficacy conferencing interventions. The experimental group sample consisted of four males and six females. The control group sample consisted of eight males and two females.

Additional sub-group identifications included six students (30%) currently enrolled in the English as a Second Language (ESL) program and three students (15%) with-Individualized Education Programs (IEPs) focused on reading goals. Two of the students who were identified ESL students also had IEPs. The participant sample of this study is a proportional representation of the district's ESL population, with 35% of students in the district enrolled in the ESL program during the 2017-2018 school year (IA DOE, 2018). English Language Learners (ELLs) who did not attend regular eighth-grade literacy classes were excluded from the study due to differences in class scheduling resulting in the inability to attend intervention sessions.

Individualization of Literacy Interventions

Students were placed into intervention levels based on their reading achievement levels on the Iowa Assessment reading test, taken in the Spring of 2018, and the STAR reading test administered in August 2018. Specific intervention and proficiency categories are specified in Appendix A. Within the 20-student sample population, twelve students participated at intervention Level One, three students at Level Two, two students at Level Three, and three students engaged in Level Four interventions.

All students received STARI fluency and guided reading lessons with additional vocabulary and word study interventions assigned based on pre-testing data. This grouping procedure allowed for flexible intervention paths that were determined by student needs. The pathways and groupings were determined based on Iowa Assessment proficiency levels, STAR reading initial testing, PowerUp program placement testing, and vocabulary pre-testing. Refer to Table A2 in Appendix A for possible interventions at each level.

Selection of specific intervention combinations was based on their current instructional reading levels to promote accessibility of concepts and the development of skills in which students can be successful (Kim et al., 2016). Students participated in five, two-week intervention cycles during the Fall 2018 semester. All interventions were delivered to groups of less than 15 students. PowerUp skill interventions occurred in groups of five or less. The small group structure provided an environment conducive for student interactions (Sporer, Brunstein, & Kieschke, 2009).

The intervention curriculum utilized for fluency and guided reading strategies was adapted from The Strategic Adolescent Reading Intervention (STARI) curriculum developed by the Strategic Education Research Partnership (SERP). STARI enabled students to engage in routine fluency partner practice as well as teacher modeled literacy strategies (e.g. summarizing, clarifying, and predicting) through guided reading and read aloud activities that promote small group interactions (Kim et al., 2016). Students engaged in 45-minute small group lessons once every three days during the four-month study.

The Word Generation (Word Gen) curriculum was modified and utilized for academic vocabulary development related to fourth-grade, fifth-grade, and middle school ability levels. The Word Gen curriculum, developed by SERP (2015), offered cross-disciplinary, explicit vocabulary instruction. Students engaged in 20-minute lessons for eight days within each intervention cycle. The number of lessons and the specific intervention foci were determined based on initial student data. Academic vocabulary pre-testing was used to identify the areas of student needs related to the fourth-grade, fifth-grade, and middle school level units within the Word Gen curriculum. Multiple-choice, as well as fill-in-the-blank question structures within the vocabulary assessments, provided information regarding students' ability to define and apply academic words in order to identify areas in need of additional instruction (Hwang et al., 2015).

Grammar and word study lessons were adapted from the PowerUp program offered through Lexia Learning (2018). Often a focus of

elementary interventions, basic grammar and word study lessons offered struggling students support that is not often taught at the middle school level (Cirino et al., 2013). All students engaged in the PowerUp computer program individually throughout the four-month study.

Apparatus and Materials

Students used their school-assigned 13-inch MacBook Air laptops for all testing and digital interventions. The LED-backlit display measures 13.3 inches diagonally. The laptops were 12.8 inches wide, 8.9 inches deep, and weigh 2.9 pounds. Students utilized the secure wireless Internet connections offered through the school district when testing. The MacBook Airs use a 1.6GHz dual-core Intel Core i5 with a 12 square inch multi-touch trackpad (Apple Inc., 2017). Following are the descriptions of the materials used for the literacy interventions.

STARI. The Strategic Adolescent Reading Intervention (STARI) curriculum, developed by the Strategic Education Research Partnership (SERP, 2015a, 2015b), was modified and utilized for all participants. Students engaged in leveled fluency routines and guided reading activities using STARI once every three days for forty-five minutes. The fluency data collected included words per minute (WPM), accuracy, and comprehension. A trained reading specialist in a one-on-one setting conducted the initial fluency placement test. Fluency leveled materials and lessons for each student were determined using the lexile and grade equivalency correlations provided by the STARI curriculum.

The STARI lessons utilized guided reading strategies through the use of personal student workbooks aligned to specific literature. Students in intervention levels one and two used classroom sets of the short story collections, *Local News,* by Gary Soto and *Middle School Confidential 1: Be Confident in Who You Are*, by Annie Fox along with assigned fluency leveled materials. Students in intervention levels three and four used a classroom set of the book, *The Skin I'm In*, by Sharon Flake along with their specific fluency leveled materials during each lesson session. All lessons were taught using the STARI Level 1 curriculum, *Unit 1: Stand up for Yourself* (SERP, 2015a, 2015b).

PowerUp. PowerUp (Lexia Learning, 2018) is a literacy program that offers individual skill development through an online intervention program along with skill lessons that can be administered by a teacher. PowerUp offers 60 different instructional pathways for students to work through based on an initial placement test. The three strands of lessons within PowerUp consist of word study, grammar, and reading comprehension with standards-align lessons ranging from kindergarten to twelfth-grade (Lexia Learning, 2018).

All students used the PowerUp computer program, with specific skill lessons explicitly taught in a small group setting. PowerUp lessons were adapted to include specific vocabulary building activities to support ELLs including graphic organizers, explicit vocabulary instruction, multiple practice opportunities, and manipulatives (Sibold, 2011).

Word Generation. Word Generation (Word Gen) (SERP, 2015a, 2015b), was modified and used for the academic vocabulary-focused intervention cycles. Originally designed for five days, Word Gen lessons were modified and extended to include additional vocabulary building strategies to support ELL students. The Word Gen covered eight days of lessons, twenty minutes each.

Dependent Measures: Literacy Interventions

Vocabulary. Vocabulary pre-testing consisted of fourth-grade, fifth-grade, and middle school academic words from the first six-Word Gen interventions. Google Forms was used for the testing, and the 60-question test was automatically scored through the use of a Google Sheets add-on, Flubaroo. Multiple-choice and fill-in-the-blank questions were assessed for each word, resulting in six different unit sections consisting of ten questions each. Five fill-in-the-blank questions offered students three options to choose from via a drop-down menu that could be selected using the trackpad.

After each Word Gen intervention cycle, students completed a unit-specific post-test of the focus words. Post-testing consisted of definition matching, fill-in-the-blank questions, and academic usage short answer questions. The tests were completed on paper during the last intervention session of the cycle.

Students in the ESL program and/or with IEPs were given the option of having the pre-test

and post-tests read aloud to them by a teacher, which is a comparable accommodation to what they receive for the state vocabulary test based on IEP and ELL Individual Language Plan (ILP) guidelines.

STAR test structure. The STAR reading test is a 34-item computer-adaptive test that measures reading comprehension by adjusting the skill level of questions to identify students' current proficiency levels. STAR aligns to and tests five domains within the scope of reading comprehension; word knowledge and skills, comprehension strategies, analyzing literacy text, analyzing arguments, and understanding author's craft (Renaissance Learning Inc., 2018b

All STAR test questions were multiple-choice questions for which students used the trackpad or keyboard to select answers. The first ten questions of the test are focused on vocabulary-in-context; offering multiple options for sentence completion related to one fill-in the blank sentence (e.g. The sky is _____. A. down; B. dog; C. blue) (Renaissance Learning Inc., 2018a). The time limit for students to answer a vocabulary-based question is 45 seconds before the test generates a new question. The time limit on all other question types is 60 seconds. Students identified as ELLs and/or with IEPs will have extended time on questions, three times longer than normal timing, offering 135 seconds for vocabulary and 270 seconds for all other questions. Extended time is the only accommodation students received during STAR testing, which is comparable to what students receive when taking the state reading assessment based on IEP and ELL ILP requirements. Grade equivalent (GE) scores generated by the STAR test were analyzed for growth after each testing period (August, October, and December).

STAR reliability and validity. The STAR reading test provides reliable data related to a student's reading comprehension proficiency levels and valid growth data for comparisons related to progress monitoring. Test reliability was analyzed utilizing the scaled score data from 16,573 eighth-graders in 2016, and the STAR reading test had a reliability coefficient of .95 (Renaissance Learning Inc., 2018). The standard error of measurement average related to the scaled scores was 17 units for eighth-grade students (Renaissance Learning Inc., 2018). This data suggests that STAR offers a reliable test with scores giving an accurate picture of students' reading comprehension levels.

STAR has an item bank consisting of 2,122 vocabulary-based questions and 3,849 reading skill questions. All questions are designed with grade level accessibility considerations affecting the difficulty of the text provided, length of passages, and vocabulary used (Renaissance Learning Inc., 2018). These design measures offer content validity for all questions students will be asked to answer, despite the grade and skill level the test produces based the adaptive nature of the assessment (Renaissance Learning Inc., 2018).

Analysis of concurrent validity occurred utilizing data collected from 1999-2013 and included the scores of 300,000 students. The validity correlations related to STAR and other standardized tests, including the Iowa Tests of Basic Skills, identified an average validity coefficient of .72 (Renaissance Learning Inc., 2018). This data suggests that the grade equivalency and predictors for state standardized testing achievement offered by the STAR test are valid data points for reading comprehension levels.

Dependent Measure: Self-Efficacy

The Self-Efficacy Formative Questionnaire was utilized as the pre- and post-test assessment for the self-efficacy conferencing interventions (Gaumer Erickson & Noonan, 2018) (See Appendix A). The questionnaire is a digital reflection assessment, consisting of 13 prompts, where students are expected to rank themselves from 1 (*not like me)* to 5 (*very like me*) on a Likert-type scale. Prompting statements assessed students related to two components of self-efficacy beliefs; the belief that ability can grow with effort and the belief in personal abilities to meet specific goals. Students individually completed the questionnaire using a unique session and individual student ID code. Due to the questionnaire prompts being written at an eighth-grade level, read aloud options were offered to any student that was identified ESL or with an IEP (Gaumer Erickson et al., 2018).

Questionnaire reliability. In a study of 4,989 middle and high school students, Erickson et al. (2018) found that the Self-Efficacy Formative Questionnaire was highly reliable related to all 13 items ($\alpha = .894$). The five items centered on the belief that ability grows with effort had a reliability coefficient of $\alpha = .805$. The eight items focused on

the personal ability belief had a reliability coefficient of α = .841 (Gaumer Erickson et al., 2018). This data suggests that the questionnaire can be used as a reliable self-efficacy assessment.

Procedures

Individual student schedules were created for the twenty-minute intervention sessions that were offered two times a day during the eight-day lesson cycles. Morning and afternoon sessions differed in their foci based on initial student testing data. Students participated in five different intervention cycles over the course of the four-month study.

All students received leveled fluency and guided reading instruction in small group settings utilizing the STARI curriculum. STARI interventions occurred once every three days for forty-five minutes over the entire four-month study. Three certified English teachers taught the STARI lessons with classes divided into intervention level one/two and level three/four groupings. Teachers working with intervention levels one and two used the short story lesson sequence within Unit 1 of the STARI Level 1 curriculum. Teachers working with intervention levels three and four used the novel study lesson sequence within Unit 1 of the STARI Level 1 curriculum.

Based on initial vocabulary pre-testing data, **s**tudents were scheduled to participate in Word Gen lesson cycles for units in which they score less than 70% correct. Word Gen lesson cycles were assigned based on students' academic vocabulary levels. Word Gen intervention lessons were taught by three middle school content-licensed teachers. At the end of each eight-day lesson cycle, Word Gen intervention teachers administered post-tests to identify possible concerns with the intervention lesson setup and potential shifts in student schedules for future cycles. All post-testing occurred during the last session of the intervention cycle and was proctored by the intervention teacher to ensure consistency across intervention groups

PowerUp interventions. All students individually worked through the PowerUp computer program. Students in intervention levels one and two had their skill deficit areas identified through the PowerUp placement test and cross-referenced with the STAR reading test in order to create intervention cycle classes. PowerUp skill lesson sessions were capped at five students for each teacher. The five PowerUp intervention teachers were ESL or English certified, and assisted in the development and planning of the PowerUp-based skill lessons.

Teacher preparation and training. Teachers involved in the interventions included: five literacy trained (English or ESL) teachers that conducted the PowerUp and STARI intervention lessons and three middle school content teachers (mathematics, social studies, and science) that conducted the Word Gen intervention lessons. Professional development occurred with all intervention teachers before school started with reoccurring training once every three weeks and with implementation/observation discussions happening weekly. Training occurred related to Word Gen, PowerUp and STARI strategies and lesson designs with the respective teachers.

Intervention fidelity. Observations of intervention lessons for each teacher occurred at least one time during each intervention cycle to ensure intervention fidelity. Observations focused on the adherence to lesson plans, student engagement, and teacher comfort level with literacy strategies (See Appendix B). Data was collected and discussed with the intervention teachers after each cycle and used to determine additional professional development needs, using the observation form found in Appendix B. Group trends and needs that were evident for more than one teacher were presented and discussed at weekly data meetings with all the intervention teachers.

Self-efficacy debriefing sessions. Students in the experimental group (n=10) received one-on-one conferencing once a week for eight-weeks from October to December. Ranging from five to ten minutes long, session discussions focused on the literacy intervention progress and individual goals students were working towards. Promoting the self-efficacy beliefs of effort and personal ability, discussions were guided to include positive mindset statements and promote student awareness of control related to their literacy achievement (Parjares, 2005). Specific data discussed included PowerUp unit progress, AR reading quizzes, fluency practice, and intervention achievement related to testing and materials. Graphs and color-coded tables were utilized to make data visual and easy to interpret as student discussed their perspectives of the literacy

components they were practicing throughout the interventions (Schunk, 1985). Students took part in goal setting at the beginning of the intervention with a chance to modify their goals at the four-week mark to make the goals reasonable and attainable. Conferences were held in quiet office rooms with limited distractions.

Data Collection

STAR reading mid-tests and post-tests were administered in October and December, respectively, to monitor the effectiveness of the conferencing and literacy interventions. Growth equivalency scores were derived to determine the extent, if any, of student growth. PowerUp usage and skill needs were tracked using the PowerUp teacher portal, and individualized intervention sequences were modified after the first two months of the study based on these data. Additional Word Gen vocabulary pre-testing occurred after the second intervention cycle to determine the placement needs of each student for the last three cycles of the study.

Data Analysis

The purpose of this research was to support adolescent students in their development of key literacy skills and positive self-efficacy awareness in order to become proficient readers that are able to be successful at the secondary level and beyond. This study utilized descriptive analysis of STAR reading test grade equivalency levels to monitor student's reading achievement growth related to the multiple literacy interventions (STARI, Word Gen, and PowerUp). Data from each STAR reading assessment period was collected to analyze pre- and post-conferencing intervention effects (August-October, October -December, August-December). These statistics were aggregated through the ANOVA descriptive statistics option using the JASP application.

Self-efficacy data was analyzed through the use of an independent sample t-test in order to identify the effects the one-on-one conferencing intervention had on students' perceptions of self-efficacy. JASP was used to run the t-test to analyze the results of the pre-and post-test data from the Self-Efficacy Formative Questionnaire. Pre-test data was collected in October and post-test data was collected in December after the experimental group had participated in eight-weeks of conferencing interventions.

Results

Results include STAR reading monitoring data that was collected three times throughout the four-month individualized literacy intervention implementation from August to December. Self-efficacy data was collected is based on the implementation of an 8-week conferencing intervention that occurred from October to December. The STAR monitoring and the self-efficacy measures were conducted with the same 20-student sample of eighth-graders.

STAR Reading Monitoring

Table 1 displays the resulting scores for the experimental and control groups for the entire four-month literacy intervention implementation. The experimental group had an overall average grade equivalency increase of .5 from the August pre-test (M = 6.58, SD = 2.53) to the December post-test (M = 7.13, SD = 2.72). The experimental group saw a .58 increase during the duration of the self-efficacy intervention implementation related to the October mid-test (M = 6.54, SD = 2.85) to the December post-test (M = 7.13, SD = 2.72). The control group had an overall average grade equivalency increase of .44 from the August pre-test (M = 4.96, SD = 1.78) to the December post-test (M = 5.40, SD = 2.42). The control group saw a .19 increase during the duration of the self-efficacy intervention implementation related to the October mid-test (M = 5.21, SD = 2.76) to the December post-test (M = 5.40, SD = 2.42).

Table 1

STAR Reading Test Grade Equivalencies for 8th Grade Student Groups

Self-	August Pre-Test			October Mid-Test			December Post-Test		
Groups	n	*M*	*SD*	n	*M*	*SD*	n	*M*	*SD*
Experimental	10	6.58	2.53	10	6.55	2.85	9	7.13	2.72
Control	10	4.96	1.78	10	5.21	2.76	10	5.40	2.42

Table 2

Independent 1-tailed t-test of Self-Efficacy Questionaire for 8th Grade Student Groups

	Experimental			Control					
	n	*M*	*SD*	n	*M*	*SD*	t-test	df	*p* *
Pre-test	10	54.50	5.34	10	53.50	8.67	0.31	18.00	0.76
Post-Test	9	56.56	6.46	10	54.50	8.76	0.58	17.00	0.57

* $p < .05$

Efficacy Questionnaire

An independent sample t-test analysis was performed between the pre-test and post-test scores of the two groups, as shown in Table 2, in order to identify if one-on-one conferencing had a significant impact on students' perception of self-efficacy over an eight-week period. The mean value for the experimental group's pre-test score (M= 54.50, SD= 5.339, N=10) was 1 point higher than the control group's pre-test score (M= 53.50, SD= 8.670, N=10) on the self-efficacy questionnaire. The control group had a lower minimum value (38.00) along with a larger standard deviation (SD= 8.670) suggesting the range of scores for the major of students within the group was larger than the experimental group. The experimental group's post-test score (*M*= 56.56, *SD* = 6.46) was 2 points higher than the control's post-test score (*M*= 54.50, *SD* = 8.76).

The t-test results did not confirm the research hypothesis due to insignificant differences between the experimental and control group pre- and post-test intervention scores. The October pre-test resulted in a $t(20) = .311$ with a $p = 0.760$. The December post-test results in a $t(19) = .576$ with a $p = 0.572$. Despite relative increases within the experimental group's mean score (+2.06) when compared to the control group's mean difference (+1), the differences are not significant due to $p > .05$. The high SD found within both groups within all test scores collected also suggest a high

variation within student scores that cannot be correlated with the intervention experiment.

Discussion

The self-efficacy t-test results were not significant enough to support the hypothesis that a weekly conferencing intervention would have a positive effect on student's efficacy. Although a positive effect was expected, which was shown by the increased means on the self- efficacy questionnaire, the results were not significant due to the high *p* values related to the t-test analysis.

The personal reflection component of the research surrounding self-efficacy allows for individual interpretation of the questionnaire prompts and initial results suggest that participating students may have struggled with the concept. For example, the maximum scores both groups for the pre-test were 65, suggesting that each group contains a student that has high self-efficacy before the experiment. During conferencing interventions with individual students, however, I observed that higher pre-test scores might not have accurately described the student's current perceived efficacy levels. These observations indicated the need for more discussion of self-efficacy concepts due to lack of understanding related to the survey organization and/or language after conferencing with students. These research observations related to the dependent variable put the insignificant results and potential limitations for the research into perspective.

Although the self-efficacy conferencing intervention results could not be considered significant, the increase in scores on STAR Reading tests along with the self-efficacy questionnaire aligns with the current research and theory. As students develop a pattern of academic successes, their perceived self-efficacy can increase as confidence and personal strategy usage is built (Schunk & Parjares, 2001). Individualized instruction, personal goal setting, and student materials at current readiness-levels, although all positive components of multiple studies, were not shown as having a significant impact on the self-efficacy of the eighth-grade participants based on the results of this study (McCrudden et al., 2005; Parjares, 2005; Schunk, 1985).

Specific goal feedback and data-tracking strategies related to effort and progress have been shown in the past to increase students' self-efficacy levels (Schunk, 1990). Although both the control and experimental groups shown an increase related to their self-efficacy reflection data, this study could not support that the goal discussion and data-tracking intervention components had a positive impact on self-efficacy due to the insignificant increases based on the t-test performed.

Limitations

With only four months of individualized literacy interventions and two-months of self-efficacy conferencing interventions implemented, a major limitation within this study was the limited time to identify significant effects on students with the multiple intervention components. Changes in school schedules, teacher assignments, types of literacy lessons, and class rosters every two weeks, the literacy intervention system offered flexibility in learning environments that most students and teachers are not used to engaging in. These shifts in educational settings, while potentially positive based on past research, were all occurring along with the self-efficacy focused interventions. Additional time would have allowed structural changes to potentially have less of an impact on the self-efficacy research and gave a more accurate picture of student reactions to the conferencing interventions.

The small sample size (n=20) taken from the eighth-grade class, while random, may not have offered the most comprehensive look at the students within the class. The small sample size also impacted the weekly discussion schedule and questionnaire completion due to frequent absences from multiple participants. These extended days out of school could also have played a role in the fidelity of the self-efficacy intervention due to inconstancies of instruction and routines from the student's perspective. The sample size did decrease by one student (n=19) during the intervention. Having a very fluid, migrant population, students coming and going during the school year is a weekly occurrence that also can affect the implementation of interventions designed to shift classroom cultures and student mindsets.

The conferencing interventions offered opportunities to connect with students in a way that they are not used to and build positive self-efficacy relationships. A limitation of the research structure was that the conferences were had with

the researcher rather than one of their classroom teachers. This could have resulted in a reduced transfer of mindset and efficacy strategies due to the outside nature of the discussions from their potential daily applications of the discussed strategies (Schunk & Parjares, 2001).

Future Research and Implications

Additional research surrounding the effects of self-efficacy on student achievement should consider utilizing a longer duration of interventions. With an increase in duration and an increased sample size, future research would be able to reduce the effects of student absences and school structural changes. With a larger sample size in a diverse school district, researchers would also be able to gain more insight into the effects of interventions related to specific sub-groups.

This research offers a foundation for self-efficacy mindset discussions and potential interventions that teachers should engage in, especially at the middle school level. The literacy achievement identified within proficiency groupings related to the STAR Reading monitoring data also presents the opportunity for reflective, data-driven discussions surrounding the types of literacy interventions students are offered. Through additional intervention structures that are incorporated for more students, the implications for students impacted by positive research-based strategies can have far-reaching effects. All stakeholders should consider the relationship between self-efficacy and student achievement as an opportunity to support struggling students with the goal of creating ideal environments for growth.

Conclusion

The issue of limited literacy skills can have far-reaching impacts on student's ability to be productive members of society (Rose, 2011). As the educational system works to support students' development of key reading skills, effective interventions that are tailored to meet specific needs need to be key components in any discussion. As teachers look to support students in overcoming skill deficits, it is important to consider not only student's academic readiness but their personal self-efficacy in order to build confidence and increase the likelihood of success related to individual challenges (Bandura, 1994). While positive effects were not shown to be statistically significant in this study, the potential long-term benefits of a multi-pronged approach to student skill support make such educational structures worth exploring.

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Small Group Skills Based Instruction and Reading Fluency: A Fourth Grade Classroom Study

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Abstract

Reading fluency instruction takes place in schools across the nation. Fluency assesses how many correct words a student can read per minute, while also using speed, accuracy, and expression. Many schools across the nation report low reading fluency scores. Students who struggle with reading fluency can lead to essential problems as a child grows causing behavior and social issues, along with unemployment. Students may lack confidence or improvement when they are reading stories out of their level because of poor instruction. Reading fluency issues increase from inconsistent practice, inappropriate reading passages for their levels, and lack of differentiated instruction. Educators may lack proper training in fluency causing them to teach ineffectively or neglect fluency altogether. The purpose of this study is to determine the effect of small group reading instruction and reading fluency scores compared to whole group instruction. Twenty-three fourth grade students from an urban school district will be part of a research group to test whether small group instruction using learning styles benefits their fluency scores. The independent variables are small group and whole group instruction, while the dependent variable is the FAST reading fluency score. The hypothesis is that small group instruction focused on learning styles will improve fourth grade reading fluency more than whole group instruction. The results showed both whole group and small group instruction improved reading fluency scores, but small group instruction had more improvement. The hypothesis proved to be true that small group instruction using learning styles would improve reading fluency scores more than whole group instruction.

Keywords: fluency, small group instruction, reading fluency, FAST fluency scores

Reading fluency is a reported issue among schools across the U.S. showing more readers that are nonfluent. A nonfluent reader is one that struggles with reading passages using appropriate rate, speed, and accuracy (Begeny, Krouse, Ross, & Mitchell, 2009). It is becoming common for a student to struggle with the concepts of rate, speed, and accuracy that are important skills to become a successful reader. About 36% of fourth-grade students were reported to read below grade level in schools across the United States according to the National Assessment of Educational Progress (NAEP) in 2015 (Otaiba, Gillespie, & Baker, 2018). Additionally, the minority children (e.g. African-American, Hispanic), reported reading rates are lower than grade levels (18%-21%) (Otaiba, Gillespie, & Baker, 2018). The NAEP also showed that of the students living in poverty, 21% were below level as well as 67% of students with disabilities read below their grade level (Otaiba, Gillespie, & Baker, 2018). Therefore, reading issues may be appearing more in the U.S.

In addition, students in Florida showed reports of low reading fluency scores in 2004 (Begeny et al., 2009). Begeny et al., (2009) noted that 22% of third graders scored a level 1, which is the lowest reading score on the Florida Comprehensive Assessment Test (FCAT). That is approximately 45,000 students who were struggling with reading fluency by the completion of their third-grade year (Begeny et al., 2009) .

Furthermore, Begeny et al. (2009) found that 40% of U.S. students are “nonfluent” readers. Their findings suggested low scores might be due to ineffective strategies teaching reading fluency such as incorrectly leveled texts and non-engaging activities (Begeny et al., 2009). To compare, the National Assessment of Educational Progress showed that 31% of fourth grade students are reading at a level below proficient in 2015 (Wu and Gadke, 2017).

Another study showed issues caused by reading fluency. Fenty, Mulcahy, & Washburn (2015) reported that over 70% of the students who drop out of school was due to low reading abilities. Some of those students received special education services. They also reported that the areas of reading for students to improve fluency include vocabulary and comprehension (Fenty, Mulcahy, & Washburn, 2015). Therefore, proper instruction may benefit the fluency scores.

On another note, reading fluency is an essential building block for a student to become successful throughout childhood and adulthood (Smart et al., 2017). Students with strong reading fluency skills can obtain carry careers that involve reading and speaking. Smart et al. (2017) also found that students who struggle with fluency can exhibit behavior issues of acting out during instruction or reading practice. Next, these researchers noted how low reading fluency skills could lead to social issues of embarrassment or becoming antisocial. Smart et al. (2017) suggested students might develop fear of speaking in classrooms or public. Thus, students may continue to struggle through later years of life and run into unemployment issues (Smart et al., 2017).

Nevertheless, teachers have a responsibility to provide instruction that leads to positive gains for students (Fenty, Mulcahy, & Washburn, 2015). Students who receive poor instruction will likely lead to poor reading fluency scores (Abadazi (2011). Abadazi (2011) also noted that students who come from low-income families might struggle more without appropriate reading fluency instruction and practice. As a result, students who come from low-income families should get more learning from teacher instruction because many students lack practice at outside from school (Abadazi, 2011).

Next, many teachers lack a clear picture of what successful reading instruction should resemble (Fien et al., 2011). Fien et al. (2011) noted it is uncommon for teachers to use whole group reading as a time for students to read aloud in front of their peers or with a partner. They also noted that many students practice fluency with the same passages at levels that are not appropriate for each student (Fien et al., 2011). Whole group instruction may cause students to be less engaged because it is difficult to keep their attention of students at various levels (DiCarlo et al., 2012). A student needs to have attention, as it is an important component of learning and performance (DiCarlo et al., 2012). As a result, fluency may be beneficial when there are engaging methods used causing students to participate.

Unfortunately, Goering and Baker determined that explicit fluency instruction was neglected in classrooms (Goering & Baker, 2010). Therefore, teachers were not giving students separate fluency instruction. Many times teacher gave repeated readings and menial tasks instead of direct instruction (Clark, Morrison, & Wilcox, 2009 and Fenty, Mulcahy, & Washburn, 2015)). This type of instruction can hinder achievement due to lack of direct instruction (Fenty, Mulcahy, & Washburn, 2015). They determined that readers who take turns with one another are more at risk for reading deficits due to a lack of direct practice and knowledge of the looks and sound of proper fluency (Fenty, Mulcahy, & Washburn, 2015).

Additionally, Abadazi (2011) noted that many schools around the world devote less than 12% of the day to reading fluency instruction. They also noted that appropriate reading fluency instruction plays a key role in whether students feel encouraged. Schumm, Moody, & Vaught (2000) found that many teachers use whole group instruction for reading and the same materials for all students despite the (3-5) reading differences. The students with problems in reading showed little to no growth on their reading assessments and their motivation levels decreased (Schumm, Moody, & Vaught, 2000). In conclusion, proper instruction and engagement using appropriate fluency techniques could benefit fluency.

Reading Fluency

Primarily, reading fluency is a skill taught to students that focuses on reading at a pace that includes accuracy and automaticity, along with expression (Arens, Gove, & Abate, 2018). Fluency is the building blocks for readers to build their skills early on so they can become fluent with decoding words, vocabulary, and comprehension that are vital skills to be successful in the upper grades and life (Taguchi, Melhem, & Kawaguchi, 2016). Taguchi, Melhem, & Kawaguchi (2016) also noted that reading skills are strategic and multipurposeful in cognitive strategies of reading because the skills affect each other from as early as learning phonemic awareness (letter names and sounds)). They also shared thatif a student struggles in an area of building fluency, it can cause other reading skills to suffer as they get older (Taguchi, Melhem, & Kawaguchi, 2016).

In addition, it creates a challenge when students have to stop many times in a minute to sound out a word (Wilson, Nabors, Simpson, & Timme, 2012). Wilson et al., (2012) state many times the students do not have a strong background knowledge or lack phonics skills. They also note that students who lack exposure to text at an early age have minimal chance of being fluent readers.

Wilson et al, (2012) also share students who have small interactions and exposure struggle in early years and form reading problems that may last throughout their lifetime. In essence, fluency struggles can start early if not taught properly (Wilson et al., 2012).

On another note, for some readers, poor oral reading fluency becomes a barrier to the development of other reading skills (Goering & Baker, 2010). According to Goering & Baker (2010), letter sound relationships, words, and phrases will become difficult for students. Due to this fact, these researchers described students' sentences become choppy and robotic readers. They also shared that students who put extra stamina into decoding a word lose energy to continue reading skills. For these reasons, students could develop bad habits that will affect other issues in the future (Goering & Baker, 2010).

Subsequently, students who score low on early fluency tests can cause low vocabulary recognition after second grade (Wilson et al., 2012). Wilson et al., (2012) and Fien et al. (2012) describe that a student's vocabulary, word recognition, and phonics skills are important parts in students recognizing words and reading aloud. Because of poor vocabulary, students are not recognizing words and using correct pronunciation on assessments (Fien, et al., 2011). Students that show issues of word recognition or vocabulary can show up in first grade and some kindergarten students (Fien et al., 2011).

Lastly, throughout development, students will test reading fluency many times a school year (Fien et al., 2011). Reading fluency correlates to how many words students read correctly in a minute, along with voice expression (Fien et al., 2011). Fien et al. (2011), note that students may think they have to read fast, which can develop habits of misreading words, skipping punctuation marks, and lack of expression.

Whole Group Instruction

First off, research suggests whole group reading instruction targets certain levels of reading, but might not accommodate all reading levels (Wilson et al., 2012). Wilson et al. (2012) state that many students do not receiving appropriate instruction to increase their reading fluency scores. They also described appropriate instruction as being lessons that are engaging and appropriate for all students. In addition, teachers cannot expect students to read the same passages to improve fluency if it is not at their level (Wilson et al., 2012). Therefore, reading passages that are too easy or hard might not cause improvement and lead to student frustration (Wilson et al., 2012).

Next, many teachers use whole group instruction in classrooms. Whole group instruction also consists of all students reading the same passage as a together, with a partner, or independently while the teacher leads. (Wilson et al., 2012). Wilson et al. (2012) believe whole group instruction builds a community for students, but is often taught in every content area throughout a day. According to Wilson et al. (2012) students are receiving less instruction for their level if a subject is taught to everyone at the same level with whole group. They shared that many times teachers use one class story for all students to practice. Wilson et al. (2012) also found that the problem could be not all students are at the level of the textbook story. The students are not gaining the appropriate skills by practicing with it. It causes the low-level students to fall behind (Wilson et al., 2012).

In addition, in whole group instruction, the teacher does not always get the opportunity to observe and give feedback to every student each day (Wilson et al., 2012). Wilson et al (2012) found that the students do not always get the communication or peer time through whole group instruction. Thus, when a teacher does let students practice with partners, it may not be someone who is challenging them because they are at another reading level. Wilson et al. (2012) also state students can fall behind because the teachers are not aware of any difficulties. Many students do not receive extra assistance (Wilson et. al, 2012).

Furthermore, children in preschool who receive whole group instruction may find that instruction should always be full group, leading to problems in the future (DiCarlo, Pierce, Baumgartner, Harris, & Ota, 2012). Dicarlo et al. (2012) note that students adapt to whole group when they are young, so teachers tend to continue the trend and teach all subjects in whole group. They explained that whole group instruction is usually not a recommendation according to research and professional literature because of the different levels and the need to accommodate all students (DiCarlo et al., 2012).

Finally, some teachers test fluency by using running records or oral reading assessments, but with inappropriate passages for levels of each student (Fien et al., 2011). If a student is reading a passage that is too easy or hard for them, they are not getting the reading instruction to affect growth on assessments (Goering & Baker, 2010). By not reading passages at their level, students' reading fluency can fall behind on improving accuracy, rate, and speed while they lose motivation to want to read in the future (Goering & Baker, 2010).

Small Group Instruction

First, small group instruction is used to split students into groups so the teacher can teach a small group of students at a time (Fien et al., 2011). Fien et al. (2011) suggest while the teacher is giving instruction, the rest of the students do other small group activities or independent practice that the teacher assigns. They conducted a study on first grade students in 18 different classrooms. In their study, the students tested on vocabulary knowledge. One hundred and two first grade students scored did not score above the 50th percentile on vocabulary. Fien et al. (2011) found a reason for low scores was due to the type of teacher instruction and background knowledge. With the reading fluency becoming more of a focus for schools, Fien et al. suggest the ways of instruction in the past might not be as beneficial. In their study, many common ways of teaching reading fluency included whole group choral reads out of the textbook, partner reads, and reading to the teacher. Teachers rarely mixed up passages, but instead have students read the same text (Fien et al., 2011).

Next, Wilson et al. (2012) noted that young students will achieve greater success when taught explicit instruction. They focused on differentiated reading and explicit instruction. These researchers also found that small groups let a teacher target skills that are appropriate to the group's levels. Small group instruction matched the needs of the learners to promote the necessary skills (Wilson et al., 2012).

In addition, Pollock, Hamann, & Wilson (2011) used a survey in their research to test the feelings of students receiving whole group versus small group and looked at their academic levels. Of the students surveyed, 47% of the lower academic students reported they would participate more in small group (Pollock, Hamann, & Wilson, 2011). Therefore, not all groups have to be on the same topic as in whole group instruction (Wilson et al., 2012).

Likewise, another statistic revealed that 12% of higher achieving students felt comfortable participating in whole group instruction (Pollock, Hamann, & Wilson, 2011). The average number that a student from Pollock, Hamman, & Wilson's (2011) study participated in whole group was two times, while the average number a student participated in small group was four times. Overall, students reported preferring small group instruction to receive academics at their level opposed to instruction that was too easy or hard for them (Pollock, Hamann, & Wilson, 2011). The teacher can use different materials for each small group (Wilson et al., 2012). Students are able to do more hands on approaches and receive feedback from teachers during small group instruction (Wilson et al., 2012).

Next, Wilson et al., (2012) found that whole group instruction does not always allow for engaging instruction. Both Wilson et al. (2012) and Wyatt and Chapman-DeSousa (2017) note that students who do not receive one-to-one attention or receive feedback, might start falling behind. Teachers cannot get around observing all students, depending on the class size. Wilson et al., (2012) also explained in small group instruction, the teacher can have small groups, preferably six to seven students each (Wilson et al., 2012).

In addition, small group instruction gives the teacher time to model skills and offer guided practice (Wilson et al., 2012). Wilson et al. (2012) found that students also have opportunities to ask more questions. They determined when behaviors issues occur, the teacher can have an environment to handle situations because not all students are affected. Students also receive more time to socialize with students and share knowledge in their small group (Wilson et al., 2012).

Furthermore, teachers get the opportunity to use learning skills as a means for communication (Peterson, 2016). Peterson (2016) explained when a teacher leads small groups, they can assist in making meaning of the learning. He also found that students are open to more situations that are social because they can give feedback to their peers. In addition, students are more apt to ask questions when they feel comfortable of their surroundings (Peterson, 2016). They may refrain

from asking questions in whole group because of the embarrassment if they do not understand a skill (Peterson, 2016).

Finally, researchers discuss the opportunities for special needs students to have more interaction as an opportunity in small group settings (Urlacher, Wolery, & Ledford, 2016). Urlacher, Wolery, & Ledford found that students are more likely to learn from peers in a group at a similar reading level. They determined that students with special needs often fall behind in whole group instruction because of the lack of communication and peer learning. Students are less likely to ask questions and participate in whole group activities (Urlacher, Wolery, & Ledford, 2016). When a special needs child feels comfortable, they are more likely to do collaborative work and give feedback to teachers (Urlacher, Wolery, & Ledford, 2016). As a result, research suggests that small groups might be a comfortable atmosphere to provide useful instruction (Urlacher, Wolery, & Ledford, 2016).

Learning Styles

To begin, not all students benefit from the same instruction as their peers. Shah, et al., (2013) suggests students have their own learning styles and certain types of instruction to meet their needs for success. Some of the learning styles include auditory, visual, physical, and social learning (Shah et al., 2013). Auditory learning refers to "hearing," visual learning refers to "seeing," physical learning refers to "exercises involved in learning, and social refers to "communicating" the learning (Shah et al., 2013). Differentiated instruction is a type of instruction for teachers to mix up how they teach to accommodate the students and the learning styles (kinesthetic, read and write, visual, and auditory) that are prominent to each student (Ankrum & Bean, 2008). Ankrum and Bean (2008) also found at the time children begin school, there are a range of reading levels and abilities. Their research described many teachers who teach to the average reading level in the class and how it is detrimental to students. They suggest often it is not about what content the teacher focuses on in a lesson, but *how* the instruction is given (Ankrum & Bean, 2008).

Next, Ankum & Bean (2008) also found grouping students by levels gives the teacher a chance to make the instruction differentiated. They also found the lower level could focus on word recognition and decoding skills, while the on level and advanced readers can do more vocabulary and higher-level thinking activities. Ankrum & Bean (2008) also suggest if a student does well on reading assessments, they must not stop practicing or they could lose fluency.

Additionally, one type of differentiated instruction that research has shown to be effective is video self-modeling (VSM), according to Wu & Gadke (2017). VSM refers to students recording a video of themselves reading a passage or doing a repeated reading (Wu & Gadke, 2017). The teacher and other students can give feedback on the videos to analyze areas of reading fluency (Wu & Gadke, 2017). There was a clear rise in levels for students using VSM as an intervention with a 90% effect (Wu & Gadke, 2017). VSM is an intervention that is used and effective for students with low reading levels and special needs students (Wu & Gadke, 2017).

Next, another type of differentiated instruction is partner readings (Mims & Lockley, 2017). According to Mims & Lockley (2017), in the past, reading partners read to each other with the same text. They suggest for instruction or an intervention to be effective, the students must be practicing at a passage within their own reading level. In their study, a teacher set a timer and one partner reads at a time, while the other partner and teacher watch and follow along as the student reads. These researchers suggest after minute, students, teachers can give feedback to the student reading, and they record on their personal graph how many words read correctly. Therefore, a student can take ownership for their reading by seeing their growth on a graph (Mims & Lockley, 2017).

Finally, fluency may not always be about getting a child to read quickly, but to empower an understanding. According to Manuel (2016), some strategies to help include read aloud, partner reads, choral reading, and readers' theatres, while there are a variety of lessons a teacher can use to promote instruction, researchers believe it must be appropriate and engaging for each group's level (Connor et al., 2011). Connor et al. (2011) suggest strategies and instruction will vary with each child, but providing balanced instruction between basic skills or code-based instruction will be meaningful. They also noted teachers could use student interests to create engaging reading lessons (Connor et al., 2011)

Theoretical Framework

Students like others, differ from each other in a classroom (Kanchi, Junaid, & Srikant, 2013). In Kanchi, Junaid, & Srikant (2013) study, students created their own personal learning styles as they develop. The study showed some of the differences students have include gathering, organizing, along with how they process information. Therefore, researchers considered learning styles the characteristics of cognitive, affective, and psychological factors that indicate how a learner identifies, interrelates, and answers to their learning environment (Kanchi, Junaid, & Srikant, 2013).

Next, Kanchi, Junaid, & Srikant (2013) found that learning is a VARK. Their study notes the acronym VARK consists of four area models of learning styles including visual, auditory, read-write, and kinesthetic modalities. These researchers shared Flemming's 1987 notion that visual learners preferred learning using graphs, diagrams, flow charts, and models that represent information they can *visually*. They suggest the auditory learners wanted to *hear* the learning through lectures, tutorials, and talking. Next, the *read-write learners* preferred reading materials in notes or textbooks. Then, a *kinesthetic learner* preferred a mixture of living or feeling the learning and participating in real life experiences (Kanchi, Junaid, & Srikant, 2013). Finally, these researchers suggest teachers may not be able to use all of these learning styles in every lesson to meet the needs of every student, thus resulting in not all students receiving appropriate instruction to benefit them (Kanchi, Junaid, & Srikant, 2013).

In addition, Rezaee, Abdullah, & Singh (2011), shared that students' strengths could be determined through their learning styles. They also shared that studies have indicated low and average students earn higher scores on tests when they received instruction related to their dominant learning style(s). Lastly, students having different learning styles could affect the way they observe, communicate, and respond to their learning environment (Rezaee, Abdullah, & Singh, 2011).

Rezaee, Abdullah, & Singh (2011) also shared the results of their study testing whether students will be more effective at assessments when they receive instruction with learning styles including visual, kinesthetic, read and write, and auditory that are appropriate to their level prior. A one-way ANOVA study done in their study on 317 sixteen year olds who were split based upon learning (visual, kinesthetic, read and write, and auditory) styles and others receiving the same instruction styles at the same level. Their` results revealed students have dominant learning styles Cohen's $d = 0.13$, $p < 0.05$ (Rezaee, Abdullah, & Singh, 2011). By teachers giving instruction geared toward the students' strong learning style, they will be less anxious and more engaged (Rezaee, Abdullah, & Singh, 2011). Thus, students will be more successful with assessments (Rezaee, Abdullah, & Singh, 2011). There was clear indication that learning styles will make a difference on students' overall success opposed to all students receiving the same instruction (Rezaee, Abdullah, & Singh, 2011).

On another note, Komarraju, Karau, Schmeck, and Avdic (2011) conducted research on 308 undergraduate students who the instructor split in groups of kinesthetic, visual, read and write, and auditory learners. In their study, the students received instruction linked toward their learning style. For example, the kinesthetic learners were together completing real- life problem-solving techniques, while the visual learners used more poster and illustration type learning. The researchers share that the auditory learners listened to speeches and lectures geared towards the weekly topics in class, while the read, write learner read information, and took notes. Their assignments and tests compared in areas each class. Results showed there was a 3% growth in grade point averages and grades using learning style instruction (Komarraju, Karau, Schmeck, and Avdic, 2011).

Purpose Statement

Reading fluency is becoming more of a problem in schools (Begeny et al., (2009). Many students who drop out of school or tested for special education services are struggling with reading (Begeny et al., (2009). Thus, researchers believe reading fluency might be declining because of ineffective instruction (Fenty, Mulcahy, & Washburn, 2015). Research is minimal on small group instruction and learning styles, and reading fluency. Many times, it is difficult to accommodate all students' reading levels and interaction in whole group instruction (Wilson et. al, 2012).

Therefore, with reading fluency levels being a struggle for students across the country, an

effective intervention or instructional method might be appropriate. Small group instruction allows teachers to use instruction to meet more learning styles than whole group (Wilson et al., 2017). Kanchi, Junaid, & Srikant (2013) results noted that students prefer to receive instruction based upon their learning style preference.

The purpose of this study is to evaluate the effects of small group reading instruction using learning styles on reading fluency scores among fourth grade students compared to whole group instruction. The research question is, "*What effect will small group instruction using learning styles have on FAST CBMreading fluency scores on fourth grades students?"* Small group instruction allows teachers to use differentiated instruction. The study will show how this instruction effects fluency scores. The hypothesis is that small group instruction will improve students' reading fluency scores in fourth grade using FAST CBMreading scores more than whole group instruction.

Methods

Participants

Twenty-three fourth grade participants participated in this study. Their elementary school is an urban school located in Midwest Iowa. The elementary school is in a high poverty district. Participants' ages ranged from nine to 10 years old. All the names were pseudonyms in this study. No incentive was given to the students for participation.

Of the 23 students, 15 were males (n = 15) and 8 females (n = 10). One student was on an Individual Evaluation Plan (IEP) for behavior while four students identified as talented and gifted (TAG). The race of students were 40% white, 32% African-American, 12% Indian, 8% Hispanic, and 8% Asian. The school district is a Title I school and provided 100% free and reduced lunches.

There were five sections of fourth grade at this elementary school. The participants were placed in fourth-grade classes based upon their academic levels in reading and math. The participants' reading levels will range from below level to above level.

Materials

Fastbridge. The FastBridge Learning website was used to determine participants' scores on the Fast CBM (Curriculum-Based Measurement for Reading). FastBridge includes reading passages along with built in timers for assessments. The CBMreading fluency assessment is offered up to five times in a school year for teachers to test reading fluency levels. Typically, schools give the universal screening during the fall, winter, and spring assessments. During the main assessments, participants read three passages for one minute each in a small group setting (See Appendix A). The passages told a short story about a character(s) using words at a fourth grade level. The same three passages are used on each FAST assessment for fourth grade.

Testing Fastbridge. When the student began reading the first word of the story, the teacher started the timer on the website. Then, the teacher listened while the participants read aloud and the teacher clicked on the words that participants skipped or read incorrectly. After the timer went off, the teacher clicked on the last word read. Then, the teacher clicked submit and Fastbridge automatically scored the participants' median score on the universal screening test (FastBridge Learning, n.d.).

Fastbridge benchmarks. According to the Early Literacy Implementation (2018) article, fourth grade students should be reading 116 words per minute in the fall, 136 words per minute in the winter, and 150 words per minute in the spring of that year (Early Literacy Implementation, 2018). These benchmarks were the goal that guided the teacher and students.

Fastridge reliability and validity. Brown (2017) reports that fundamentals behind the FastBridge Learning assessments go through a process to guarantee reliability and validity. This process includes a multi-step research process, which includes controlled studies, the Lab process, and an endorser (Brown, 2017).

FastBridge Learning (n.d.) shows the importance of validity in efforts to make sure the test is measuring what it says it will measure. Fastbridge Learning displays that a benchmark is set for students to meet that research has reported valid amongst the majority of other 4th grade students (Fastbridge Learning, n.d.).

Many states use FastBridge because it is a reliable assessment for schools (Aranas, 2015). According to Center on Response to Intervention (n.d.), the validity the reliability test/retest coefficient range for fourth grade is 0.86 and the

median is 0.79. Cronbach's alpha for reliability is 0.95. The validity test/retest coefficient range for fourth grade is 0.97. (Center on Response to Intervention, n.d.).

Journeys textbook. The Journey 2018 textbook were used to read stories with the whole group, partners, or independently. The textbook consisted of fourth grade level stories with a mixture of fiction and non-fiction. The textbook also contains vocabulary words that are at a fourth grade level. The textbook were used during whole group instruction.

Reading A-Z passages. Participants used A-Z reading passages (See Appendix B) as well as leveled reader books. The participants read paragraphs together or as a group focusing on a fluency skill. These passages were at various levels from second-grade to fifth-grade.

Reader's theatres. Participants also used Reader's Theatres within small group at the participants' reading levels. Each participant had a part in the story and practiced reading fluency skills that make their part sound positive.

Journey's leveled readers. Students used Journey's leveled readers as a small text at lower, on level and above leveled readers. Students read these with small groups, partners, and independently. Often, student read a page while they recorded on Seesaw to assess fluency strategies.

Seesaw. The Seesaw computer program allows teachers to assign tasks for participants to practice fluency recording themselves (Ray, 2017). Each participant in this study received a login QAR code to login to the assignments from the teacher on Seesaw. The teacher made weekly videos to introduce fluency skills each week and the participants saw firsthand on Seesaw. Participants recorded themselves reading, and listened to stories from other participants. After a participant finished reading their passage aloud, their peers in their small group would watch videos and give effective feedback under their video on the Seesaw app. The teacher monitored all the videos and feedback before they were posted for others to see. Parents of the participants were able to create a family account to see the fluency progress.

Procedures

FastBridge testing. Each of the 23 fourth-grade students tested on the fall (baseline) reading fluency assessment the last week in September 2018, the winter FAST assessment for winter in December (2018), and the FAST assessment for spring in May (2019). Participants read the same three one-minute passages each time as the teacher scored them on the FastBridge website. If participants pronounced words incorrectly or skip a word, the teacher would click on it. After one-minute, the system scored the total words read correctly. The best score of the three passages was reported to the state.

Whole group instruction. From fall to winter, the 23 participants were given whole group reading instruction for 30 minutes daily. On Monday, students practiced reading the ten vocabulary words for the week aloud as a group. Tuesdays, instruction consisted of the teacher reading the weekly story from the Journeys textbook while the students followed along in their textbook. On Wednesday, students read the weekly story from the Journeys textbook with a partner that sat near them. On Thursdays, students would read the story independently and pick a paragraph to share with a different partner from Wednesday. On Fridays, students would read the supplemental "Comparing Text" story from the Journeys textbook in groups with the whole class. The whole group instruction contained all students reading fourth grade level stories and words and a few students modeled in front of the class each day. There were no weekly progress scores to record.

Small group instruction. During small group instruction, the teacher used a variety of materials and activities for engagement and participation relating to the students' learning styles. Students worked mainly on areas of accuracy, rate, and expression.

The reading block had four small groups. Students did two small groups for 15 minutes that focused on fluency combined with fourth grade standards and learning styles. One small group was teacher instruction aligning with their learning style (visual, auditory, kinesthetic, and read-write) while the other was practice. Teacher instruction varied by the day with the learning style and benchmarks. The teacher followed an explicit lesson plan each day with "I Do," "We Do," and "You Do" method. Whatever the topic was for the week in reading and fluency, the teacher would

model, then students would practice as a group, and lastly independent practice with the teacher monitoring and giving feedback when needed.

Kinesthetic small group. The kinesthetic group completed reader's theatres and plays to incorporate movement to improve while practicing reading fluency. The group also used finger taps to practice stressing words throughout their reading and recognizing punctuation. A football referee activity was used for students in fluency to give hand signals for each strategy of fluency including expression, stressing words, and punctuation. The teacher taught these techniques in teacher time and the students received assignments in lesson extension to practice as a group and video tape using Seesaw for the teacher to review.

Read and write small group. In this group, the students did a variety of independent and paired reading using stories at their reading level. The teacher modeled how to read a text, and then turn assignments into writing summaries or reflective paragraphs. Students rehearsed reading their assignments and recorded on Seesaw during their lesson extension. The students focused on expression, stressing, rate, accuracy, and punctuation.

Auditory small group. The auditory learners are strong at hearing instruction along with examples to model what fluency should sound like. These students listened to stories that the teacher read on Seesaw and during teacher instruction. In their lesson extension time, they would listen to the fluency passages that used expression, stress, accuracy, and rate. Afterwards, they would practice with a partner and record on Seesaw daily for the teacher to observe.

Visual small group. The visual small group watched the teacher model many times what instruction should look like. They also watched short video clips of other students who were stronger at fluency, to observe their expression, stress, accuracy, and rate on Seesaw. Then, students would practice with a same-level partner and record on Seesaw during lesson extension time.

Data analysis. The dependent variable is reading fluency measured by scores on the FAST assessment. The study used two paired dependent sample t-test, in which the FAST scores were compared from fall to winter and winter to spring. From fall to winter, the teacher used whole group instruction. After the winter FAST assessment, the teacher placed participants in one of four small groups as a reflection of their scores in January. The teacher used small group instruction from February 2019 through April 2019 to test the effect of FAST assessment scores in the spring. The teacher focused on students' FAST fluency scores mean.

Results

The purpose of this study was to measure the effectiveness of whole group instruction and small group instruction on the FAST reading fluency scores. In the fall of 2018, students completed the FAST CBMreading assessment testing their reading fluency scores. From the fall to winter (2018), the teacher taught whole group instruction. After the winter FAST assessment, the teacher assigned students to a small group. The teacher looked at the effect of small groups with differentiated instruction along with whole group instruction which all students did the same activities. The students were assessed using the same three passages on the fall, winter and, spring FAST assessments. Dependent sample *t*-tests were used to compare the fluency results from fall to winter and winter to spring FAST results. Whole group instruction took place in the fall to winter while small group instruction followed winter to spring. An alpha level of .05 was used for all statistical tests. Findings supported the hypothesis that using small group instruction improved FAST reading fluency scores.

Findings confirmed that whole group instruction had an impact on FAST reading fluency scores. The fall to winter FAST assessment, $t(23)$, = - 3.580, p = 0.002. The *Cohen's d* result was – 0.747 . The students showed a 13% improvement on their words per minute within the fall FAST assessment (M = 112.24, SD = 30.42) and the winter FAST assessment (M = 135.40, SD = 23.98).

Small group instruction findings confirmed more impact on FAST assessment scores than whole group instruction. The winter to spring FAST assessment, t(23), = - 6.652, p = < .001. The *Cohen's d* result was – 1.387. The students showed a 22% improvement on their words per minute within the winter to spring FAST assessment (M = 135.40, SD = 23.98) and the spring FAST assessment (M = 157.56, SD = 11.00).

Table 1

FAST Paired Sample T-Test Results

FAST Test	*t*	*Df*	*p*	Cohen's *d*
Fall – Winter	- 3.580	24.00	0.002	-0.747
Winter – Spring	-6.652	24.00	< .001	-1.387

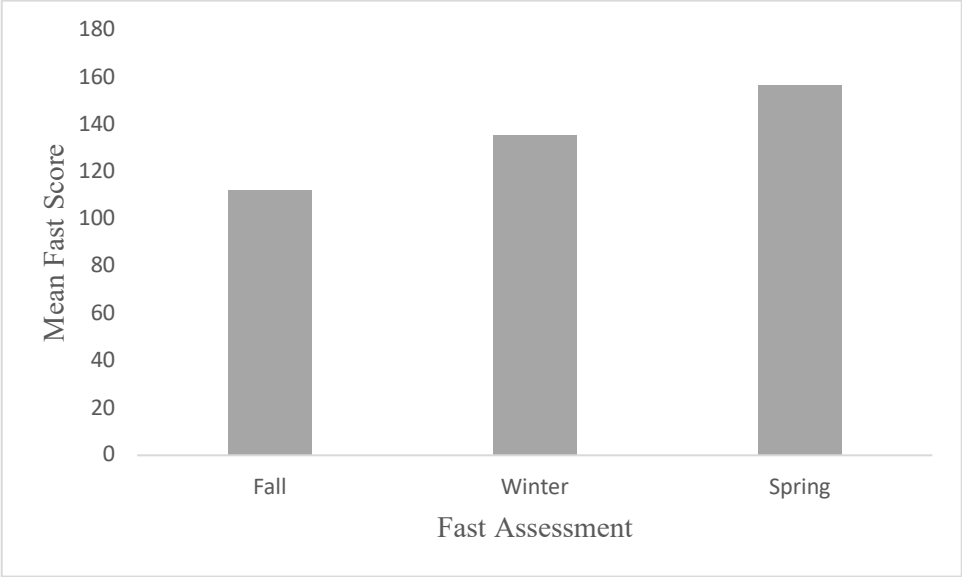

Figure 1. Means of FAST Assessments

Overall, findings confirmed small group instruction increased fluency scores more than whole group instruction. The *Cohen's d* shows larger scores in the winter to spring Fast fluency assessment while *p-value* shows smaller scores in the same test. Although, findings did suggest that whole group instruction provided benefits to fluency scores. Findings also suggested that differentiated instruction in small groups could affect students reading fluency achievement. Students could practice within their reading levels and receive one-to-one instruction and feedback from partners, peers, and the students. Therefore, the findings confirmed the hypothesis that small group reading instruction can improve students' reading fluency scores.

Discussion

First, reading fluency is a skill that students focus on reading at a pace that includes accuracy, automaticity, and expression (Arens, Gove, & Abate, 2018). Students who have the ability to read fluently can progress in other areas of reading and communication (Taguchi, Melhem,

& Kawaguchi, 2016). Reading fluency is important for students also to build skills in decoding words, vocabulary, and comprehension (Taguchi, Melhem, & Kawaguchi, 2016). Fluency practice will continue throughout high school and college. Fluency is a skill that links many career paths that students choose (Taguchi, Melhem, & Kawaguchi, 2016). Therefore, it is significant for students to have strong skills in reading fluency in order to be a successful (Taguchi, Melhem, & Kawaguchi, 2016).

In addition, students who fail to develop fluency skills often struggle in other areas of reading including comprehension (Smart et al., 2017). Fluency is not only important in the reading core, but is important for students interested in extra-curricular activities including speech, public communications, and clubs. Students who struggle may have a fear of reading and communicating in front of others (Smart et al., 2017). During reading instruction, students who are low at fluency tend to create behavior issues that are due to embarrassment of their skills. The students may act out or be antisocial (Smart et al., 2017).

Next, instruction that does not meet the needs of students to promote success in fluency can harm student abilities (DiCarlo et al., 2012). Many teachers use whole group instruction where instruction is common among all the students. Therefore, all students do the same practice with the same levels of passages. Much of the instruction requires students reading together as a class, group, or to a partner. When a teacher uses whole group, it is difficult for them to monitor all students and give appropriate feedback (Goering & Baker, 2010). Students who are not at a reading level similar to their peers show more signs of struggle and embarrassment (DiCarlo et al., 2012). When students do not receive instruction that will enhance their abilities, their reading level may drop and other issues of behavior occur (Fien et al., 2011). In small group instruction, teachers can divide students up among their reading levels and have smaller groups to instruct at a time (Wilson et al., 2012). It also allows other students to be practicing reading fluency using other methods while the teacher is instructing (Wilson et al., 2012). The present study examined reading fluency scores because of small group instruction using learning styles (kinesthetic, read and write, visual, and auditory). The hypothesis was if fourth grade students received small group instruction guided with learning styles, their reading fluency scores would improve more than whole group instruction.

Ensuing, the overarching results from this study indicated an effect for the variable of small group instruction and learning styles. Students' scores on the FAST assessment were higher after small group instruction was given than when the students received whole group instruction. The results however do show a rise in reading fluency scores using whole group instruction, but the increase was more after students were given small group instruction. This leads to the conclusion that reading fluency instruction is important to benefit scores along with using instruction targeting students' strong learning styles.

Finally, small group instruction allowed students to practice fluency in various ways with smaller groups. The teacher monitored fluency in different ways such as one-to-one, recorded videos, feedback from a partner, and progress monitoring each week. Students received instruction that was inclusive to their strong learning styles. First, the kinesthetic students used more exercise and reader's theatre to improve. Next, the read and write learners read about how to become stronger at fluency with expression, accuracy, and rate, along with writing their own paragraphs that they used practiced fluency. In addition, the visual learners watched examples of fluent readers in focused areas. Lastly, the auditory learners listened to what fluent readers sound like using expression, accuracy, and rate. After teacher's instruction, the students practiced the various strategies with fluency partners and recorded their practice on Seesaw. The results suggested that students need more instruction and different opportunities to accommodate their learning styles; however, evidence does not suggest that whole group instruction is poor for students. Based on these conclusions, it is evident that the study's hypothesis supports small group instruction influencing reading fluency growth more than whole group instruction.

Instruction and Learning Styles. Much of the body of research focused on the effect between small and whole group instruction and reading fluency scores. Across this body of research, it is evident that instruction is important to enhance fluency scores. The present study operated under the premise that small group instruction would be able to provide more learning

styles through differentiated instruction and small groups. It was theorized that small group instruction would support students in making larger gains on their FAST fluency assessment than whole group instruction because it accommodates areas the groups need instruction. This aligns with the research that Pollock, Hamann, & Wilson (2011), Wilson et al., (2012), Peterson (2016), and Urlacher, Wolery, & Ledford (2016) who research indicated a positive correlation between small group instruction and tests. Small group instruction supported participants increasing student fluency scores, so too did whole group instruction. The present study builds upon the findings that small group instruction does provide more opportunities for increased scores, while whole group instruction may not provide enough effective practice.

Whole group instruction may not be as beneficial to student achievement because of the different learning levels and meeting the needs of all students (Dicarlo et al., 2012). Whole group instruction does not always provide consistent gains for every student. A teacher can model in front of students, but not always know it is effective for each student. It is hard to watch and listen to each student and give feedback when everyone is working at the same time (Dicarlo et al., 2012). This research study supported that students may not receive adequate instruction when they are doing the same activities at similar level as their peers. Whole group instruction did provide gains as 10% of the fluency scores increased. The research does not support that every student made gains. The results could suggest the students who received practice at their level and dominant learning style consistently had more increase in scores. This research also suggested that keeping a weekly data sheet might be more effective to determine which students are benefiting from the instruction.

Small group instruction allowed the researcher to provide instruction in various ways each day. The students were able to complete an activity meeting each of the learning styles (kinesthetic, visual, auditory, and read-and-write). Each day the teacher lessons consisted of explicit instruction following each groups' learning style. Research provides evidence that students who develop their own learning styles are stronger for themselves and increase scores (Wilson et al., 2012). Pollock, Hamann, & Wilson (2011) supported participation making a difference in learning.

In this study, the teacher allowed for "we do" time for students to work aloud and the teacher to give feedback when appropriate. This time allowed teachers to observe firsthand any skills that needed more attention or see the increase in abilities. In Pollock, Hamman, & Wilson's (2011) study, students reported being less nervous to participate in small groups than whole group instruction.

Results reveal that is it important for teachers to be aware of learning styles that are strong among students. Abidin et al., (2011) study found that students' learning styles influenced their academic outcomes. Students with special needs have learning styles that are appropriate for them. In this study, the teacher broke students upon their reading level and their strong learning style through observation. Even though a student is not considered "special needs" does not mean they can benefit from instruction that is not comfortable with them. Neil Flemming suggests in Kanchi, Junaid, & Srikant (2013) study that students create their own learning styles as they develop. Students who struggle to sit still might not show as much fluency growth doing audio fluency. They might be a student who should be doing more reader's theatre and moving around activities. This study suggests that one lesson using a learning style might not be effective for the whole class. Rezaee, Abdullah, & Singh (2011) provide evidence that students should practice with more than one learning style along with their dominant style. Additionally, this study allowed students to meet with the teacher and during lesson extension. The students used their dominant learning style to practice the type of instruction the teacher modeled whether it was kinesthetic, read and write, visual or auditory. Teacher instruction and lesson extension time met the reading levels and learning styles appropriate for each student. Students required more activities that were interesting and engaging for them.

Limitations & Suggestions for Future Research

Increasing amount of time in daily instruction. When evaluating the conclusions discussed above, it is important to take into considerations the limitations of this study. Students in the study received fifteen minutes of direct instruction daily along with another fifteen

minutes of extension practice with partners and independently. The 15-minute period was a district requirement for grade levels to use as part of the 90-minute reading block. The teacher used four 15-minute small groups and a 30-minute whole group as part of the requirement. 15 minutes was a short period to accomplish many tasks and spend time focusing on instruction. Many times the teacher would finish modeling new exercises and there were a few minutes for students to practiced together as the "you do" part of explicit instruction. There were also issues in the lesson extension time for the computers to log on or need to restart that students were cut short on recording and giving feedback.

Therefore, in further research, 20-30 minutes might be more applicable for instruction and practice time. This gives the teacher time to do more modeling and the groups to have time to practice. The teacher would receive more time to give feedback on the group work as well as look at some of the independent practice before students go to the lesson extension. Teachers need to know whether the students are able to complete the lesson extensions after instruction. Therefore, it is necessary to get the opportunity to observe and interact that time will allow.

Whole Year Study

Another limitation factor was the timeline of the study. The teacher observed students in small group instruction for six months. The teacher used one to two months after winter to allow for modeling how to do different activities and how to use Seesaw. Once the students were proficient and familiar with the independent activities, the teacher observed scores for three to four months. This amount of time may not have shown as much difference in the scores as a whole year of observation would. Many students' fluency scores dropped over the summer due to lack of practice. Therefore, the fall test was a baseline and the winter test showed a big jump of growth many times because students get back into the fluency routine. The whole group instruction may have shown a rise in scores because students are closing their words per minute gap from summer. It would be beneficial to see how a whole year of small group instruction effects the growth than a year of whole group instruction.

Therefore, in further research, the teacher could observe a whole year of growth using small group to see the effects of the scores from fall to winter and winter to spring. More time would also allow students to learn a variety of new techniques and exercises for fluency. There are varieties of activities that happen at different times of the year, which can cause higher or lower school in areas. The first semester frequently consists of students catching up from taking time off during the summer, so there may be an increase in scores. Second semester in a school year shows scores after students have been in a routine. Changing the instruction time could show differences in results due to the types of weather, activities at school, and more. It would be consist to observe results with instruction consistent.

Participants Socioeconomic Status. Another limitation of the study would consider more middle and high-class students in the study. In this research, the students in school have 100% free and reduced lunches with most students coming from poverty lives. Many of the students' parents did not graduate, so academics are not a major priority in these students' homes. Students come to school with few skills and resources that they have obtained due to lack of money and poverty. Many of the fluency scores in the school are lower, compared to other economic level schools in the area due to lack of resources and prior education. Students have more room to show growth in a poverty area. Students in a higher economic area may not show the same results with small group because their scores might be stronger due to more resources and family contributions. In an area with more opportunities, students may receive a different amount of experiences to assist with their fluency growth and help them become comfortable with other learning styles.

A future study would include testing students' fluency scores who are in a school system with less diversity and poverty. An example would be a school system with many students of the same race/ethnic backgrounds. Therefore, testing students in a school with middle and higher-class status may show different results. Many students with a middle or higher-class background could have access to more resources and support from family. Therefore, this type of test would analyze whether small group instruction had as much impact students of all races and ethnicities.

Limited Outside Instruction. The next limitation includes students receiving "What I

Need Time" (WIN) time each day. Every student was split into a WIN group based upon what areas of reading they need assistance. Some of the WIN groups included comprehension, decoding, vocabulary, enrichment, and fluency. The school's intervention department placed struggling students a WIN fluency group that received an extra 30 minutes of assistance in addition to the instruction from the regular classroom instruction. This may have affected the fluency scores due to other teachers giving fluency instruction. The type of instruction and focus was different from the classroom teacher. Students could be making gains or falling behind due to another type of instruction. Consequently, students' scores who increased could have been a reflection of their WIN time as well as whole or small group instruction.

The WIN groups were small with approximately six to eight students. Students' gains could have been due to the extra instruction and not primarily an example of small group learning. Therefore, another study could test students with only fluency instruction during the researcher's small group instruction. There would not be outside instruction. This would show if the true results were effective from the small group instruction and the activities related to students' learning styles. Other teachers provide various types of instruction and small group practice that could hinder the increase in fluency scores.

Planning Time

The last limitation considered for this study is the time involved in planning small group instruction. Many teachers use whole group instruction so the planning is consistent and it involves one lesson for all students (Wilson et al., 2012). Small group instruction was beneficial in this study because there was a 90-minute reading block consistent for teachers to rotate small groups. When teachers are given reading time at different times during their day, the instruction may not allow for the rotations, thus teachers may use more whole group instruction. The teacher in this study found it difficult to plan four separate lessons and extensions each day without given proper training. A future study would require teachers to receive professional development in reading fluency instruction along with one to two months of preparation for learning different techniques of learning styles. The researcher would have time to put together weekly or monthly lessons prior to beginning instruction.

Implications

A balanced reading instruction approach is important for reading scores to benefit (Fien et al., 2011). Many teachers lack a clear picture of what successful reading instruction looks like (Wilson et al., 2012). It is important for teachers to have professional training in the teaching of fluency to be able to provide accurate instruction that is useful for fluency (Dicarlo et al., 2012). Fluency instruction is important for students to improve rate, accuracy, and expression in writing. These skills guide students to increase FAST fluency scores, social skills, and pursuing careers in communication. Many teachers neglect fluency because there is not enough time in the day or because they do not have adequate knowledge to give fluency instruction (Fien et al., 2011). Thus, small group instruction may not be the sole reason for improvement. Not every teacher is going to provide the same activities in differentiated instruction to improve scores. Certain activities might work for some classrooms and students, but we cannot assume that all classes would be influenced. There are many activities used in fluency instruction. Individual activities would be tested separately to determine which ones cause improvements or struggle.

Teachers should receive training in instruction with lessons that have been determined as effective. Trainings should include activities using all learning styles to focus on improving accuracy, rate, and expression. States are looking at fluency scores as individual assessments so it is vital that teachers provide instruction to students. Teachers cannot assume that fluency will improve by reading out of textbooks in various subjects. Professional development will create more consistency through a school (Fien et al., 2011). This study exhibited a small amount of activities that can be utilized during small group instruction. These activities involved students using their dominant learning styles that were visual, auditory, kinesthetic, and read and write while practicing fluency. It does not claim that small group instruction is the only way to improve fluency scores, yet it does have a positive effect.

Success is not only a means of instruction, but it is the "type" of instruction used (DiCarlo et al., 2012). Teachers need to look at how effective instruction is beneficial to the students and their learning styles. Instruction should be engaging for students enough to make a difference. Thus, the

experience of the teachers may be a factor in determining the type of instruction. There are different types of teachers to consider in research. There are teachers who have taught many years, but received training years ago. There are teachers right out of college that are not sure yet what type of instruction is more successful in their classroom because they have little experience. There are also teachers who have a few years' experience and have taken fluency trainings. All of these factors could have been implicated in the research. Instruction is a crucial part to promote fluency success.

Conclusion

Reading fluency is essential for future success. With current conditions, many students are failing to meet the benchmarks of their grade levels (Fenty, Mulcahy, & Washburn, 2015). Fluency is important for student success in school and future careers. Students with low fluency scores can struggle in school, which can lead to behavior and social issues. One part of the decrease in scores can be factored with the neglected instruction in the classroom. Some classrooms provide less than 12% of their day to fluency practice (Abadazo, 2011). With the focus of fluency in schools being important, it is vital that teachers provide adequate instruction for student success. Students develop dominant learning styles as they develop (Shah et al., 2013). Certain styles of instruction can connect with learning styles to provide engagement and motivation for students at their level. Teachers should recognize the importance of each students' preferred learning style to make instruction connected. Learning styles may not always be what the students "like," but styles that the teacher has observed as dominant. Small group instruction provided results that lead to successful fluency scores in addition to whole group instruction. Through a balanced approach, teachers have a large probability to meet the diverse needs of students.

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The Effects of Ability Grouping on Kindergarten Students' Reading Achievement

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Abstract

The number of elementary students in the United States reading at a proficient level is significantly low. Elementary schools in the United States need to increase the number of students reading at the proficient level in order to move towards success in other subject areas, raise graduation rates, increase economic opportunities, and boost the likelihood of favorable long term health. Foundational reading skills, beginning in kindergarten, are an early predictor of future reading proficiency. Homogeneous ability grouping is one instructional strategy that can help students master foundational reading skills. Ability grouping is an educational practice that can be used with all students. Few studies exist in the research involving American kindergarten students' participation in homogeneous ability groups. This research seeks to fill that gap by testing the effects of ability grouping on kindergarten students' reading achievement. This study utilized an AB research design over the course of 12 weeks in a kindergarten classroom. In this study, all 24 students in the kindergarten class completed the FAST one-minute letter sound fluency assessment, Form 1, to establish a baseline score. The students received six weeks of foundational skills instruction during the baseline phase. During the intervention phase, the students spent six weeks engaged in homogeneous ability groups. It was hypothesized that kindergarten students who participated in an ability-grouped intervention in the area of reading would make greater gains in letter sound fluency than when not participating in a homogeneous ability-grouped intervention. A dependent samples *t*-test and subsequent analysis of the results did not support this hypothesis.

The number of students in the United States reading at the proficient level in elementary school is a significant problem. According to the Nation's Report Card, in 2015, 64% of fourth grade students from public and nonpublic schools scored below proficient on the reading portion of the assessment ("How Did U.S.," n.d.). In 2017, 63% of fourth grade students from public and nonpublic schools scored below proficient on the same assessment. According to the National Assessment of Educational Progress (NAEP) ("NAEP," n.d.), which is a measure that assesses American students' knowledge across curricular areas, reading scores have nearly flat lined since 1998. Only one third of students are reading at a proficient level, as defined by the NAEP. In 1998, the fourth grade average scale score in reading was 217 (*SD* = 39). In 2002, 2005, 2009, 2013, and 2017, the fourth grade average scale scores in reading were 219 (*SD* = 36), 219 (*SD* = 36), 221 (*SD* = 35), 222 (*SD* = 37), and 222 (*SD* = 38), respectively. A score of 240 is considered proficient.

According to the NAEP, in 2011 more than 65% of fourth and eighth grade students scored below the proficient level in the area of reading (Vaughn et al., 2015). The NAEP requires students to locate and recall information, integrate and interpret text, and critique and evaluate what they have read. Students who scored below the proficient level were unable to show mastery in these areas. Additionally, one-third of fourth grade students and one-fourth of eighth grade students failed to comprehend text at grade level (determined by a score from 0-500 that corresponds to a basic, proficient, or advanced designation). Text becomes increasingly difficult as students progress through the grades. However, the likelihood that pupils beyond third grade will receive a reading intervention declines significantly (Vaughn et al., 2015). According to Wanzek et al. (2013), reading interventions are more beneficial in earlier grades. Wanzek et al. (2013) conducted a meta-analysis consisting of 19 studies and 9,371 students from kindergarten through grade 12. The results were analyzed in order to report the effects of reading interventions. The study showed that early (primary grade) reading interventions were much more impactful than in later elementary and high school. The average Cohen's d effect sizes were 1.52 for kindergarten and first grade reading achievement among nationally normed tests, 0.40 in fourth and

fifth grade, and 0.19 once students reached ninth grade (Vaughn et al., 2015). When the NAEP first reported public and private school reading scores in the 1990s, results showed an uphill climb into the early 2000s; nine-year-old students' average scale reading scores progressed from 211 (*SD* = 36) to 219 (*SD* = 37) through these years. Since 2005, literacy scores have remained stagnant at approximately 220 (*SD* = 35), despite the push for more rigorous standards and expectations brought about through No Child Left Behind ("NAEP," n.d.). Furthermore, Nippold (2017) studied 426 children beginning in kindergarten and ending in grade eight, with typical language development (TLD), specific language impairment (SLI), and nonspecific language impairment (NLI). Findings showed that all students, not just those with disabilities, need reinforcements in the area of reading. Children with SLI and NLI scored lower on average than children with TLD in all areas, including lexical development at 87.15 (*SD* = 8.35), 81.81 (*SD* = 9.42), and 100.19 (*SD* = 11.60), respectively. Children with SLI and NLI also scored lower on average than children with TLD in reading comprehension at 73.22 (*SD* = 21.87), 61.04 (*SD* = 25.07), and 98.26 (*SD* = 23.58), respectively. Students with SLI and NLI need intensive interventions in the area of reading. However, these reports indicate that all students need additional supports in order to boost levels of reading proficiency.

The Progress in International Reading Literacy Study (PIRLS) is a worldwide assessment that compares student learning in reading every five years. According to the 2011 PIRLS report, 74% of students were not proficient in letter naming. These students could only recognize 12 letters of the alphabet at the beginning of kindergarten, and some could even recognize fewer (Mullis, Martin, Foy, & Drucker, 2011). The current kindergarten Common Core State Standards specify that students will be able to read emergent level (phonetically controlled, patterned) text with purpose and understanding; in 1998 only 31% of teachers believed that students should learn to read in kindergarten (Bassok et al., 2016). However, teachers' beliefs about when children should begin reading have changed since kindergarten mastery standards are more demanding. D'Agostino and Rodgers (2017) reported that according to the Early Childhood Longitudinal Study- Kindergarten (ECLS-K), in 2011 80% of kindergarten teachers believed that students should learn how to read in kindergarten.

In the past ten years, while reading scores in the United States have remained low and stagnant, international reading scores have been steadily rising (Mullis et al., 2011). In 2011, 10 (out of 53) countries had higher overall scores in reading than in 2001. Additionally, 13 countries (out of 45) had higher average scores in reading in 2011 than 2006. Only four countries' average scores declined in the decade from 2001 to 2011. According to Sparks (2017), the most recent report from PIRLS states that reading scores are at an all-time high globally, but the United States does not fit that trend. The 2016 PIRLS report showed that the United States scored seven points lower than in 2011, which also lacked growth since the 2006 report. While seven points may not appear significant, a continual downward trend is disheartening. From 2011 to 2016, overall reading scores in the United States have declined from 556 to 549. The top 20% of students showed little or no increase in scores, while the bottom 20% showed a decrease in scores. Of the three different literacy elements in which PIRLS focuses (purposes for reading, processes of comprehension, and reading behaviors and attitudes), American students performed poorest on sections that required making inferences and reading to locate and use information. This means that students scored lowest in reading comprehension.

Impact of Poor Reading Skills

There are four potential long-term effects of illiteracy: (a) falling behind in other subject areas, (b) dropping out of school, (c) receiving fewer economic opportunities, and (d) suffering from health-related issues. First, if students do not have the skills they need to read, they have the possibility of falling behind in other subject areas (Lonigan, 2006). Three core curriculum areas, science, social studies, and mathematics, require students to read. In these areas, reading is where most individuals gain new information. If students cannot read, they will struggle to gain success in these core areas (Lonigan, 2006; Duggan-Haas, 2015; Franz, 2015). According to Duggan-Haas (2015), struggling readers face challenges in science due to its abundance of vocabulary, high readability, and text features (tables, graphs, etc.) Struggling readers often do not possess the skills needed to decode the technical vocabulary and are

unable to use context clues to comprehend the text, therefore, they fall behind their proficient-reading peers. According to the 2005 National Assessment of Educational Progress (NAEP), 73% of students with reading disabilities scored non-proficient in science, compared to 38% of students without a reading disability (Grigg, Lauko, & Brockway, 2006). Struggling readers also typically fall behind their proficient-reading peers in social studies. Middle and high school social studies textbooks are often at a readability far more difficult than struggling students' current reading levels (Brenner, 2015). Other social studies reading materials including newspapers, diaries, speeches, timelines, maps, and charts require students to use complex reading skills such as making inferences, interpreting data, and analyzing opinions (Brenner, 2015). The most recent NAEP results show that students are not doing well on national social studies assessments. On a 500 point scale, the average eighth grade score for geography in 2014 was 261, where 282 is considered proficient ("New Results Show," n.d.). Mathematics also requires literacy skills (Franz, 2015). Students must understand that words may have more than one meaning (for example, the words *sum* and *some*) and be able to understand the correct meaning based on the context. Struggling readers also have difficulty understanding mathematical ideas because they are unable to read the textbook or infer based on teacher instruction. Additionally, students who lack appropriate reading skills (depending on the grade level) may not be able to read or comprehend word problems. Forsyth and Powell (2017) reported the results of 128 fifth grade student scores on the mathematics Wide Range Achievement Test (WRAT). These researchers compared the scores of students with and without reading difficulties. Results showed that students with reading difficulties scored lower in whole numbers ($M = 16.72$, $SD = 6.95$), fractions ($M = 3.89$, $SD = 3.14$), measurement ($M = 6.78$, $SD = 3.44$), and geometry ($M = 19.17$, $SD = 6.78$) than students without reading difficulties in whole numbers ($M = 25.9$, $SD = 6.73$), fractions ($M = 6.46$, $SD = 2.21$, measurement ($M = 10.49$, $SD = 3.11$, and geometry ($M = 25.31$, $SD = 6.43$) (Forsyth & Powell, 2017).

Second, students who are labeled as struggling readers are less likely to graduate from high school (Hayes & Wilson, 2016). Hernandez (2011) conducted a study that followed approximately 4,000 students from third grade until age 19. This study showed that pupils who are labeled as non-proficient readers by the end of third grade have a dropout rate of four times higher than proficient readers. Only 4% of proficient third grade readers fail to graduate compared to 16% of non-proficient third grade readers. These statistics come from the 12% of total students who do not graduate by the age of 19. The same study found that students who could not master foundational skills such as letter sounds, phoneme segmentation, and blending by third grade have a high school dropout rate of six times higher than students who have mastered these skills.

Third, individuals who cannot read have fewer career opportunities, which puts them at a greater risk for poverty. According to Noguera (2011), illiteracy in impoverished families is a vicious cycle. Because students who cannot read have a higher chance of dropping out of high school, they are also more likely to acquire a low level job. According to the Bureau of Labor Statistics, the 2013-2014 unemployment rate for high school dropouts was 30.3% compared to 14.5% for individuals who had graduated high school and were enrolled in college ("Employment and Unemployment," n.d.). Further, Tyler and Lofstrom (2009) detail additional problems faced by high school dropouts such as lower annual earnings. Individuals who fail to complete high school earn less per year than those who receive their high school diploma. For example, the median yearly income for women without a high school diploma was $13,255 in 2006 compared to $20,650 for women with a high school diploma. Similarly, the median yearly income for men without a high school diploma was $22,151 in 2006 compared to $31,715 for men with a high school diploma (Tyler & Lofstrom, 2009).

Fourth, struggling readers typically suffer from more health-related issues than adults who are considered literate (Marcus, 2006). According to the study conducted by Marcus (2006), illiterate adults do not have the knowledge and skills required to understand health-related information from books, newspaper articles, brochures, or online sources. Therefore, instead of seeking a remedy to a specific symptom, the illiterate individual may continue to suffer (Marcus, 2006). Additionally, adults who cannot read at a level well enough to understand health-related information are more likely to avoid clinics and

outpatient centers to seek treatment due to the arduous amount of paperwork. These individuals suffer health-related issues due to lack of treatment. Furthermore, according to Hummer and Hernandez (2013), adults who do not have a high school diploma have a life expectancy of 10 years shorter than their high school graduate counterparts. American adults ages 45-64 with nine to 11 years of education have a fatality rate of 93% higher than American adults with more than 17 years of schooling of the same age (Hummer & Hernandez, 2013).

Past Interventions

Researchers have sought to intervene upon non-proficient readers (Miller & Moss, 2013; Nomi, 2010; Poole, 2008; Chiu, Chow, & Joh, 2017). Four interventions that educators use include Drop Everything And Read (DEAR) or other similar independent reading activities, heterogeneous grouping, tracking, and homogeneous grouping.

Drop Everything And Read. According to Miller and Moss (2013), independent reading without support, such as Drop Everything And Read (DEAR) or Sustained Silent Reading (SSR), is not an effective use of instructional time. Mostow, Nelson-Taylor, and Beck (2013) reported that students who spent time reading out loud, rather than silently, averaged greater gains in reading abilities such as blending and word identification. In a study (Mostow, Nelson-Taylor, & Beck, 2013) of 173 students from grades 1 through 4, Project LISTEN's Reading Tutor heard 88 students read aloud over the course of 19 hours. The other 90 students engaged in SSR over the same amount of time. Students using the reading tutor outperformed students participating in SSR in blending words $F(1, 169) = 5.02$, $p < 0.05$, partial $\eta^2 = 0.029$, $d = 0.34$. Students also made greater gains using the reading tutor as opposed to SSR in word identification $F(1, 173) = 90.75$, $p < 0.001$, partial $\eta^2 = 0.344$, $d = 1.45$. Additionally, a number of studies have been conducted that connect oral reading fluency, rather than silent reading fluency, to reading comprehension for primary grade students (Roberts, Good, & Corcoran, 2005; Cook, 2003; Fuchs, Fuchs, Hosp, & Jenkins, 2001). Through his study of 79 first grade students, Cook (2003) tested pupils on the oral reading fluency portion of the Dynamic Indicators of Basic Early Literacy Skills (DIBELS) assessment. Results showed that oral reading fluency was strongly positively correlated to reading comprehension ($r = 0.728$). The previous studies imply that silent reading practices such as Drop Everything And Read (DEAR) are not effective instructional practices; in order to maximize comprehension students should be reading aloud.

Heterogeneous grouping. Heterogeneous grouping refers to the practice of placing students of different ability levels together in a small group (Johnson, 2014). Regarding grouping strategies, a heterogeneous mix does not lend itself to differentiation because the academic abilities of the group vary (Nomi, 2010). Nomi (2010) used the Early Childhood Longitudinal Study- Kindergarten (ECLS-K) data to analyze ability grouping methods. In this study, 13,512 kindergarten and first grade students' data was used. The author used a propensity score to report results, which is an estimated probability of schools adopting a homogeneous ability grouping approach (Nomi, 2010). The average propensity score of ungrouped students was 0.55 ($SD = 0.25$), while the average propensity score of students grouped homogeneously was 0.83 ($SD = 0.17$). Six stratums of propensity scores were reported, with stratum 6, the highest in the series, containing the greatest number of ability-grouped schools. Stratum 1 contained the least number of ability-grouped schools. Average propensity scores from stratum 6 though stratum 1, respectively, were 0.91, 0.75, 0.65, 0.51, 0.32, and 0.11. The highest scores occurred within schools using greater ability grouping.

An additional study conducted by Poole (2008) concluded that heterogeneous ability grouping did not produce advantageous results, especially for low performing students. Fifth grade students were the participants in this heterogeneous grouping strategy in which at least one of each low, average, and high ability students were placed in a small group for a reading intervention. Data shows that the low performing students recorded the fewest speaking turns, 28 turns, as opposed to 41, 42, and 48 turns by the average and high performing members of the group. Further data shows that the low ability students also read considerably fewer words in a shorter time span (150 words in 3 minutes 12 seconds, as opposed to 283 words in 2 minutes 45 seconds by average and high ability students). This achievement gap between low, average, and

high ability students is representative of data from the remaining heterogeneous groups in the study. This data suggests that lower ability students recognize they are, in fact, a low achieving student in comparison to the rest of their group. Hesitancy to participate may result from this suggestion. According to Poole (2008), mixed ability groups tend to be held back by lower achieving students. Less proficient students receive support from the more proficient students, but this help is not reciprocated. Additionally, lower ability students' reading time was interrupted, discontinued early, or corrected by higher ability students, which did not give the less proficient students the opportunity to practice fluency or self-correction (Poole, 2008).

area of literacy, to gauge reading achievement. Students' reading scores varied depending on elements such as the child's past reading skills, originating country, family variables, student gender and attitudes, and classmate variables. Students were required to respond to 64 multiple choice questions and 62 constructed response items, for a total of 126 points. These items measured reading achievement according to PIRLS. Pupils who were tracked into classes because their reading achievements averaged 10% greater than their peers scored approximately five points higher in literacy achievement than the students whose reading achievements averaged less than 10% greater than their peers (SE = 0.136). Chiu, Chow, and Joh (2017) suggest avoiding tracking students based on extreme similarities between classmates (two standard deviations above or below the mean should not be tracked together); students should be mixed according to past achievements.

Zimmer (2003) studied the effects of tracking on peer interaction. The results of the study showed that tracking low and average ability students lowers the impact that classmates have on one another's achievement (Zimmer, 2003). This suggests that students benefit from being exposed to more proficient peers, $t(df^1) = -2.61$, $p < 0.05$. Betts and Shkolnik (2000) state that students placed in lower tracks do not experience the peer group effect, which reinforces that a student's achievement is based on individual ability as well as the average ability of the class. Tracking creates ability level classes and low to average ability level students are not exposed to the high levels of motivation and achievement that the higher level tracked students receive.

Tracking. Tracking, which includes placing students in classrooms based on the previous school year's testing, is an instructional practice used worldwide (Chiu, Chow, & Joh, 2017). A similar instructional approach, called streaming, occurs when students are placed into a specific school based on previous academic accomplishments. In order to determine the effects that streaming and tracking have on achievement, Chiu, Chow, and Joh (2017) conducted a study that examined 208,057 fourth grade students from 40 countries. The multilevel analysis sought to determine whether streaming and tracking positively or negatively impacted academic achievement. Fourth grade students were given an assessment booklet, created by experts in the

Homogeneous grouping. A common misconception of ability grouping is that some individuals consider this practice equal to the practice of tracking (Matthews, Ritchotte, & McBee, 2013). However, unlike tracking, ability groups are fluent and permit students to change groups depending on current needs (Steenbergen-Hu, Makel, & Olszewski-Kubilius, 2016). According to Slavin (1987), ability grouping is a widely used educational practice in American schools. All ability groups within a class are essentially focused on proficiency within the same academic standard. However, two distinct features of ability grouping include adjusting the pace and level of instruction to meet the needs of the students in each group. Lleras and Rangel (2009) used data from the ECLS-K, which included surveys and assessment data from approximately 22,000 children. The students whose data was studied have testing scores from kindergarten, first, and third grade and have ability grouping information provided by the teachers. Minority students, particularly African American and Hispanic students who are placed in low ability groups, show lower achievement gains than African American and Hispanic students who are placed in high ability groups. Overall effects of low ability grouping on reading achievement gains was -3.86 ($p < 0.01$) for African American students and -4.45 ($p < 0.01$) for Hispanic students from kindergarten to first grade, versus no grouping. Overall effects of high ability grouping on reading achievement gains was 2.73 ($p < 0.01$) for African American students and 2.27 ($p < 0.01$) for

Hispanic students from kindergarten to first grade, versus no grouping. Instead of placing students in a group considered low, educators should identify specific skills and move students in and out of groups as achievement is gained.

Provus (1960) reported positive results in an experimental study when students were ability-grouped for a part of the school day. Fourth grade students were placed into ability groups and then matched with students of a similar IQ in order to compare results. The highest achieving students showed the greatest gains (*ES* = 0.79). Average and lower ability students also showed gains, while not as significant (*ES* = 0.22 and *ES* = 0.15, respectively). Students are capable of making such gains if materials and instruction are provided at the student's instructional level.

Slavin and Karweit (1985) tested the effects of individualized, ability-grouped, and whole class instruction with 354 fourth through sixth grade students' mathematics achievement. Students were randomly assigned to an individualized, ability-grouped, or whole class instruction group for 18 weeks at the end of the school year. The whole group instruction was derived from the Missouri Mathematics Program (MMP) which incorporated a mixture of direct teaching, guided practice, independent work, and homework (Slavin & Karweit, 1985). Ability-grouped instruction was derived from the MMP, however, the teacher differentiated the pace and materials to match the needs for the low-ability and high-ability groups. The individualized instruction was chosen based on the needs of the groups, which consisted of four or five students. To measure student achievement, scores from the mathematics subsections of the Comprehensive Test of Basic Skills (CTBS) were analyzed. Results showed that students who received ability-grouped instruction (pre-test $M = 49.77$, $SD = 10.21$, post-test $M = 52.48$, $SD = 9.60$) outperformed their whole-class instructed peers (pre-test $M = 48.4$, $SD = 8.85$, post-test $M = 45.44$, $SD = 8.51$).

McCoach, O'Connell, and Levitt (2006) reported on over 10,000 kindergarten students' response to within-class ability grouping using a multilevel analysis. The teachers in the study reported that, on average, ability groups were used once per week for 15-30 minutes per session. The ECLS-K was used to measure early literacy skills such as word identification and letter sound knowledge. The results showed that ability groups significantly predicted reading scores, $\beta = 9.920$, $p < .001$. According to McCoach, O'Connell, and Levitt (2006), ability group instruction must be differentiated based on the needs of the group in order to increase student achievement. A positive effect on student achievement may not occur if universal instruction is presented to ability groups (McCoach, O'Connell, & Levitt, 2006).

With the limited amount of time that educators have to teach reading, teachers must find a way to differentiate instruction in a manner that meets the needs of all students. Hong and Hong (2009) studied the effects of within-class ability grouping on kindergarten students' reading achievement to determine whether this instructional practice is worthwhile in kindergarten. Students were grouped according to reading time (low reading time was considered less than one hour per day and high reading time was considered one hour or more per day) and intensity of grouping (no grouping, low-intensity grouping, or high-intensity grouping). The authors used outcomes from the ECLS-K cohort data set for reporting. The average monthly reading achievement of students experiencing a low amount of reading instruction coupled with low-intensity ability grouping was 1.69, and 1.73 for high-intensity grouping. A reader is expected to achieve one month's worth during one month. This is depicted by the numeral 1. If a student has a monthly gain of 2, that individual made two month's worth of progress in one month's time. According to the results, a student participating in low-intensity grouping rather than no grouping showed a reading gain of 0.99 in approximately one school year. In this case, a gain of 1 refers to one school years' worth of progress. Students involved in low reading time with low-intensity grouping showed a monthly reading gain rate of 1.58, while students involved in high reading time with low-intensity grouping showed a monthly reading progress rate of 1.69. Students involved in low reading time with high-intensity grouping showed a monthly reading gain of 1.52, while students involved in high reading time with high-intensity grouping showed a monthly reading progress rate of 1.73. Hong and Hong (2009) concluded that when teachers spend more than one hour each day on whole class literacy instruction, homogeneous ability grouping has positive effects on kindergarten student achievement. Students of high ability level had a mean score of 34.23 (*SD* =

9.67) in the fall and 43.52 (*SD* = 11.46) in the spring. Students of medium ability level had a mean score of 21.55 (*SD* = 5.99) in the fall and 31.84 (*SD* = 8.69) in the spring. Students of low ability had a mean score of 16.47 (*SD* = 5.82) in the fall and 26.97 (*SD* = 8.07) in the spring.

Theoretical Framework

Linking pictures to words, in order to make connections between letters and sounds, is an approach to phonics instruction based on decades of research (Carpenter, Gehsmann, Smith, Bear, & Templeton, 2009). The intervention in this study requires students to match pictures to their letter sound, presented in the form of a letter. For example, a picture of a mouse would be paired with the letter m. Children also read the alphabet linking chart, which matches a picture to its beginning sound. The intervention also requires students to use pictures in an emergent level text to read unknown words. The framework of this intervention was based upon Mayer's Cognitive Theory of Multimedia Learning. Multimedia refers to the combination of text and pictures and is not exclusive to technology (Tobias & Fletcher, 2014). According to Mayer (2002), learning occurs when individuals form mental images from words and pictures. A central premise of the Cognitive Theory of Multimedia Learning (CTML) is that learning happens at a deeper level when connections are made between words and pictures, as opposed to independently from one another (Mayer, 2002). Multimedia Learning assumes that humans process information using dual channels: an auditory and a visual channel (Mayer, 2002). Humans process visual and verbal information differently; using both channels gives individuals the opportunity to learn using both visual and verbal connections (Clark & Paivio, 1991). Linking pictures to letters or words and using pictures as a strategy for reading connected text requires that both channels work simultaneously.

Mayer's Cognitive Theory of Multimedia Learning is based upon 12 principles, three of which connect directly to the intervention in this study. First, the Multimedia Principle claims that children learn better from words and pictures. In the alphabet linking chart, the words *Andy Apple* are presented alongside a picture of Andy Apple. Mayer (2002) states that students need the chance to form both verbal and pictorial representations and make connections between the models. When students are presented with pictures and the letter that represents the image's beginning sound, a connection is formed in the brain. According to Mayer (2002), of 11 tests given, students scored better on transfer of information on all 11 tests when text and pictures were presented rather than text alone.

Second, the Spatial Contiguity Principle asserts that students learn better when they see pictures and words together spatially. For example, images should be placed near the words on a screen or page, rather than far away from one another. That way, the child does not have to use cognitive resources to search for the corresponding word or picture. When both forms are presented simultaneously, students are more likely to keep the mental images in their working memory (Mayer, 2002). On the alphabet linking chart, both upper and lowercase forms of a letter are presented directly below an image that corresponds to that letter sound. Of five tests given, students scored better on transfer of information on all five tests when text and pictures were placed near each other on a page as opposed to far from each other (Mayer, 2002).

Third, the Temporal Contiguity Principle proclaims that students learn better when pictures and words are presented concurrently rather than consecutively. For example, a word should be presented with a picture, rather than after the picture is presented. When both words and pictures occur simultaneously, the child is able to make a connection between both models and hold a mental representation in their working memory (Mayer, 2002). During the intervention in this study, the alphabet linking chart holds the letters and picture in the same box. Additionally, the picture sorts require the teacher to present the letters and pictures simultaneously rather than separately. Meaningful learning occurs during the intervention presented in this study due to the CTML. According to Mayer (2002), of eight tests given, students scored better on all eight tests when text and pictures were presented together rather than separately.

Moreno and Mayer (1999) tested the role of spatial contiguity as part of the CTML. Spatial contiguity asserts that students learn better when images and words are presented close together. In their study, three groups of 132 college students listened to an informational text. Each group was presented with a different version; the narration

version included text right next to the picture, the integrated text version consisted of words underneath the picture, and the

separated text version consisted of words far away from the picture. Results showed that of the 19 ideas presented in the next, the narration group could correctly recall 61% of the ideas, while the integrated text and separated text groups recalled 48% and 41% of the ideas, respectively (Moreno & Mayer, 1999).

The Dual-Coding Theory of Multimedia Learning asserts that individuals have an audio and a visual channel that is used to construct meaning (Mayer & Sims, 1994). Mayer and Sims (1994) studied 86 college students who were classified with either high-spatial or low-spatial ability and separated into a control or treatment group. The study sought to test the effects of words and images presented concurrently (together) or successively (one after the other) on problem solving. The control group received no instruction to serve as baseline data. Significantly higher scores were reported from the concurrent group (M = 8.70, SD = 2.58) than the successive (M = 6.10, SD = 3.15) and control (M = 4.72, SD = 1.60) groups for high-spatial learners (Mayer & Sims, 1994). Higher scores were also reported from the concurrent group (M = 5.42, SD = 2.54) as opposed to the successive (M = 5.05, SD = 2.46) and control (M = 5.00, SD = 2.32) groups for low-spatial learners (Mayer & Sims, 1994). According to Mayer and Sims (1994), students who received instruction with words and images presented together were able to generate a greater number of problem solving solutions than students who received instruction with words and pictures presented successively.

According to Mayer and Moreno (2003), designers of curriculum materials should be aware of cognitive demands. Educators may have to construct their own intervention materials if the items provided are cognitively overloaded. Students have limited space for cognitive processing, and overload in this area could prevent learning (Mayer & Moreno, 2003). Cognitive overload happens when a task requires greater processing demands than the cognitive system can handle. In order to reduce the chances of a cognitive overload, Mayer and Moreno (2003) propose nine solutions for designing instructional materials that adhere to the CTML, two of which apply to the intervention in this study. Off-loading is one solution that includes moving information from the visual channel to the audio channel. For example, rather than designing a picture card with a word included, only the picture needs to appear on the card. The teacher would say the corresponding word aloud. Weeding is the second solution that can prevent cognitive overload. Weeding suggests omitting unnecessary or extraneous pictures or words. For example, if the objective is to sort a picture of a slide, the picture card should only contain a slide, not an entire park. An entire park may cause the learner to draw out the incorrect word. The goal of Mayer and Moreno's (2003) solutions is to help design materials that promote meaningful learning between words and pictures to prevent cognitive overload.

Gap in the Research

The present study is imperative because gaps exist in the research regarding the impact of within-class ability grouping on kindergarten students' reading achievement. First, there are a limited number of studies that have investigated the effects of within-class ability grouping on kindergarten student achievement. From the within-class ability grouping data that has been collected, even fewer studies include national data. A broad range of international research has been conducted. Second, a large number of experimental studies exist that compare students who were placed in high ability groups as compared to low ability groups. Few quasi-experimental AB studies comparing whole group instruction to ability-grouped instruction have been conducted. Last, much research exists regarding the homogeneous grouping practice known as tracking. Tracking places students into classrooms based on previous math and reading scores. Ability grouping students for a small portion of the week (3-4 days per week for 15 minutes per day) lacks research.

The proposed intervention fills these gaps by allowing kindergarten students to participate in homogeneous ability groups three to four times per week. The teacher created ability groups of two to four students in order to provide differentiated instruction in an area of literacy. The area of literacy was determined by the fall FAST universal screener. Possible intervention areas for beginning kindergarten included letter names, letter sounds, onset sounds, and phoneme segmentation. The intervention groups were 15 minutes in length.

Since there are few studies that address within-class ability grouping in kindergarten, this research contributes to that gap. Additionally, this study adds to the little national data that has been reported on homogeneous ability grouping.

Purpose Statement

Elementary students in the United States, on average, are performing below proficiency in the area of reading. Struggling readers have a tendency to underperform in core subject areas, have a higher high school dropout rate, receive fewer economic opportunities, and suffer from more long term health issues than their proficient-reading peers (Lonigan, 2006; Duggan-Haas, 2015; Franz, 2015; Hayes & Wilson, 2016; Tyler & Lofstrom, 2009; Marcus, 2006). Educators need to differentiate instruction, for at least a portion of the day, in order for all students to test at proficient levels in reading. Research shows that although trends in assessment scores in the United States have increased, although slowly, the majority of students are not scoring at or above proficient levels (Sparks, 2017). Letter sound fluency, phoneme blending and segmenting, and phonogram fluency are all early predictors of oral reading fluency (Clemens, Simmons, Simmons, & Wang, 2017; Burke, Hagan-Burke, Kwok, & Parker, 2009). Each of these phonemic awareness skills (phoneme blending, phoneme segmenting, and phonogram fluency) can be a focus of a within-class ability group in kindergarten. Teachers who provide intensive small group instruction in areas of high need have a greater chance of developing students into proficient readers than teachers who ignore this instructional strategy (Otaiba, Connor, Folsom, Greulic, & Meadows, 2011). Educators should be aware of instructional practices that are unlikely to increase student achievement. Unsupported independent reading (such as DEAR), heterogeneous grouping, and tracking are instructional practices that do not produce proficient readers as the majority (Miller & Moss, 2013; Nomi, 2010; Zimmer, 2003).

There are very limited studies that focus on the impact of ability grouping on American kindergarten students' achievement in reading. From the kindergarten data that has been collected, most studies involve international data. This study utilized a quasi-experimental AB study to compare whole group instruction to ability-grouped instruction. This study took place in a kindergarten classroom with 24 students. The teacher provided six weeks of whole class reading instruction. Then the teacher formed ability groups of two to four students to provide differentiated instruction for the next six weeks. Students completed Form 1 of the FAST letter sound fluency assessment before the A (baseline) phase, directly following the A phase, and directly following the B (treatment) phase. It was predicted that kindergarten students who participated in an ability-grouped intervention in the area of reading would make greater gains in letter sound fluency than when not participating in an ability grouped intervention.

Methods

Participants

Students selected for this study attended an elementary school in the Midwestern United States. In the 2016-2017 school year, 314 students were enrolled in the K-fifth grade primary school. Of the 314 students, 39% were Caucasian, 38% were Hispanic, 15% were African American, 4.5% Pacific Islander, 1% Asian, 1% Native American, and 1.5% were identified as multiracial. The school had a free or reduced-priced lunch rate of 68% and an ELL population of 34% for the 2016-2017 school year.

A total of 24 kindergarten students participated in the study. Students were selected due to placement in the specific kindergarten classroom. Students were randomly placed into one of two kindergarten sections by the school secretary prior to the beginning of the school year. Student's ages ranged from 5-6 years old. A total of 11 females and 13 males participated in the study. Five students were on an Individualized Education Plan (IEP) and one student was on a 504 plan. Of the 24 students who participated in the study, 41% of students were Caucasian, 45% Hispanic, 9% African American, and 5% Asian. Seventeen students spoke English as their first language and seven students spoke Spanish as their first language. Approximately 68% of the kindergarten students were eligible for free or reduced-priced lunch. Participants were not offered an incentive for participation in the study.

Apparatus and Materials

Apparatus. The students completed the study in the general education classroom. While participating in the pre-assessment, the teacher used an HP Elitebook x360 G2 Notebook PC-

Customizable to administer, time, and score the baseline assessment. This apparatus had an Intel Core i5-7200U Processor, 8 GB of memory, 128 GB SSD storage, and a 13.3" diagonal FHD (1920 x 1080) BrightView LED UWVA ultra slim touch screen with Corning Gorilla Glass, and was approximately 2.82 lbs. The stopwatch on the FastBridge website was used for the pre-test. The stopwatch on an iPhone 8 Plus was used for the mid- and post-assessments. The iPhone 8 Plus had a 5.5" display, 7.5mm thickness, 64 GB storage, and was 7.13 ounces. The body was comprised of an aluminum frame with front/back glass. A projector and Promethean Board were used during the sight word portion of the non-intervention phase. The Promethean ActivBoard 300 Pro was a 78" x 46" interactive whiteboard. This device had an internal resolution of 2730 points per inch and an output resolution of 200 points per inch.

Curriculum. Throughout the baseline phase (A), the teacher used the Journeys comprehensive kindergarten English language arts program, published by Houghton Mifflin Harcourt. Journeys contained six units, and each unit consisted of five, five-day lessons. Journeys provided instruction in both informational and literature texts, foundational literacy skills, and speaking, listening, and writing. During the phonological awareness portion of the non-intervention phase, the teacher used the Journeys picture cards for rhyming and onset sounds activities. The cards came in a set of 133, 4 1/2" x 5 1/2" laminated colored cards (see Appendix E). The teacher used the Journeys big book: *A Journey from A to Z* to introduce new letters. The big book was a 16" x 18" spiral bound text with 33 pages (see Appendix K). The Journeys Aa-Zz alphabet cards were used in the guided practice section of letter name introduction. One letter, either capital or lowercase, was centered in the middle of a 4.5" x 5.5" laminated card (see Appendix F). Students practiced writing the capital and lowercase letter using an 8 1/2" x 11" piece of white handwriting paper (see Appendix G). The paper had six lines, and the first line had three uppercase letters that the students traced. The second and third lines were blank. The fourth line had three lowercase letters that the students traced. The fifth and sixth lines were blank. The teacher used the Journeys vocabulary in context cards to introduce and review the sight words. The laminated 8.5" x 5.5" cards contained a sentence at the bottom with the sight word highlighted. The card also had a colored picture that went along with the sentence at the top. The back of the card was for teacher use and described what the word meant, how to use the word, and how to encourage students to talk about the word (see Appendix H). Sight word cards and paper and pencil were also used to practice and review the sight words. The laminated 5.5" x 3" sight word cards went on the word wall for teacher and student reference. The white cards had one sight word centered in the middle of the card (see Appendix I). Students used a sharpened pencil to write the sight words on a 5.5" x 8.5" piece of skip-a-line ruled newsprint (see Appendix J).

Intervention. During the intervention stage, the teacher used materials from Journeys. The alphabet linking chart (see Appendix A) was on a laminated 9"x12" piece of white cardstock with color printed pictures. Picture word sorts were on non-laminated 9" x 12" pieces of white cardstock, cut apart into 16, 1.5" x 2" cards or 12, 1.5" x 3" cards (see Appendix B). Student books were categorized into below level (green circle), on level (purple triangle), above level (blue square), or language (teal diamond). The books were colored, 6" x 8" leveled readers, ranging from levels A-F for kindergarten. Books came in different genres including informational text, realistic fiction, and fantasy (see Appendix C).

Assessment. The teacher administered the one-minute letter sound fluency assessment created by the Formative Assessment System for Teachers (FAST). Form 1 was used from the progress monitoring letter sounds materials (see Appendix D). The assessment was a laminated 9" x 12" form with a total of 107 letters. The letters were presented in horizontal rows, with 10 letters in each row, and 10 rows. There were an additional seven letters centered on the bottom of the page. The letters were presented in random order, letters were repeated, and only lowercase forms were used. Students named as many letter sounds as they could in one minute. A practice form was used in addition, before each assessment. The practice page was a laminated 9" x 12" form with a total of two letters, f and s (see Appendix D). The letters were centered in the middle of the page. The purpose of the practice page was for students to become familiar with the expectations before the assessment. The purpose of the assessment was to gather baseline data prior to the implementation of the non-intervention phase,

letter sound fluency growth after the non-intervention phase, and letter sound fluency growth after the intervention phase. Each correct sound was counted as one point. The student was scored on the number of correct letter sounds named in one minute. The student was expected to give the hard sound for c (/k/ as in *cake*) and g (/g/ as in *gift*). Only short vowel sounds were accepted for the vowels (/ă/ as in *apple*, /ĕ/ as in *egg*, /ĭ/ as in *igloo*, /ŏ/ as in *olive*, /ŭ/ as in *up*). A good score for the baseline assessment was 10+ sounds per minute. A good score for the mid-test (given after the A phase) was 20+ sounds per minute. A good score for the post-test (given after the B phase) was 30+ sounds per minute. The teacher used the following script when administering the assessments: (The teacher placed the letter sound practice copy with two letters in front of the student. The test page remained face down). "I will show you some letters on a page. You will tell me the sound of each letter. If you don't know the sound of a letter, that is okay. Just do your best. I will go first. (The teacher pointed to the letter f). /f/. Now you try. What is the sound of this letter (point to the letter s)?" If the student was correct: "Good. That letter has a /s/ sound. If the student was incorrect: "The sound of the letter is /s/."

All FastBridge assessments were designed to be sensitive to student growth while also providing instructionally relevant information (Biancarosa & Wyrick, 2016). Current research supports the validity of FastBridge reading assessments. According to Biancarosa and Wyrick (2016), predictive validity statistics for the letter name fluency (LNF) portion of the assessment is 0.47-0.63. Letter sound fluency (LSF) predictive validity statistics are 0.44-0.63. Predictive validity statistics for nonsense word fluency (NWF), phoneme segmenting fluency (PSF), and word reading fluency (WRF) are 0.44-0.67, 0.32-0.60, and 0.59-0.78, respectively. For most FastBridge learning assessments, there is no threat to inter-rater reliability because assessments are electronically scored. FastBridge test-retest reliability for LNF, LSF, NWF, and PSF is 0.94, 0.92, 0.76-0.94, and 0.83-0.86, respectively. Alternative form reliability for LNF, LSF, NWF, and PSF is 0.82-0.92, 0.85-0.94, 0.69-0.96, and 0.67-0.92, respectively. Interrater reliability for LNF, LSF, NWF, and PSF is 0.99, 0.99, 0.99, and 0.83-0.85, respectively. The pre-test was given through the FastBridge website, but subsequent assessments were given by hand. The teacher administered and scored the mid-test and post-test by using Form 1 and a timer because online administration does not allow forms to be repeated until all 20 have been administered. There is no subjectivity to administering or scoring the assessments by hand. Students either can say the letter sound, or not. FastBridge assessments show reliability coefficients that account for minute test errors. Evidence supports the use of FastBridge measures for screening and progress monitoring. Research also supports the use of FastBridge for informing teachers if instructional practices are effective or if more/different instruction might be needed to further student achievement in reading skills. Research on FastBridge assessments insinuates that these measures are effective for reliably differentiating for students who are at risk for reading problems.

Procedure

The study took place in a kindergarten classroom during the first (fall) trimester of the 2018-2019 school year. The study used an AB research design. To begin, the teacher administered the FAST one-minute letter sound fluency assessment, Form 1, to each student individually to establish baseline data. After the pre-test, the six-week baseline (phase A) began. After the non-intervention phase, the teacher administered the FAST one-minute letter sound fluency assessment, Form 1, to each student individually a second time. After this data was gathered, the intervention (phase B) began. After the six-week intervention phase, the teacher administered the FAST one-minute letter sound fluency assessment, Form 1, to each student individually for the last time.

During the baseline phase, the teacher used the Journeys kindergarten resource, Unit 1, during a 60-minute section of the day. This phase lasted for six weeks. Students participated in activities that included phonological awareness instruction, letter work, and sight word practice. The teacher completed the same protocol each day of the non-intervention phase in a whole group setting. Every day the teacher began with a phonological awareness activity in rhyming or onset sounds. The teacher used the Journeys picture cards to display two rhyming words, such as *pan* and *van*, and pointed out the similarity of the ending sounds. Next the teacher continued with two additional sets of words, such as *cat* and

bat, and *vet* and *net*. Then students named the picture that rhymed with *pan*. After that, students named another word that rhymes with *pan* and *van*. The teacher began each day for the first five days with this rhyming instruction but used different sets of rhyming words from the Journeys picture card collection. For the remainder of the non-intervention phase, the teacher began with onset sound instruction. The teacher displayed seven pictures from the Journeys picture card set, such as *mule, seal, pot, gate, feet, kite*, and *lock*. Then the teacher said a picture name and just the sound at the beginning of the word. The teacher asked children to make the beginning sound on their own and name five other words that begin with that sound. This procedure was repeated with two other pictures. The teacher used onset sound instruction for days six through 30 of the baseline phase but used different picture cards from the set each day.

After the rhyming or onset sound work, the students participated in letter work. The same routine was followed for each day of the six-week baseline phase. The teacher displayed the letter on the Journeys big book: *A Journey from A to Z.* Then the teacher pointed to, named (upper and lowercase), traced, and described each letter. For example, the capital K has all straight lines, one straight line down and two slanted lines. A description was also provided for the lowercase letter. The teacher identified any children in the class whose name began with this letter. Next the teacher identified the letter sound and named the pictures on the big book page, enunciating the first sound. Then 10 random uppercase and lowercase letters from the alphabet card set were displayed along with the uppercase and lowercase letter of the day. Children were asked to find the uppercase and lowercase letter of the day and point to and name other letters the class has introduced. Next the teacher distributed the handwriting paper for the letter of the day. Students traced the model capital letter and then wrote the letter on their own. Students did the same with the lowercase letter. On day one of the baseline phase, the teacher began with the letter Kk, and proceeded in order to the letter Zz. Then the teacher started at the beginning of the alphabet with Aa to Jj. Two days were spent on vowels Ee, Ii, Oo, and Uu.

The last part of the 60-minute daily baseline phase, after rhyming/onset sound work and letter work, was sight word instruction. One word was the focus each week for the six weeks: *I, like, the, and, see,* and *we* were presented in that order. The teacher began by displaying the vocabulary in context card for the sight word of the week. Then the teacher read the sentence on the front of the card and followed the directions on the back of the card. After that, students got a word wall paper on the way back to their desks and put their name on the top. Next students stood up for the cheer. The teacher pulled down *I* from the word wall and displayed the word on the projector. The Week 1 cheer was “airplane." The class said the letter(s) of the word as they put their arms out and pretended to fly like an airplane (I, *I*!). The teacher and class repeated the cheer three times. Then the kids sat down and wrote the word. As the weeks progressed, students cheered up to three words. During Week 2, students cheered and wrote the words *like* and *I*. During Week 3, students cheered and wrote *the, like,* and *I*. During Week 4, students cheered and wrote the three most recent words, *and, the,* and *like*. This continued for weeks five and six. The cheer changed each week also. In Week 2, a clapping cheer was used. Weeks 3 through 6 cheers included jumping jacks, stomping, and drumming on your desk, respectively.

During the intervention phase, the students began each day by looking at the center chart to see their beginning group. Students began at one of the six centers independent from the teacher (reading, writing, puzzles, ABC, Imagine Learning, or creativity) or with the teacher at the ability-grouped intervention table. Once the teacher's group was at the table, a timer was set for 15 minutes. The materials used for the ability group varied based on skill level, but the same basic procedure was used for all of the groups. The group began by reviewing the alphabet linking chart. Each student and the teacher had an alphabet chart (see Appendix A). The group went through the whole alphabet chart together (said letter name, said picture name, said letter sound). This took approximately two minutes. Next the group participated in a letter sound sort using picture word cards specific to the needs of the group. The teacher chose a letter sound sheet that had sounds in which the group needed additional practice (for example /n/, /p/, /c/, and /t/). The teacher put one card for each sound so students could see them. The teacher told the students the beginning letter names and sounds of the pictures and showed students what their mouth should look

like when forming each letter sound. The teacher went through each picture in the set, saying the name, and asking students to take turns placing the picture in the correct category. After all of the pictures were in the correct categories, the teacher and students said the names of all the pictures in each category. This took approximately three minutes. Next the students got their own picture sorts with the same letters/sounds as the group sort. Students completed each sort and then read the pictures back to the teacher. Corrections were made if necessary by showing students the shape of their mouth as the sound is made, and enunciating the first sound. This took about three minutes. Last the teacher introduced the small book (see Journeys teacher edition, Unit 1, pages T80-T81). Depending on the needs of the group, the teacher used the struggling, on level, advanced, or vocabulary reader. The instructions on page T-80 or T-81, depending on the book chosen, were followed. This took approximately seven minutes. When the timer went off, groups rotated. The teacher started the 15-minute timer again once the second group was ready. The above procedure was repeated for the second and third groups. The teacher saw a total of three groups each day.

Data Analysis

This study tested the effects of ability grouping on kindergarten students' reading achievement. One group was compared to itself through six weeks of regular instruction versus six weeks of ability-grouped instruction, and academic performance was measured by FAST data. A dependent samples *t*-test was used to compare before and after intervention achievement through a pre-test, administered before the first six weeks of instruction, a mid-test, administered directly after the first six weeks, and a post-test, administered directly after the second six weeks. It was hypothesized that kindergarten students who participated in an ability-grouped intervention in the area of reading would make greater gains in letter sound fluency than when not participating in an ability-grouped intervention.

Results

The purpose of this study was to measure the effectiveness of using homogeneous ability groups as a reading intervention in order to improve letter sound fluency in a kindergarten classroom. Twenty-four students ($n = 24$) were engaged in six weeks of whole group letter sound instruction at the beginning of the school year. During the next six weeks, students spent 15 minutes, three times per week engaged in an ability-grouped intervention with the goal to improve letter sound fluency. The FAST letter sound fluency progress monitoring Form 1 was used for baseline (pre-test), mid-test, and post-test data. A dependent samples *t*-test was used to compare the results from the baseline to the mid-test. Upon completion of the intervention phase, a dependent samples *t*-test was also used to compare the results from the mid-test to the post-test. It was hypothesized that kindergarten students who participated in an ability grouped intervention in the area of reading would make greater gains in letter sound fluency than when not participating in an ability-grouped intervention.

All students were tested with the same baseline, mid-test, and post-test FAST letter sound fluency progress monitoring Form 1 probe. Results showed that, on average, students outperformed their scores from the pre-test to the mid-test, $t(23) = -4.033$, $p < 0.001$. The mean scores from the mid-test ($M = 7.750$, $SD = 9.143$) were approximately 3 points higher than the mean scores from the pre-test ($M = 4.500$, $SD = 6.672$).

Students also outperformed their scores from the mid-test to the post-test, $t(23) = -5.100$, $p < 0.001$. The mean scores from the post-test ($M = 14.167$, $SD = 12.883$) were approximately 6.5 points higher than the mean scores from the mid-test ($M = 7.750$, $SD = 9.143$). Mean scores for the pre-test, mid-test, and post-test can be seen in Table 1 and Figure 1. Figure 1 also shows error bars that denote one standard deviation around the mean. Standard deviations were larger than the mean scores on both the pre-test and the mid-test. This means that scores were significantly spread out on this measure.

Baseline scores had a range of 25, with scores spanning from 0 to 25. The median score on the baseline measure was 2.5. Mid-test scores had a range of 31, with scores spanning from 0 to 31. The median score for the mid-test was 4. Post-test scores had a range of 49, with scores spanning from 0-49. The median score for the post-test was 13. Overall, findings show an increase in letter sound scores after the six weeks of whole group instruction.

Table 1
Means and Standard Deviations for Student Scores on the Pre-Test, Mid-Test, and Post-Test

Testing Period	*M*	*SD*
Pre-Test	4.500	6.672
Mid-Test	7.750	9.143
Post-Test	14.167	12.883

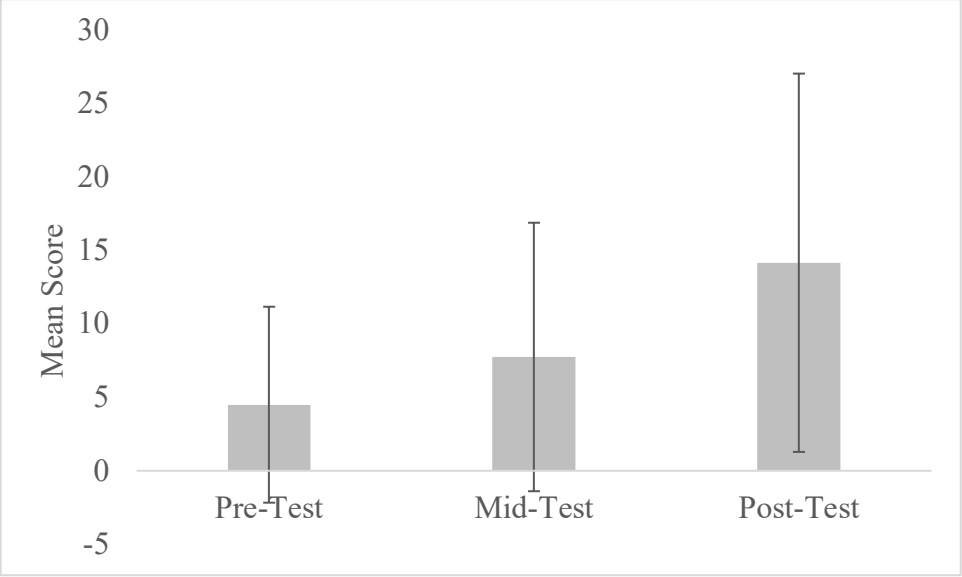

Figure 1. Mean (*M*) student scores for the pre-test, mid-test, and post-test. Error bars denote one standard deviation around the mean.

The general results of these analyses do not indicate a significant difference in the scores from the pre-test to mid-test $t(23) = -4.033$, $p < 0.001$ and the mid-test to post-test $t(23) = -5.100$, $p < 0.001$. Findings suggest that homogeneous ability groups do not produce greater letter sound fluency scores than whole group instruction. Therefore, the hypothesis that students who receive a homogenous ability-grouped intervention in the area of reading will outperform students who receive whole group reading instruction was not supported.

Discussion

The ability to read is essential for students' future success in core subject areas, prospective high school graduation, eventual economic opportunities, and long term heath (Lonigan, 2006; Hayes & Wilson, 2016; Tyler & Lofstrom, 2009; Marcus, 2006). Reading is a complex process involving a variety of skills. One foundational skill required for reading includes letter sound knowledge. This study demonstrated the effectiveness of homogeneous ability groups on kindergarten students' letter sound fluency.

The results from this study do not indicate a statistically significant effect for the use of homogeneous ability groups in order to improve letter sound fluency. This means that kindergarten students performed no better in letter sound fluency from the baseline phase (whole group letter sound instruction) to the intervention phase (ability-grouped letter sound instruction). In the twelve weeks of this study, there was an average upward trend of letter sound knowledge. Table 1 and Figure 1 show the means and standard deviations for student scores on the pre-test, mid-test, and post-test. Mean scores from the mid-test were higher than mean scores from the pre-test and mean scores from the post-test were higher than

mean scores from the mid-test. This is typical of kindergarten students as they progress through the year. However, the results of the *t*-test lead to the conclusion that the alphabet linking chart, picture sort, and emergent level text intervention did not produce great enough gains in letter sound fluency to warrant continuation. These results suggest that whole group letter sound work is a better use of instructional time; more students are engaged in reading instruction for a greater amount of time in large group than in homogeneous ability groups.

Findings of the present study did not match the results of past studies. Wanzek et al. (2013) conducted a meta-analysis of 19 studies that tested the effects of early reading interventions and features of the intervention. Wanzek et al. (2013) stated that reading interventions are more beneficial in primary grades than in later elementary and high school. The results from the present study show that ability-grouped interventions were no better for kindergarten students than whole group instruction; the variance in results could be due to the large discrepancy in participants. Wanzek et al. (2013) suggests that literacy interventions prior to third grade are more beneficial because struggling readers have not yet shown a significant enough gap in achievement as compared to their peers. The results of the present study were consistent with the results of reading interventions in grades 4-12, where only a small positive effect of the interventions were noted regarding fluency. An average effect size estimate for the fluency measures of 0.16 ($p = 0.004$; 95% CI [0.05, 0.26] were shown. The present author suggests that the results of the current study produced no significant gains in reading fluency scores due to distractions during the intervention time. Additionally, three studies from the meta-analysis tested reading fluency scores after the small group intervention period. Consistent with the present study, a majority of the students fell below grade level in correct words per minute even though gains were made (Wanzek et al., 2013).

Hong and Hong (2009) studied students participating in homogeneous ability groups in the area of reading. They found a large contrast between students that were involved in high reading time and ability group interventions versus no ability grouping (contrast = 0.76, $SE = 0.29$, $t = 2.58$, $p < 0.01$). High reading time referred to at least one hour per day of whole group reading instruction. The present study did not support the results from the study conducted by Hong and Hong (2009) because students did not significantly increase mean scores after high reading time was paired with high-intensity reading instruction (pre-test to mid-test $t(23) = -4.033$, $p < 0.001$, mid-test to post-test $t(23) = -5.100$, $p < 0.001$). This leads the current author to suggest spending instructional time on large group instruction or interventions.

Slavin and Karweit (1985) state that accommodating students of varying abilities is one of the most difficult tasks for educators. Teaching the same instruction to the whole class is not beneficial to students who have not mastered the foundational skills needed for the lesson or have already mastered the skill being taught (Slavin & Karweit, 1985). Slavin and Karweit (1985) studied the effects of whole group, ability-group, and individualized instruction during a mathematics class for 18 weeks. The results showed significant improvement for ability-grouped and individualized instruction compared to whole group instruction, $F(2,13) = 7.22$, $p < 0.08$. These results suggest that in order for ability-grouped or individualized instruction to be effective, behavior management strategies such as establishing guidelines and modeling expected behaviors must be present. The present study could have produced more effective results and a well-structured environment if these behavior techniques were modeled.

The instruction used in the intervention phase of this study was consistent with the Cognitive Theory of Multimedia Learning (CTML). The alphabet linking chart routine, picture sound sorts, and emergent level text facilitated the construction of mental representations from words and pictures. Students used both auditory and visual channels when participating in the homogeneous ability group activities. Furthermore, students were presented with words and pictures simultaneously and close together, which is consistent with the Multimedia and Spatial Contiguity Principles of CTML. According to Sorden (2005), the words presented can be spoken or written; in the picture sound sorts the words were spoken and in the emergent level text the words were written. The kindergarten participants in the study gained in letter sound knowledge because the activities were grounded in the CTML. This theory states that students will learn at a more meaningful level, not necessarily a

more fluent level, as evidenced by the results of the present study (Sorden, 2005).

Students did not perform as well as expected when involved in homogeneous ability groups. The results showed that students made just as much progress on letter sound fluency when involved in whole group instruction. A possible explanation for the lack of growth during the intervention period could be classroom interruptions. During the daily 60 minute intervention phase, the teacher-led ability groups were consistently interrupted by student behaviors, questions, and other adults performing pull-out interventions. These interruptions affected the flow of the interventions as well as students' concentration.

With a large population of low income and minority students, many resources (ELL, Title One reading, grandparent volunteer, ELL associate, and special education associates) were available for additional practice with core instruction in the school involved in this study. Not only were students involved in a homogeneous ability group with the teacher, all students had exposure to additional letter sound practice with either the ELL teacher, ELL associate, speech teacher, Title One reading teacher, or grandparent volunteer between one and five times per week for 10-30 minutes per session. However, due to the high number of mandated student pull-outs during the intervention time, the classroom teacher was not always able to provide the three desired ability-grouped interventions per week for every student.

Limitations

When considering the conclusions drawn by the present researcher, it is important to consider the limitations of the study. First, the study contained a small sample size of only 24 students. This made it difficult to draw reliable conclusions about the study. Larger sample sizes are also more likely to apply to a wider range of individual abilities, income levels, and cultures, thus having the ability to approximate the population.

Second, doubling the length of the study from 12 to 24 weeks could have provided more data in which to determine the effectiveness of homogeneous ability groups. The six week duration of the study did not allow the classroom teacher to provide a reading intervention three times per week. Although students were given an intervention at least three times per week, it may not have been specifically in the area of reading or from the classroom teacher. Doubling the length of the study would allow students to receive more intervention time with the classroom teacher. Vaughn and Denton (2008) state that daily, individualized instruction provided though ability groups is necessary for reading interventions. This notion of daily interventions indicates that statistically significant student growth may only occur if this element is present. With the significant amount of outside-the-classroom interventions that occur throughout the school day, it would be reasonable to conclude that daily interventions with every child would be difficult to achieve. Such assumptions may lead one to wonder if students can make statistically significant growth in letter sound fluency if these daily interventions are not provided.

A third limitation of this study is that it did not assess every letter of the alphabet. If students were slow in naming letter sounds, he or she did not have the opportunity to name every letter sound. Students could know more sounds than what was named in one minute. Therefore, Form 1 of the FAST letter sound progress monitoring materials did not give a true picture of students' letter sound knowledge.

Recommendations for Future Research

A suggested first step for additional research is to replicate the study with a larger sample size. A larger sample size could confirm or deny the results of this study. Requiring kindergarten teachers within a school or district to follow the proposed method would result in a greater sample size. A greater sample size would add reliability to the study results.

A second recommendation would be increasing the duration of the study. This would allow researchers to gather additional data points in which to analyze. Doubling the length of the study to 24 weeks would give researchers the opportunity to administer at least two additional assessments: one at the midway point of baseline instruction and one at the midway point of the intervention period.

A third recommendation is to revise the one minute time limit in order to assess whether students have knowledge of all letter sounds. Rather than terminating the assessment after one minute, the researcher would mark the one minute

point. The assessment would continue until sounds for all letters have been attempted. This additional component wound give students the opportunity to show knowledge for all letter sounds. Further, removing the time limit would give researchers increased data. Letter sound knowledge and letter sound fluency scores could be analyzed and compared. This information would benefit teachers so they could determine if students have a deficit in letter sound knowledge, letter sound fluency, or both.

Implications

The immediate implication of this study for educators is that homogeneous ability groups may not be the most effective use of instructional time in the area of reading. If students are making gains in letter sound fluency with whole group instruction, the teacher would be able to produce more instruction, for example an hour each day to a larger group of students. Teachers may want to provide a whole group intervention instead.

The teacher should work to minimize classroom distractions during intervention time. In the present study, students were in and out of the classroom during the intervention time, which was distracting to the group. Students were also interrupting the teacher with tattling, disruptive behavior, questions about the independent centers, and confusion as to where to go if the children were coming back from ELL, speech, or Title One instruction. This may mean that educators need to spend time teaching problem solving skills, what to do in certain situations if the teacher isn't available. Also, the teacher should allow plenty of time to teach and model independent routines. If the student comes back from speech or ELL, how can they find out which learning center to go to without interrupting the teacher?

Along with educators teaching the independent routines, children need to feel comfortable practicing these routines, knowing how to use materials correctly, how and when to switch to a new center, and when it is okay to interrupt the teacher's intervention group. If students do not have plenty of scaffolding, with a gradual release of responsibilities, disruptions will continue. Regarding the interventions, kindergarten children have a wide range of abilities. Results from the current study's post-test showed that the scores of this particular class ranged from 0-49, with a median score of 13. For students, the use of homogeneous ability groups ensures that individuals' academic needs are met and challenged. Instructing in letter sounds using a whole group approach may cause boredom for students who already know the letter sounds or be overwhelming for students in the 0-5 letter sound range.

Implications for administrators exist as well. Protocol for homogeneous ability groups need to be developed based on research before requiring teachers to implement this instructional strategy. The state of Iowa requires that teachers provide a 15 minute intervention at least three times per week for students who do not meet proficiency standards on the FastBridge universal screener. Teachers may need assistance developing instruction that will best supports students' acquisition of letter sound knowledge. Administrators should devote professional development time to research-based instructional strategies in the area of reading interventions. Additionally, the instructional leaders and coaches can support teachers by providing resources that align with needs, as determined through data. Based on the results of this study, administrators may want to consider requiring daily interventions for students. Teachers may need additional support from the building principal and the curriculum and instructional leader. For example, assisting the teacher in implementing independent routines for students while ability groups are being held could be a helpful scaffold for students.

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