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The Impact of an Intensive Blended Learning Reading Intervention on Standardized Assessment Scores

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THE IMPACT OF AN INTENSIVE BLENDED LEARNING READING INTERVENTION ON STANDARDIZED ASSESSMENT SCORES

by

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(Under the Direction of Paul Brinson)

ABSTRACT

The current study documents the effects of the Language! Live intensive, blended learning reading intervention on the Georgia Milestones Assessment Lexile Scores. The purpose of the study was to determine the impact of an intensive blended learning reading intervention on the standardized assessment scores of middle school students who were at least two grade levels behind in reading at a Title I school in Georgia and aimed to establish if students who were significantly below grade level could make growth with the assistance of an intensive blended learning reading intervention. The study included the data of 133 students in two groups, the Intensive Group (n=62) and the Strategic Group (n=71) at a Title I middle school in Georgia. The quasi-experimental study used quantitative archival data which were collected electronically at the end of the pre-treatment and posttreatment school years and analyzed using a 2 x 2 factorial ANOVA. The results suggested the baseline Lexile scores were significantly lower than the posttest Lexile scores within both groups. The Strategic Group had significantly higher Lexile scores at posttest than the Intensive Group at posttest. However, the Intensive Group showed greater growth from baseline to posttest than the Strategic Group.

INDEX WORDS: Reading interventions, Blended learning, Middle grades, Adolescent reading, Standardized assessment, Lexile scores

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DOCTOR OF EDUCATION

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by

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DEDICATION

To my mom, Kathy Snyder, who served as my first and favorite teacher. Her passion for education ignited my love of learning. She is the most loving, caring, and supportive person who has ever existed. She is truly my best friend and I would not be the person I am without her love. Thank you, mom.

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CHAPTER I

INTRODUCTION

As educators step into classrooms with large groups of struggling readers, they are faced with the task of identifying the source of the reading issues, finding the best tools and strategies for each student, and bringing those students up to reading at grade level. Though reading difficulties can be present early in a student's educational journey, older students can develop reading problems when they are required to comprehend more difficult text. If students are not identified early and presented with interventions, there can be consequences for the future of the student, both in school and in their life after schooling ends (Moats et al., 2017). In school, struggling readers only have a 13% chance of making it to their senior year of high school on time if they fail their sixth grade English class. In their world outside of school, 33% of juvenile offenders do not read above a fourth-grade level and 66% of prison inmates are high school dropouts (Moats et al., 2017). These statistics show the importance of reading interventions to students' futures. It is essential to the success of reading interventions and struggling readers that the interventions are implemented with fidelity and the durations prescribed. When fidelity and duration are appropriate, students with reading difficulties demonstrate improvements in content area reading comprehension. Education is ever-changing and reading interventions continue to be used in K-12 classrooms with varying fidelity. In a review of 88 studies, 68 studies reported low fidelity scores for intervention implementation (Austin et al., 2019). Fidelity within reading interventions and their implementation are necessary to the success of struggling readers.

Education reform has produced a plethora of initiatives to enhance student achievement beginning in Prekindergarten and extending into higher education (Austin et al., 2019; Benner et al., 2013; Hu et al., 2019). These reforms are directly associated with student performance on

standardized assessments. Currently, the Georgia Department of Education (GaDOE) assesses schools and school districts using the College and Career Ready Performance Index (CCRPI). The CCRPI score has become a sole contributor to determining which schools receive immediate focus to implement the aforementioned abundance of initiatives to include commercial products as interventions (GaDOE, 2018). These commercial products include text books, manipulatives, reading guides, and computer programs deemed necessary to raise the reading levels of students as well as standardized test scores. Many schools across the United States are using commercial reading intervention programs to improve the reading abilities of struggling students (Bippert, 2019). While the purchase and implementation of intervention programs begins the process of improving student achievement, the continued support through fidelity of the intervention is needed.

Background

The use of commercial reading intervention programs has increased the use of technology and blended learning within schools and has reflected the technology trends in the United States (Bippert, 2019). Previous research of reading interventions has focused on early intervention in elementary school. The elementary reading interventions focus on skills of beginning readers and rarely include the more complex skills need by middle grades readers (Flynn et al., 2012). With the use of an intensive blended learning reading intervention, it is important to understand the necessities, successes, poor practices, and failures as they apply to middle grades reading.

Reading Interventions

As students continue to struggle with reading skills and fall further below grade level in reading standards, districts and schools are continuously looking for strategies and programs to help students fill the gaps and make enough academic progress. Students may have difficulties

with basic skills like decoding multi-syllable words, understanding the meaning of content vocabulary, and making inferences within academic texts. For struggling students to progress and meet grade level reading standards, they need intensive and appropriate interventions. This is even more pertinent in middle and high school when students need more than phonics interventions to be successful. Students in middle and high school can make progress with individualized and intensive instruction focused on word recognition, vocabulary, and comprehension (Moats et al., 2017).

Necessities and Successes of Reading Interventions

There are many problems that can negatively impact the success of a reading intervention program and create poor academic achievement results for struggling students. Teachers, students, parents, and school leaders can become frustrated and disillusioned with a lack of promised results and blame the reading intervention program as opposed to the poor practices. In order to be academically successful, small-group reading interventions need to go further than simply decoding (Bippert & Harmon, 2017). Students must be able to read grade level texts, understand vocabulary, and comprehend academic texts.

Small-group reading interventions need to be specific and intensive while also motivating the participating students to read. Small-group reading interventions need to have texts, books, and other materials that are engaging, interesting, and applicable to students' real-life (Bippert & Harmon, 2017). When reading interventions are culturally relevant, students' interests are peaked, and specific reading skills can be intensively focused on. Reading fluency and comprehensive improved when culturally relevant passages were used in small-group reading interventions (Bennett et al., 2017).

Students who struggle with reading may have significant issues in other areas like behavior and attention that can add to the students' struggles. Reading achievement and behavioral attention improve when students participate in an intensive, response-based reading intervention over three years (Roberts et al., 2016). In order to show improvements and gains, intensive reading interventions should have a multiple year duration. Students who received two years of intensive reading interventions made significantly greater gains in reading fluency than similar students who only received one year of intensive reading intervention (Miciak et al., 2017).

Blended Learning

Blended learning creates a personalized learning experience for students while combining teacher instruction in the classroom with technology (Horn & Stacker, 2011). Blended learning is not merely putting technology in place of direct instruction. It is the blending of the two in order to benefit the students. Blended learning in small-group reading interventions consists of the instructor giving direct instructions about a reading skill and students practicing and reviewing that skill at their prescribed level using the computer-based program.

Necessities and Successes of Blended Learning

Though the results of blended learning show greater gains in early intervention, there are considerable benefits when used in interventions at higher levels. Adolescent struggling readers have positive results when using blended learning interventions (Moats et al., 2017). Struggling readers who participate in blended learning interventions are better able to synthesize the information presented due to the enhanced review and forced assessments via the program. Students are then more successful in their class (Desplaces et al., 2015).

Shortcomings of Blended Learning

Blended learning has many benefits in the educational arena and especially with struggling readers who may need materials presented in other ways. However, blended learning is not without its own issues and shortcomings that can negatively impact instruction. Blended learning requires teachers to be engaged in the lessons as well as the technology used. Teachers who are less engaged with the instructional training and the lesson negatively impact the improvement in students' reading skills (Schechter et al., 2017).

Blended learning should not be used as a fix all for every struggling reader, as there are some groups of students that do not benefit from blended learning at the same rate as others. For example, English Language Learners who are struggling to learn to read were able to make similar gains as their non-struggling peers, but were not able to catch up using a blended learning approach (Amendum et al., 2017).

Middle School Reading

Students are entering middle school without necessary reading skills and more explicit instruction is needed for students participating in reading interventions in middle grades (Manset-Williamson & Nelson, 2005). There are many presumed predictors and components of reading on grade level. There are five components that should be included in reading instruction and therefore, interventions: word study, fluency, vocabulary, comprehension, and motivation (Flaum-Horvath et al., 2017).

Statement of the Problem

Schools across the nation are implementing commercial reading intervention programs to support student achievement. However, there remain middle school students who are far below grade level in reading and are not earning satisfactory scores on standardized assessments. The

problem of practice is the implementation of programs without reviewing the impact of the programs on their student population. The purchase of a commercial reading intervention program should not be a means to an end. It is essential that educational leaders review and reflect upon the results of reading intervention programs and make decisions based on the results.

When reviewing the data collected from reading intervention programs, educational leaders can guide their future decisions about meeting the needs of students who are considerably below grade level including student and teacher scheduling, purchasing of technology, and the future purchasing of intervention programs if needed. The goal of the implementation of the reading interventions is to meet students where they are currently in their reading skills and advance them to show significant growth in order to become successful in reading on grade level. Current research does have certain limitations that describe only the benefits of some commercial reading interventions in order to lead districts to purchasing that particular reading intervention program.

While research on blended learning does exist, there is little distinction between blended learning in kindergarten through twelfth grade education and higher education. There is also a void in the current research pertaining to adolescents and middle school students. There is a need for further research in the field of reading interventions and blended learning as it pertains to middle school struggling readers.

Purpose Statement

The purpose of the study was to determine the impact of an intensive blended learning reading intervention on the standardized assessment scores of middle school students who were at least two grade levels behind in reading at a Title I school in Georgia. This study aimed to

establish if students who were significantly below grade level could make growth with the assistance of an intensive blended learning reading intervention.

Research Question

The following question guided this study (1) What is the effect of Language! Live reading intervention on students' post-intervention reading comprehension based on two learning modalities (Strategic, Intensive) while controlling for pretest reading comprehension?

Theoretical Framework

The theoretical framework of this study was Tomlinson's Differentiated Instruction. Differentiated instruction includes designing and planning instruction which is tailored to students' needs and abilities to ensure success. Effective differentiated instruction uses preassessments and continuing assessments to determine a student's understanding of content at varying stages of instruction. The framework of differentiated instruction, as used in present-day, was developed to enable teachers and educational leaders to understand the need and application of differentiating content, process, product, and environment (Tomlinson & Imbeau, 2013) (see Figure 1).

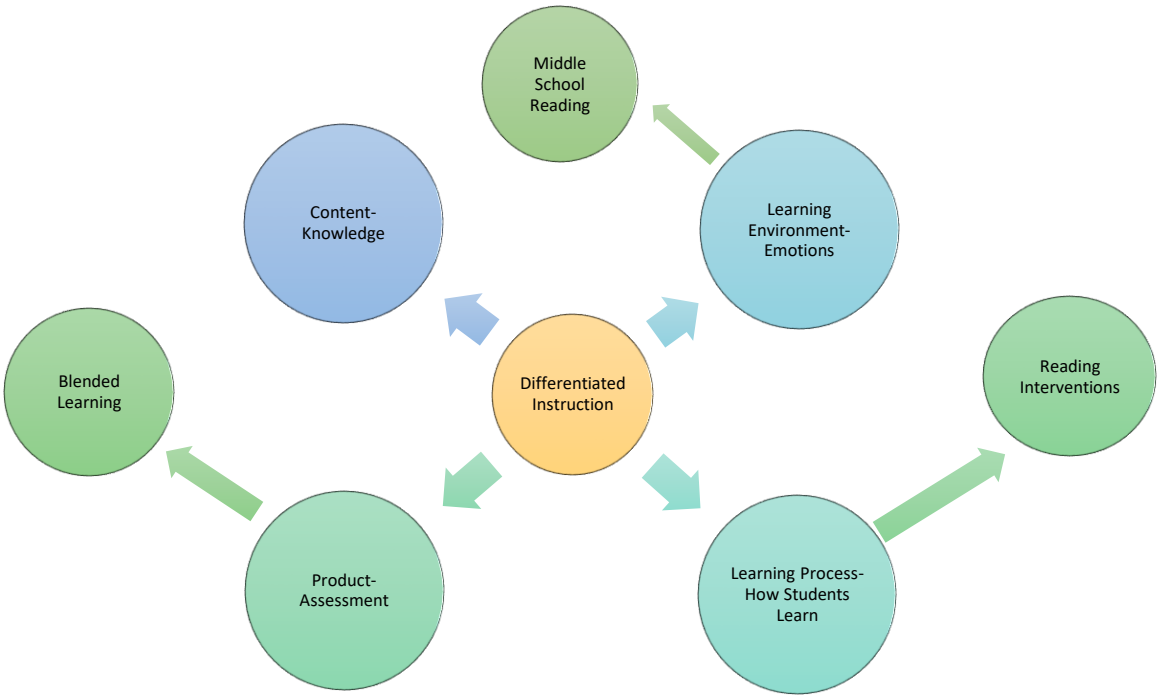
Tomlinson's Theory of Differentiated Instruction states that students learn best when their instructor readily accommodates the differences in their readiness levels, interests and learning profiles. The theory focuses on modifying the four essential elements of instruction which includes content, the learning environment, the learning process, and the product. Tomlinson's Theory of Differentiated Instruction also determines that each learner, despite their background and capabilities, can comprehend.

Content, also referred to as knowledge, is often constant despite the student's ability. However, the differentiation of various methods used to teach learners affects their ability to

understand (Malacapay, 2019). While some learners need only one lesson, others need repeated readings with practice and group discussions. Accordingly, the instructor should identify the best method to help the learner understand the concept.

Figure 1

Tomlinson's Differentiated Instruction



The learning process refers to how the students come to understand the content. The differentiating process may include asking questions, helping students figure out answers and ideas, and working with them at different speeds with support. It is the most crucial stage as actual learning for children occurs in this stage.

According to Tomlinson, product, or assessment, is the different ways in which students demonstrate what they have learned and understood during the learning period. Differentiation of products can be multiple-choice questions, essay questions, oral questions, or even practical applications (Malacapay, 2019). Different students are acquainted with varying techniques of

assessment. Consequently, the teacher should consider and differentiate the best assessment method for each student.

Lastly, the learning environment is the physical class which includes class size as well as emotions and feelings that the learners have to their lessons. Emotions from previous and current experiences influence the ability to comprehend content. While positive emotions motivate learners, negative emotions deter them from all aspects of learning. Differentiating the degree of need depends on which students need more attention and which are comfortable working alone. A focus on the learning environment is essential for successful learning.

A variety of stakeholders in education, such as school psychologists, instructional designers, and teachers agree that students have different approaches to learning, which gives rise to the theory of differentiated instruction. According to Rasheed and Wahid (2018), the teacher should consider the differences that exist between the learners and modify the delivered content and assessment approaches. Conventional approaches to differentiation include internal and external differentiation. In the latter, the instructor considers placing the learners in different classrooms depending on their ability levels and special education needs. The internal differentiation places precedence in modifying the content, the approaches to delivery, and other modifications within the class setup. A blended learning environment is a form of external differentiation that aims at enhancing learners' engagement, which relates to the capacity of the learner to use cognitive and emotional skills to accomplish a learning task (Halverson, & Graham, 2019). The level of learner engagement influences educational outcomes such as satisfaction, sense of community, persistence, and academic achievement.

A blended learning environment improves the engagement of learners. The approach favors the methodological integration of face-to-face and online instruction. According to

Halverson and Graham (2019), no single approach enhances the attainment of blended learning. Instead, different components build on learners' engagement through the most convenient approaches. Attributes of desirable strategies include flexibility and personalization by creating diverse learning pathways that meet the unique needs of the learners. Opportunities for interaction should enhance the synchronization of face-to-face with online learning. Blended learning may enhance cognitive engagement through reflection and critical discourse.

Conclusively, different learning needs result in the differentiated theory of instruction. The differentiation is either internal or external. Blended learning is a contemporary approach to differentiating the delivery of classroom content. It favors the integration of face-to-face learning with online learning and is ideal in promoting learner engagement.

Significance of the Study

There is a surplus of studies dedicated to reading interventions at the elementary level but there is a gap in the literature when focusing on the secondary level, specifically in how blended learning interventions can influence middle school student growth. This study served as a foundation for discovering how the combination of reading interventions and blended learning, as previously researched, could be applied at the middle grades level. While this study reflected the impact of an intensive blended learning reading intervention at a school with the lowest CCRPI score in the school district, a score of 63.3 as compared to the district score of 84.3, the study contributes to a broader understanding of school implementation of interventions used to close the gaps in standardized assessment scores of students within subgroups who were significantly behind in reading skills.

Though this study was unique due to the application to a single Title I middle school, the information gained from this study may be used by middle school principals and superintendents

to lead future purchasing, policy, and scheduling decisions based on the selection of interventions. The information from this study may also be used by teachers and instructional specialists to determine best placements and successful strategies for students within the general education classroom.

Procedures

Research Design and Procedure

The present study employed a mixed quasi-experimental (between-subjects) pretest/posttest (within-subjects) research design. The research utilized a one-way analysis of covariance (ANCOVA). According to Robinson (2016), an independent one-way ANCOVA is normally used when comparing scores between groups while controlling for covariates. Data were screened for univariate outliers using box-and-whisker plots and for requisite statistical assumptions, including normality, homogeneity of variance, sphericity, and homogeneity of regression (slope) coefficients. There were no outliers detected in the data that would otherwise undermine the trustworthiness of the data, and hence, data analysis proceeded with 133 cases with complete data. All requisite statistical assumptions were met, except for the homogeneity of regression (slope) coefficients assumption, in which the slopes of baseline Lexile scores varied by group (strategic, intensive). Therefore, baseline Lexile score could not be employed as a covariate, as initially intended. Thus, the data analysis plan changed to a 2 (group: strategic, intensive) x 2 (testing occasion: baseline, posttest) factorial analysis of variance (ANOVA). The study was of quantitative methods. Archival data were collected by Georgia Milestones Assessment Systems and disbursed to the school system of the sample school at the end of each school year. Data were collected within a week of standardized testing through school-provided laptops. Data were disbursed with a barcode creating anonymity for the participants.

The researcher began this study by receiving permission from school administration to collect data from GMAS scores and intervention groups. The researcher sought approval from Georgia Southern University's Institutional Review Board (IRB). Once the IRB approved this study, data were collected to determine if students are making progress within the program. The data was collected by the teachers within the intervention classrooms. Students in the sample group were scheduled in a 90-minute double block class which included a 45-minute segment computer-based lesson and a 45-minute teacher-led scripted lesson each day. The students were assessed at the end of each unit which took an average of 10 days to complete. The researcher analyzed archival data and therefore, the data was not initially collected by the researcher.

Setting

The study reviewed archival data from a single Title I middle school in an affluent suburban Georgia school district. The school district has five high schools, eight middle schools, 18 elementary schools and one alternative school. The research school had the lowest CCRPI score in the district, a score of 63.3 compared to the district score of 84.3. The research school implemented an intensive blended learning reading intervention to close the gaps in standardized assessment scores of subgroups who were significantly behind in reading skills.

Participants

The participants were in two separate groups, an Intensive Group and a Strategic Group. In the Intensive Group, there were 25 sixth graders, 23 seventh graders, 25 eighth graders and 25 special education students disbursed throughout all three grades. In the Strategic Group, there were 29 sixth graders, 26 seventh graders, and 24 eighth graders. The students were in these groups because of their Fastbridge CBM Reading scores, prior year ELA grades, and most

importantly, their Georgia Milestones scores. Students in both groups were at least two grade levels behind and had a Lexile score below 900.

The population was 690 students in sixth through eighth grade at a Title I middle school in a suburban school district in Georgia. The population of the school included 54.8% White, 23.9% Black, and 9.9% Hispanic. The population included 55.7% of students identified as economically disadvantaged. A total of only 59.65% of students met the target in the English Language Arts section of the Georgia Milestones Assessment.

Data Collection

This study used archival data to determine the impact of the intensive blended learning intervention on standardized assessment reading comprehension scores. Data were collected through the Language! Live platform to determine satisfactory participation in the intensive blended learning reading intervention. Data was also collected through the Georgia Milestones Assessment System at the end of each school year.

Data Analysis

A one-way ANCOVA was conducted to answer the research question. In the ANCOVA, treatment (Strategic, Intensive) served as the between-subjects factor, posttest reading comprehension served as the outcome, and pretest reading comprehension served as the covariate. This analysis permitted for a more nuanced effect of treatment type on the outcome while statistically controlling (i.e., partial out) the effect of pretest reading comprehension. Baseline Lexile score could not be employed as a covariate, as initially intended. Thus, the data analysis plan changed to a 2 x 2 factorial ANOVA.

Limitations, Delimitations, and Assumptions

The limitations of this study included sample size, data collection process, and time. As this was a niche study in one middle school, the sample size was determined by the student population of the study school. The data was collected through online assessments via the Language! Live program and the Georgia Milestones Assessment through SLDS. Due to this collection, there were limitations associated with the technology and internet access. There was also a limitation of time because the time spent on the Language! Live program is determined by the school bell schedule. There was also a limitation to the second year of data collection due to the closing of schools and cancellation of standardized testing due to the COVID-19 Pandemic.

Definition of Key Terms

The following key terms were identified for the purpose of the study:

Blended Learning- Instruction delivered through the use of two or more strategies, usually with the use of technology (Graham & Bonk, 2006). In this study, blended learning was the modality of the reading intervention. Students in both groups participated in a block of teacher-led instruction followed by a block of computer-based instruction.

College and Career Ready Performance Index (CCRPI)- A measure of school accountability resulting in a score for each school and district within the state of Georgia (Georgia Department of Education, 2018). Within this study, the CCRPI score was discussed in the description of the research site to determine a need for intervention.

Early Intervention- interventions which are implemented in early childhood education, usually before third grade (Lovett et al., 2017). Though early intervention is widely accepted and thoroughly researched, this study reviewed interventions used at later stages when early intervention was not used or was not successful.

Fidelity of Implementation- the amount of the program performed and executed as prescribed by the designer of the program (Troyer, 2017). The fidelity of implementation was of high importance within this study. Understanding of post-treatment success depended on the level of fidelity of implementation.

Fluency- According to Young et al. (2020), reading fluency includes accuracy, automaticity, and expression or prosody. Fluency was a key component of the intervention program used in this study.

Georgia Milestones Assessment System (GMAS)- A summative assessment taken by all public-school students in third grade- twelfth grade in the state of Georgia (Georgia Department of Education, 2018). Within this study, the GMAS was the standardized assessment used to determine the effectiveness of the intensive blended learning reading intervention and place students in appropriate intervention groups.

Lexile Score- A score that reflects the students' reading abilities (Georgia Department of Education, 2020) The Lexile score was closely associated with the English Language Arts section of the GMAS and was used to determine students' reading level growth.

Middle Schoolers- students in early adolescence encountering a multitude of transitions mentally, physically, and emotionally (Marshall & Neuman, 2012). The participants of this study were middle schoolers in grades 6-8.

Reading Comprehension- the connecting of prior knowledge and language skills to create meaning and connection in texts (Fathi & Afzali, 2020). Reading comprehension was a key component of the GMAS score and was used in the intervention program.

Reading Intervention- School-based instruction focused on specific reading skills (O'Connor & Vasasy, 2011). Within this study, reading interventions include the use of research-based strategies as well as commercially produced interventions. Reading interventions were used when students needed more help to be successful with reading skills.

Stakeholders- those people or entities who are directly and indirectly effected by an organization's decisions and actions (Benn et al., 2016). The stakeholders impacted by the results of this study were students, teachers, parents, and school leadership.

Statewide Longitudinal Data System (SLDS)- A system that gives teachers the ability to view students' test scores and other valuable data from across the state (Georgia Department of Education, 2020). Georgia Milestones Assessment scores for students within the interventions were accessed by the researcher using SLDS.

Student Motivation- consists of attention, relevance, confidence, and satisfaction (Refat et al., 2020). While examining previous research of middle school reading, student motivation remained a factor in the success of program implementation.

Vocabulary Intervention- opportunities, support, and instruction of vocabulary and oral language skills (Peters-Sanders et al., 2020). A key component of the intervention program implemented in this study was vocabulary instruction and its application to reading comprehension.

Word Study- the connecting of meaning, phonemic awareness, phonics, and spelling of a word (Koutrakos, 2018). Within this study, the students applied word study, along with fluency, vocabulary, motivation, and reading comprehension within the intervention program.

Chapter Summary

The introduction of an intensive blended learning reading intervention requires a great deal of development of strategies for scheduling, purchasing resources, and providing teacher training. Previous research focused on the benefits of blended learning in elementary schools as well as higher education with a distinct lack of focus on middle schools. Though reading interventions are used daily in schools across the country, research shows that there is a need for consistency amongst reading interventions used and how they are implemented in schools. Thus, this study intended to determine if the purchase and introduction of the Language! Live blended

learning reading intervention improved the standardized assessment scores of middle grades students.

CHAPTER II

REVIEW OF LITERATURE

Change can be difficult especially if planning for change is not clearly and concisely communicated to all stakeholders. Bolman and Deal (2018) stated, “the problem is that organizations are complicated, and communication among them adds another tangled layer” (p.25). Communication with all stakeholders is vital to the success of students participating and engaging in reading interventions and blended learning. In the K-12 setting, stakeholders include students, parents, teachers, and educational leaders. Each stakeholder has their own perspectives and, at times, those perspectives can be conflicting. Support and communication from educational leaders can alleviate the uncertainty of stakeholders created by the change from traditional classroom learning to blended learning.

A successful implementation plan requires educational leaders to assess the needs of the stakeholders while being mindful of avoiding a fixed mindset because “anxiety and the search for rapid solutions always result in the failure of nerve. Needing to be right, certain, and pain free, we narrow our thinking and put our courage on pause. Operating from a quick-fix mentality is a non-growth position” (Steinke, 2017, p. vii).

The purpose of the study was to determine the impact of an intensive blended learning reading intervention on the standardized assessment scores of middle school students who were at least two grade levels behind in reading at a Title I school in Georgia. This study aimed to establish if students who are significantly below grade level could make growth with the assistance of an intensive blended learning reading intervention. The Theory of Differentiated Instruction and its application to the classroom was the framework used in this study to implement an intensive blended learning reading intervention in middle school. A review of

related literature builds a case for support of technology- assisted interventions to enhance student achievement and increase standardized assessment scores.

Accordingly, the literature review is organized into three categories. The review of literature will first discuss reading interventions, the necessity, meaning, and various strategies that comprise reading interventions. The literature review continues with an examination of blended learning, the implementation, various models, application to at-risk students, technology, and fidelity of blended learning. The review of literature concludes with investigation of middle grades reading, fluency, vocabulary, reading comprehension, and teacher training as applied to middle grades reading.

Reading Interventions

The academic support of at-risk students is a priority of schools across the United States. With the importance placed on school improvement plans, closing achievement gaps of students using multi-tiered systems of support (MTSS) has been introduced in many school districts. The inclusion of MTSS continues to be necessary for students with emotional, behavioral, and academic challenges. There is a need for explicit directions and clear expectations to improve academic performance for students who are at-risk (Benner et al., 2013). Effective instruction from teachers is key to student success (Rodriguez et al., 2016). Research-based educational strategies, like close reading, should be supported with reading interventions. Through the use of close reading, students receive practice identifying key details, vocabulary, text structure, inferences, and opinions (Fisher & Frey, 2015).

Reading interventions refer to strategies that give learners an opportunity to increase their abilities in reading, writing and test taking as well as studying at different instructional levels (Lovett et al., 2017). Intervention strategies focus on ensuring that every student gets a chance to

have their needs met as individuals and as a group. In learning facilities, learners undergo different learning activities covering a wide range of topics. Teachers may notice that some students or an entire class struggle to understand the topics, requiring the teacher to implement reading interventions to ease the learning activity. In the elementary school, learners may be challenged with the introduction of new learning topics and vocabulary which requires teachers to implement learning strategies that will make it easier for the learners to comprehend (Afacan et al., 2018). A reading intervention will provide students with a chance to grow their skills in reading, writing and test taking while utilizing different methods of learning that make studies fun and enjoyable for the learners.

Types of Reading Interventions

The application of an effective reading strategy requires a teacher to understand the weaknesses of the learners and identify a strategy that will enhance comprehension among students. Many types of reading interventions can be used with learners including reading aloud, fluency-oriented reading instructions, the use of reading games, and peer assisted learning strategies.

Read Aloud. Reading aloud enables students to recognize effective reading skills. There is a high probability that students will learn by modeling and with the teacher as an example, they will emulate the reading skills. When there is a chance to read aloud a text, a book chapter, instructions or passages, teachers have a platform of showing students the reading skills in action. Through this intervention, students grow their desire to read like the teacher enhancing growth in their reading skills (van den Brook et al., 2017). Reading aloud models the sounding out of difficult words among learners and can also enhance fluency while reading. Learners

engaged in reading aloud expand their skills of thinking about what they are reading pushing them to ask questions and make connections.

Choral Reading. The use of fluency- oriented reading instructions requires students to read a text many times in the course of a unit. The steps involved in this intervention include the teacher reading aloud the text first while the students listen, the students will then echo-read followed by a choral reading with the entire group. After choral reading, the students read the text with a partner and finally, they will take the text home to ensure more practice (Foorman et al., 2016). With the intervention, there is integration of extension activities throughout the unit which enhance understanding among the students. Some students may have challenges in developing their reading skills but with this intervention, it is possible to have long term success.

Reading Games. Using reading games as an intervention encourages students to read orally and with enthusiasm which makes the process fun and engaging for all. Teachers may require the students to reread using dramatic hand gestures while their partner asks questions (Ryoo et al., 2018). Students may play a variety of roles in an overview of a specific text enabling the students to learn from one another and this improve their reading.

Peer Assisted Learning Strategies. Peer assisted learning strategies pairs strong and weak readers to encourage the pairs to read, reread and retell the meaning of a text. In this case, rereading enhances fluency and an understanding of the text in discussion (Wanzek et al., 2018). Students utilize the opportunity to help one another in reading different texts and enhancing their ability to comprehend the meaning behind a text.

The Need for Quality and Fidelity when Implementing Reading Interventions

Reading interventions, like the education system as a whole, are continuously changing in K-12 classrooms (Austin et al., 2019). The focus of any reading intervention is to improve

student achievement (Baranova et al., 2019). While reading interventions change, it is important to ensure quality implementation. Implementation requires consistency. It is necessary to continuously evaluate the implementation of interventions (Rodriguez et al., 2016). The continuous evaluation of the implementation of interventions allows interventions to match the school, not the other way around (Harn et al., 2013).

It is also important to acknowledge that the desire to ensure student success requires fidelity of implementation of interventions. In 2013, Harn et al. stated, "to promote the effective and sustained implementations of effective interventions, researchers need to develop programs that can be adapted to match ever-changing school contexts and student populations" (p. 190). The fidelity of the implementation is incredibly important when discussing new programs and their benefits. If fidelity is not appropriately measured, students and teachers are wasting time and resources. Due to limitations like student and teacher absences, scheduling, and at-risk subgroups, a realistic level of fidelity is 60-80%. Though fidelity of implementation is of high importance, it is not a singular cause for the success of an intervention (Harn et al., 2017). Austin et al. (2019) reviewed 88 studies of the use of reading interventions and quality of studies including study design, statistical treatment, Type 1 errors, and fidelity implementation. They found that the vast majority of studies had low implementation fidelity. As fidelity continues to be a point of necessary continued research, the information is pertinent to understanding the necessity of fidelity in reading intervention implementation.

Necessities and Successes of Reading Interventions

Small-Group. According to Hall and Burns (2018) reading interventions are supplemental and range in instruction style, technology used, skill focus, group size and duration, as well reading interventions of various designs can have significant benefits for

struggling students when used appropriately. The focus of a small-group reading intervention should be a single skill that students are struggling to master. In addition, students should not be placed in a small-group reading intervention that concentrates on a wide-ranging set of skills simply based on a low reading score on state assessments. An intensive, small-group reading intervention should be tailored to the students' needs and focused on specific skills. Hall and Burns (2018) found small-group reading interventions were more effective when the intervention focused on one skill versus a comprehensive focus.

Early Intervention. Children at risk for developing reading disabilities have more success with reading interventions when they are presented earlier in their schooling. Though studies show gains are made in basic reading skills for at-risk students involved in reading interventions in second and third grade, the effect sizes for studies of kindergarten and first grade students was two to four times greater (Lovett et al., 2017). Students are ill-prepared for success in continuing education and require multiple courses of development when entering higher education (Flink, 2018). According to Moats et al. (2017), "21% of students with learning disabilities are estimated to be five or more grade levels behind in reading by the time they reach high school" (p.3). In turn, these students are entering middle school classrooms without the phonemic awareness and the ability to decode words that they should have learned early in their educational career. The students with reading disabilities need interventions that focus on the foundational skills of reading prior to being expected to comprehend content-based, grade-level texts. While studying the effects of supplemental reading interventions used in a multi-tiered system of supports (MTSS), Coyne et al. (2018) found that supplemental reading interventions significantly and positively impacted students' phonemic and decoding skills. Additionally,

students placed in a commercial small-group reading intervention in middle grades had greater gains in word reading than without the intervention (Gwernan-Jones et al., 2018).

Vocabulary. Vocabulary is an early indicator of reading comprehension and expressive writing skills. Vocabulary instructions should be taught in context and avoiding isolation (Elleman et al., 2019). McKeown et al.'s research (2018) suggests that a commercial academic vocabulary intervention can increase the Lexile levels and academic word knowledge of middle school students. Both of these skills lead to success in comprehension. The small-group reading intervention led to students being able to comprehend sentences with unfamiliar words using the root of the words.

Individualized Interventions. Students who receive individualized interventions which are tailored to their needs perform higher in reading comprehension than students who receive standardized interventions which focus on a variety of standards (Vaughn et al., 2011). Both reading and mathematics scores on standardized assessments have improved with the use of intervention which includes cognitive factors, attitudinal skills, metacognitive skills, behavioral skills, and social skills (Bowers et al., 2015). Individualized teacher-student discussions lead to higher student motivation in reading than whole-class interactions (Neugebauer & Gilmour, 2019). Reading comprehension success related to positive behavioral regulation and metacognitive skills. Administering the program to students significantly impacted academic achievement along with relationship benefits among students (Bowers et al., 2015). The use of metacognitive reading strategies needs to be effectively and efficiently taught to students, especially those students who are involved in reading interventions. Although Babayigit's (2019) research found that students used metacognitive reading strategies before, during, and after

reading activities, he discussed that classroom teachers are responsible for using these strategies with students.

Role of Classroom Teachers. Classroom teachers play a large role in the success of reading interventions in their classrooms. A variety of strategies including read-aloud, student discussions, rereading, and using high-level texts can benefit student success. Actively including students in discussions should be emphasized when using teacher read-aloud as a reading intervention. The use of teacher read-aloud can positively affect comprehension and vocabulary within reading interventions (Marchessault & Larwin, 2013). The act of rereading allows students to practice fluency and comprehension. Rereading should involve a changing purpose, asking text-dependent questions, and connecting evidence and audience. It is important to share printed text while rereading connect text to meaning (Frey & Fisher, 2018). Beneficially, teachers can implement the use of higher-level text during small groups (Fisher & Frey, 2016). Most importantly, the effectiveness of the intervention is dependent upon the effort of school personnel to continue implementation, review planning, and ensure resource availability (Eber et al., 2011).

Poor Practices and Failures of Reading Interventions

Students relate their ability to read with their enjoyment of reading (Kasperski et al., 2019). Therefore, if they do not enjoy reading, they perceive that they have the inability to read and can begin to struggle. Reading strategies can greatly benefit struggling readers when students are taught explicitly when and how to use them. Lack of direct instruction of strategies inhibits students from actively using strategies (Bippert, 2019). The inability to self-regulate and determine appropriate strategies to use while reading can continue the struggle of at-risk readers (Lovett et al., 2017). Without targeted interventions, students who struggle in school will fall

further behind as they continue to higher grade levels (Kasperski et al., 2019). This can be especially detrimental to students in special education. Previous early interventions have not shown growth nor closing academic gaps in special education settings. However, the earlier a student is identified and placed in special education, the more success they show in reading abilities (Lovett et al., 2017).

District-developed Reading Interventions. District-developed reading interventions have no evidence of positive effects on student achievement as measured by the state standardized assessment (Fien et al., 2018). One of the major problems with these results is the lack of consistency amongst reading intervention programs at the various study sites due to each district implementing their own program, strategies, and practices. Local economies dictate resource availability and can create deficits in student success and intervention fidelity (Tang, 2019). Reading interventions cannot be expected to support a student's success in reading if they are not consistent and implemented with fidelity. Another issue faced by schools when implementing a reading intervention is many students who struggle with reading and a difficulty placing students in appropriately sized small-group reading interventions (Hall & Burns, 2018).

Teacher Disengagement. Once a specific reading intervention program has been introduced and the students are placed in their necessary small group, a new set of issues can negatively impact the results of a small-group reading intervention and its implementation. Teachers can feel disengaged with the interventions when there was a lack of teacher input prior to implementation or an insufficient amount of training before teachers are expected to introduce to students (Bippert & Harmon, 2017; Hall & Burns, 2018). Despite the issues that can prevent success with small-group reading interventions, they have shown to be beneficial to struggling readers when they are implemented appropriately, consistently, and with fidelity.

Blended Learning

Blended learning is an educational approach where traditional practices of face-to-face learning are used in combination with online learning materials. It also provides opportunities for online interaction with relevant learning material, focusing on improved learning outcomes (Dziuban et al., 2018). In blended learning, even though the physical presence of the learning instructor is necessary, the students have increased control of the pace, place, or time they use to learn various concepts since they can access the relevant information from the internet (Vaughan et al., 2017).

Though computer-based educational programs have been in use for decades, recent advances in technology and educational theories have thrusted blended learning into the forefront of education (Alsahi et al., 2019). Blended learning models can improve learning and enhance students' abilities to be globally competitive (Shamsuddin & Kaur, 2020). Students have a variety of educational needs which can be addressed with differentiated instruction through blended learning (Horn & Fisher, 2017). The use of blended learning with middle schoolers allows for growth, inquiry, and differentiation with the classroom. Teachers are also able to support students while challenging them (Longo, 2016).

Blended learning also offers incredible flexibility for teaching and learning practices. The students can access the learning material in any place and anytime and ask their instructors for assistance in areas where they have challenges in understanding (Stein & Graham, 2020). This is unlike traditional learning practices where students could only gain knowledge by being present in the classroom. With blended learning, the teachers can offer extra attention to the weak students even out of the established school calendar to ensure that they can understand concepts and catch up with the rest of the class (Vaughan et al., 2017). The teacher can also establish a

balance where the simple topics are taught through the internet while the complicated concepts are taught to students while in class.

Implementing Blending Learning

The study of K-12 online and blended learning has become a large focus of educational researchers and publications (Hu et al., 2019). “Between 2002 and 2011, the number of K-12 students enrolled in either partial or fully online schools increased from 220,000 to 1.8 million” (Watson et al., 2012, as cited by Pace & Mellard, 2016, p. 156). The implementation of blended learning involves a multitude of people, ideas, and schedules. Khan’s Octagonal Framework includes components to consider including institutional, pedagogical, technological, interface design, evaluation, management, resource support, and ethical. Each part is essential and should be planned accordingly (Khan, 2010; Singh, 2003). Both synchronous and asynchronous learning can be used in a blended learning program. Synchronous learning takes place in real-time using tools like lectures and video chats while asynchronous learning is on the student’s own time using tools like discussion boards (Serrano et al., 2019). The ratio of face-to-face to online experiences should be adjusted depending on the subject matter being introduced. Success of the instructor and student depends greatly on the ability to reflect and share ideas (Buatip et al., 2019). Blended learning positively impacts the learning experience of students especially in the area of listening comprehension (Syamsuddin & Jimi, 2019).

Digital Technology. The use of digital technology in education has proven to be beneficial to learning over the past years. According to Raporu (2015), the effective use of digital tools and resources significantly improved the depth and speed of learning. He adds that there is conclusive evidence on the effectiveness of such digital technology on learning in science and mathematics, especially for learners of primary and secondary ages. The use of

digital technology in learning raises the learners' literacy in writing and comprehension. Digital technology is identified as an appropriate tool to improve literacy and numeracy skills, especially in elementary school settings. However, the effect of digital technology on learning outcomes may be dampened by the level of quality of teacher-led instruction (Raporu, 2015). To achieve more effective use of technology, teachers have to identify the appropriate use of digital tools and resources. Raporu (2015) found out that digital technology had positive effects on attainment of students who extended their learning time by using the digital learning tools at home. Extending learning time using digital technology is particularly beneficial for secondary students. Additionally, Chauhan (2017) the use of digital learning applications is more beneficial when compared to elementary school and classroom use.

Distance Learning. Mehrotra et al. (2001) defined distance learning as “any formal approach to instruction in which the majority of the instruction occurs while educator and learner are not in each other’s physical presence” (p. 1). Distance learning has gained popularity in recent decades as technology advances and student demand changes. A majority of higher education institutions offer distance learning but distance learning in K-12 schools has only been introduced recently as cyber schools while brick-and-mortar schools have added blended learning into classrooms. Blended learning creates a personalized learning experience for students while combining teacher instruction in the classroom with technology (Horn & Stacker, 2011). As blended learning has been introduced and practiced within the school, the adaptive challenge of implementing distance learning has the potential to be successful with support from educational leaders and other stakeholders.

Four Models of Blended Learning. There are four models of blended learning which include the rotation model, the flex model, the a la carte model, and the enriched virtual model

(Horn & Fisher, 2017). The rotation model requires students to complete assignments during a scheduled time then rotate to the next assignment. Online learning only needs to happen during one rotation. The flex model allows students to work on their own schedule and allows for flexible teacher instruction and support. The a la carte model allows a student to take a single course exclusively online while continuing traditional learning in the remaining courses. The enriched virtual model, which is used in many higher education courses, requires students to participate in face-to-face instruction then complete assignments online (Horn & Fisher, 2017).

Necessities and Successes of Blended Learning

Computer-Assisted Blended Learning. As technology continues to change and expand, it has become an important part of educational instruction. The increased use of technology in education has yielded a trend towards computer-assisted blended instruction. The use of computers and online resources alleviates strict time blocks due to class schedules and allows students to receive instruction when needed. Students are able to learn at their own level and pace (Gonzalez-Gomez & Jeong, 2019). Blended learning enables schools to provide effective and personalized instruction without greatly impacting budgets due to avoiding the need for more personnel. Students are more in control of their learning than in a traditional setting. Significant growth was made by students who participated in a blended learning program which was implemented with fidelity (Kazakoff et al., 2017). Delivering reading interventions with technology can give students an even more personalized learning experience within the small-group reading intervention. Presenting reading passages with computers improves both reading fluency and comprehension in 86% of students (Bennett et al., 2017).

Upper elementary students had significantly higher achievement in science, technology, engineering, and mathematics (STEM) programs when blended learning was implemented over

traditional classroom settings. Blended learning in STEM instruction was especially beneficial in low socioeconomic areas (Seage & Turegun, 2020). Liao et al. (2007) focused on the effects of digital technology on elementary school students' achievement in Taiwan. Synthesized research comparing the effects of digital learning with traditional instruction on the learners' achievement found 92 percent of the studies indicated the positive effects of computer-aided intervention while eight percent of the studies indicated negative effects in favor of the traditional instruction. About 60 percent of the studies examined the effects of digital technology use in science or mathematics. Eleven percent of the studies focused on reading and languages. Liao et al. (2007) found a moderate effect size of 0.45, considered to be an overall positive effect size across the studies. They also found wide range effect sizes (0.25 – 2.67) from the studies. They argued that digital technology can be implemented across various subjects since they found no significant differences between subject areas. However, they found reading and languages to have the highest effects along with subjects that utilize computer simulations. Simulations provide learners with the opportunity to take part in a learning activity that cannot be done in a classroom setting (Liao et al., 2007).

Blended Learning as Early Intervention. Blended learning interventions also benefit students in boosting their abilities with phonological skills. Using blended learning reading interventions is successful in early intervention with blending and reading non-words (O'Callaghan et al., 2016). These skills are foundational skills which are necessary to the success of students in reading. Blended learning programs have shown great success in early intervention. Struggling readers across the grade levels make progress but there are significantly better results when used in kindergarten through second grade as an early intervention (Prescott et al., 2017).

At-risk Students. Blended learning is beneficial to a variety of students at differing reading levels and grade levels. Blended learning can also significantly enhance the reading skills of students who are of low socioeconomic status. This is an important group of students to impact as they are often a low performing subgroup on state standardized assessments. Students in a Title I elementary school made significant gains on standardized testing when using blended learning (Prescott et al., 2017).

Blended learning helps to lower dropout rates and may benefit troubled teens, minorities, pregnant, and parenting students (Harrell & Wendt, 2017). Fully-blended learning programs integrate digital technology and offline materials used in teacher-led instruction. Schechter et al. (2015) found out that the first and second grade students who used fully-blended learning programs indicated greater gains on a standardized reading skills test. O'Callaghan et al. (2016) reported that children indicated greater improvements on phonological skills tests when using fully-blended learning programs. Prescott et al. (2017) identified that students in earlier grades had greater gains compared to those in later grades especially across low SES elementary schools. Consistent with those of Schechter et al. (2015) and O'Callaghan et al. (2016), Macaruso et al. (2020) concluded that a fully-blended program is beneficial for elementary school learners. Higgins et al. (2012) also noted that the high performing schools have a high tendency to be better equipped and prepared to invest in digital technology to enable improvement of school performance. This finding is largely attributed to students with higher than average performance in schools that have high levels of digital technology provision. Higgins et al. (2012) state that the typical effect size of digital technology on learning is between 0.3 and 0.4, and below overall average of other interventions in learning. However, the effect size is lower than other changes to teaching aimed at improving attainment like peer tutoring.

The wide range of effect sizes (0.03 – 1.05) suggests the need to consider the differences between digital technology and how it is used.

Macaruso et al. (2019) found that students from a low SES background experienced substantial reading gains when using a fully-blended learning program. Students were able to gain benefits each year when teachers gained proficiency in the implementation. According to Fuchs et al. (2001) low performing students in kindergarten are at greater risk for long-term reading difficulties and low standardized assessment scores. Blended learning provided the low performers with the opportunity, not offered by traditional instruction, to improve their skills in the online learning activities. Low performers achieved average or better grades by the end of second grade. The use of blended learning to support low performing students on various skills proves to be an effective intervention that benefits at-risk learners in the early grades.

According to Shanahan and Lonigan (2010), individualized instruction can facilitate better results for at-risk learners with early literacy difficulties. These learners can achieve better scores when they are provided with blended learning that targets their skill gaps. Repetto and Spitler (2014) emphasize that at-risk students are more motivated when given the opportunity to use digital tools in a more engaging and conducive learning environment. Their reading and literacy scores are more likely to improve since they would have some control over their learning.

Learner Perceptions. Arguably one of the most important aspects of any educational initiative is the perception of the students who are participating. Due to varying teaching styles, students may struggle in traditional learning environments if they feel that they cannot learn in a certain style (Alammary, 2019). The structure of a blended learning environment significantly effects student achievement positively when compared to traditional classroom environments.

Blended learning is beneficial to students and teachers, giving greater access to resources and instruction (Harahap et al., 2019). Schools are able to offer courses using a blended learning model which were not previously available due to staff or financial constraints (Horn & Fisher, 2017). Blended learning resources can be re-used, saving money for schools (Akpan, 2015). If they do not have a positive perception of the blended learning program, it can negatively impact the results. Digital technology has offered tools and resources to help learners improve their attainment of content knowledge. Learners were able to choose the learning resources and had more time in the classroom during active learning sessions. Learners engage in active learning outside the classroom, accessing forums, blogs and games with a learning element (Jewitt et al., 2011). Raporu (2015) determined that learners can find more sources of information, learn, and get feedback in different ways. Benefits of digital technology with regard to attainment include the feeling of control over learning, increased confidence in skill practice, increased rate of knowledge and skill acquisition, and achievement of better exam results. Putman (2017) linked the use of a blended learning program to improved basic reading skills of kindergarten learners. In his study, he compared students who did and those who did not use the blended learning program, noting a higher performance of students who used the program as compared to other learners on basic reading skills. However, the effectiveness of the blended learning program is linked to the quality of teacher-led instruction. Higgins et al. (2012) identified previous studies that highlighted the impact of digital technology on learners' attainment of skills.

Role of the Instructor. The role of the instructor in blended learning is mainly to provide instructions, guidance, and to answer the questions presented by the students as they encounter new information from learning material found online. Students have positive perceptions of the blended learning environment (Gyamfi & Gyasse, 2015). Students in a blended learning

intervention are able to benefit from teacher-directed instruction and online learning. They receive feedback and are able to communicate with the teacher and classmates even when they are not on campus, creating a more accessible, collaborative, and interactive experience for the students. Student-led classroom requires teachers to facilitate learning instead of lecturing (Kozikoglu, 2019). Face-to-face instruction gives students the opportunity to interact with classmates and provides motivation (Mese & Dursun, 2019). Students felt extremely connected to people within the school and also, greatly valued the importance of feeling connected. These findings place value on the need for students to feel cared for in the educational and intervention setting (Bowers et al., 2015). Students who completed computerized programs had significantly higher concept of reading achievement and self-motivation (Kasperski et al., 2019). Blended learning creates a student-centered environment that allows for independence of learners (Dwiyoga & Radjah, 2020) and students learn time-management skills in blended learning settings (Solimani et al., 2019). Each student has unique learning capacities that must be taken into consideration when planning for blended learning. The teachers must ensure that the material uploaded on digital platforms for learning and the information shared face-to-face is designed to not only help the weak students improve their performance but also challenge the top performers to keep doing better (Dziuban et al., 2018). Different learning approaches are required for effective learning by different students. This ensures that each student is confident about their learning abilities and feels that the educational material is supportive of their learning.

Accessibility. Blended learning is a crucial driver of the transition from teacher-led instruction within the classroom setting to an environment that the student has more control over the learning process. One of the primary necessities required for blended learning is to increase

the variety of tools used for the learning process (Stein & Graham, 2020). Since blended learning entails combining traditional and digital learning techniques, it is imperative to ensure that the students have access to the required tools for digital learning. The tools that can be used for blended learning include computers, mobile phones, and tablets and the provision of internet so that the students can benefit from online educational content (Kintu et al., 2017). The teacher is required to ensure that there is some form of balance between computer-based learning and instruction based on a face-to-face encounter. The use of blended learning ensures that the student acquires the required information in a given field of study without relying entirely on their teacher's instruction (Kristanto, 2017). The use of computer-based learning in the curriculum also allows students to learn and acquire new knowledge at their pace.

For effective blended learning to occur, it is necessary for schools, teachers, and parents to increase the accessibility of learning to the students. This can be achieved by posting educational material on the internet where the students can easily access them and acquire new knowledge in any place or at any time. The essence of blended learning is to ensure that learning can occur even in other settings apart from the classroom (Kristanto, 2017). By making learning material more accessible, the students can continue learning while at home, on vacation, or out with their friends and family.

Flipped Classroom. Blended learning allows for personalization, feedback, and mobility in instruction (Karaaslan & Kilic, 2019). The flipped classroom strategy is a type of blended learning which prepares students for in-class activities and discussions by providing online information prior to class. Students are better able to engage with lessons and use higher level thinking, as they have more time to digest materials before interacting (Jdaitawi, 2019). Almodaires et al. (2019) sought to establish an understanding of the perceptions of students who

were enrolled in a class using a flipped learning model. Within the flipped learning class, the researchers found that the students have a positive perception because they were able to clarification easily, engage and participate in more depth, and collaborate with classmates. Though flipped classrooms rely on students completing tasks online prior to face-to-face class, students and teachers reported increases in student engagement and success. Students participated more in class and has a more positive attitude towards curriculum (Kirmizi & Komec, 2019). The use of videos was more helpful to student learning than using online textbooks (Dwiyoga & Radjah, 2020). Teachers are able to spend more class time on beneficial activities, collaboration, and meaningful feedback (Jdaitawi, 2019). Different formats are easily shared by instructors and students are able to access formats that they are comfortable with. Students are able to make meaningful connections with class materials when they are able to access, process, and review online prior to face-to-face class discussions (Solimani et al., 2019).

Shortcomings of Blended Learning

In spite of the benefits and positive impacts of blended learning, various issues negatively impact learning and instruction (Reynolds et al., 2011). Blended learning asks instructors to remain involved in the instruction and the technology in use, which might be challenging since it is subject to external influence (Buwono & Citaningrum, 2019). Also, educators who are not fully involved with instruction training and coaching are likely to negatively influence the improvement in learner's reading skills and abilities (Bippert, 2019). In other cases, blended learning should not be applied as a solution for every learner that might be struggling to read (Humphrey, 2002).

Lack of Teacher Engagement. Teachers must be engaged in each aspect of blended learning in order for progress and improvements to be made by struggling readers. There is also

a great deal of importance placed on the teachers' voluntary participation prior to implementation. Bippert and Harmon (2017) found teachers were having to supplement blended learning programs based on state assessments. It is imperative that districts and schools work to find blended learning approaches that match with state standards and assessments, avoiding the need for teachers to potential negatively supplement the program. Even with the use of multiple computer-based interventions, teachers were still supplementing resources (Bippert, 2019). Students were more engaged because they were able to actively participate. However, with limited resources, instructors are tasked with supplementing the programs and applications (Stover & Houston, 2019). In order to implement blended learning appropriately, lessons, units, and course designs require more upfront planning and teacher time (Akpan, 2015). Teachers struggled with the changing roles and responsibilities while students disengaged and classroom management faltered. Classroom management must be of high quality when implementing blended learning. Poor classroom management can lead to off-task behaviors and discipline issues (Stevens & Rice, 2016). Teachers also had to continue to prompt students to continue when the computer-based instruction became boring or repetitive. These issues can negatively impact the results of the blended learning environment if students become disengaged.

Technology Issues. Once teachers are fully engaged in the blended learning environment, there are technical obstacles that can derail the success of the program. Teachers, though mostly positive, expressed frustration with technology and accessibility issues when using computer-based reading interventions. Due to technology issues and class transitions, students were able to access the computer-based interventions for half the prescribed time (Bippert, 2019). The inability to practice skills with the instructor can hinder student success (Stover & Houston, 2019). Another challenge of blended learning is the fact that it is highly

dependent on technology. To make blended learning successful, the developers have to select the best programs that suit the institution based on the learners and the technological expertise of their instructors. They have to select programs that are easy to operate, reliable, and modern to make sure that they are within the digital era. Many of the programs that are involved in blended learning require a strong network connection. This becomes a challenge for those institutions that are located in the low connectivity areas. Blended learning would also fail in the case of instructors and learners having little or no knowledge of how to operate technology (Umoh & Akpan, 2014). Teachers and students must dedicate more time to familiarize themselves with the system. It is challenging to recover the time lost in engaging with the programs and the learners lag in completion of coursework when compared to other institutions that are technologically aware. The challenges of accessing the course material can delay learning.

Even when students attempt to positively interact with blended learning instruction, many challenges can negatively impact learning. Students reported online platform crashes, inability to use certain resources, and lack of connection to classmates made blended learning difficult. Students continued to struggle with time management between online learning and face-to-face instruction (Sriwichai, 2020). The lack of student participation and poor time management negatively affects the implementation of blended learning (Shamsuddin & Kaur, 2020). When blended learning is taking place at a single site, the technical issues are the potential lack of proper and updated technology and slow internet connectivity. If students are off campus for part of the blended learning class, they may lack compatible technology and internet access (Gyamfi & Gyaase, 2015). In both situations, issues with access to the material can have a negative impact on the results of the blended learning environment and thus, districts and schools should have detailed plans of action in place in the event of technology failings. When an institution

decides to adopt blended learning for its learners, they are faced with the challenge of increased costs of maintenance. The first step towards the realization of a blended learning strategy is to make sure that the institution is fitted with all the electronic equipment and infrastructure that will enable the sharing of data. The installations are expensive and the costs of operations become even higher for learning institutions that have a higher population. The cost is higher during installation while costs of maintenance are much lower (Jeffrey et al., 2014).

Information Overload and Feedback. Blended learning often fails because there is a delay in the progress of learning activities between the teachers and the students. Through the examination of real case scenarios where the teachers involve themselves in lecture recording, they cover the content to the end while some students are left behind. It becomes challenging for the teacher to follow up with students who are offline due to network connectivity challenges (Zacharis, 2018). The blended learning strategy may also fail because of the stress that it impacts on the teachers. There is an additional amount of work during the transition from traditional learning to blended learning. Blended learning brings about many activities that keep students engaged throughout. However, teachers can overdeliver content and assignments to the students. Overworking students can make students to feel discouraged and frustrated, leading to poor performance rendering the blended learning strategy unsuccessful while learners lose their academic originality (Hofmann, 2011).

Blended learning requires caution when it comes to assessment and grading because it might not reflect the actual student's ability. Teachers note that it is challenging to provide effective feedback when one is using the blended learning strategy to teach. It is challenging because electronic media allows academic dishonesty in online learning comparatively to the traditional learning strategy. A lack of motivation of students can compound the issues of

academic dishonesty (Gedik et al., 2012). A variety of blended learning models can be adopted when educating different audiences. Though if the teacher makes a mistake when selecting the model to use with their students, it can mark the beginning of a failed blended learning experience.

Students and teachers need training to use technology and education platforms to avoid obstructing the educational benefits (Karaaslan & Kilic, 2019). It is difficult to implement the use of technology in blended learning classrooms when teachers do not have the technology skills needed. Teachers and students must adapt to structural changes of classroom instruction to benefit from blended learning including convenience and flexibility of instruction and higher levels of interaction among teacher and students. Blended learning technology should directly relate to the curriculum being taught (Buwono & Ciptaningrum, 2019).

Concerns about distance learning include lack of rigor in content, inability of students to collaborate and learn from peers, less support for struggling students, and inaccessible resources (Mehrotra et al., 2001). The concerns can gravely impact students, teachers, and parents. Implementing blended learning requires those who are impacted, including students, to create a gradual plan of action (Karaaslan & Kilic, 2019).

Bippert (2019) stated, “while technology holds many possibilities for student learning, schools need to consider the most effective ways to use this technology” (p. 14). The blended learning approach to literacy is not nearly as effective for students in upper grades as it is for students in grades kindergarten through second. Therefore, blended learning, in this capacity, should be used as an early intervention when students first show signs of struggling with reading. Once students are older or significantly behind in reading skills, the effectiveness of the blended learning approach diminishes. (Prescott et al., 2017).

Fidelity and Focus. Programs were not used with fidelity in time or programming which has an effect on the results of student achievement (Bippert, 2019). Though students in blended learning programs made more growth than traditional face-to-face instruction, students were unable to meet grade level standards due to large gaps in knowledge (Fazal & Bryant, 2019). Some of the negative results of the research of blended learning interventions are because of the lack of focus on a specific skill (Hall & Burns, 2018). Students who struggle with decoding do not need to be in a blended learning intervention focused on vocabulary and comprehension. As well, students who struggle with a computer-based blending and fluency intervention. When blended learning interventions are not tailored to the needs of the students, they become irrelevant and students lose interest causing poor results (Bennett et al., 2017). Teachers and students may find difficulty making a connection with the feedback presented through a blended learning approach especially if part of the blended learning takes place on campus. The difficulty in making a connection with the feedback presented can also lead to a lack of satisfaction and understanding of students' final grades (Umek et al., 2017).

Middle Grades Reading

There exist major variations in how learning takes place at different educational levels. These differences are mainly attributed to the fact that teachers take into consideration the age of learners when making decisions on what and how to teach. Elementary learners are often young individuals who require a systematic approach in learning in order to achieve their goals (Laksana, 2017). Such approaches are critical in ensuring that elementary learners can transition appropriately to the next level of learning. Middle school learners who mostly consist of adolescents have different techniques of learning due to undergoing a critical phase in their life and require various activities that trigger their cognition and eventually their understanding

(Marshall & Neuman, 2012). It is therefore evident that learning styles incorporated by teachers in elementary and middle school often depend on various factors such as the content, motivation, environment, and most importantly, the goals of learning (van Dongen et al., 2018). Despite the similarities in the factors that affect learning in all levels of learning, there are major differences in the way adolescents and young children learn (Marshall & Neuman, 2012).

Motivating Learners. Elementary learners are usually driven by curiosity to learn and discover new concepts on their own while adolescent learners are driven by their need for activities that satisfy their learning expectations. Curiosity is usually defined as a strong desire to know more about a concept (Sinha et al., 2017). Elementary teachers, therefore, utilize the curiosity of students to develop their inquisitive skills (Laksana, 2017). It is beneficial in building their cognition and consequently promoting a deep understanding of concepts. Adolescents, on the other hand, usually have various needs that affect their learning outcomes. According to Van Dongen et al., (2018), teachers have incorporated need-supportive concepts in middle school to ensure that learners' preferences are taken into consideration, such actions also motivate learners to participate in learning.

Techniques of Learning. Elementary learners need physical interaction with learning tools so that they can touch, hear, and see. These approaches are usually important as elementary students have a limited span of attention and when only theory is used, they may not understand essential concepts. According to Shaby et al., (2019), maximum interaction between learners and learning tools is beneficial in teaching some complex concepts and ensures engagement. Adolescent learners on the other hand use several techniques of learning. They mostly draw upon various resources such as the internet, the social contexts, and personal experiences. With the use

of prior experiences and exposure, middle school ensure that they have meaningful involvement with the current content and boost their learning capabilities (Marshall & Neuman, 2012).

Teachers' Role. Teachers play different roles in elementary and middle school. While elementary learners require individual guidance from teachers as they normally have different needs, middle school learners require teachers to help them to build bridges between content and real life. Students in elementary schools learn skills such as reading and writing. Reading is one of the most critical mechanical skills that entails the pronunciation of words (Pratt & Martin, 2017). To correctly comprehend such a skill, teachers provide immense guidance to students. Adolescent learners have difficulties making these skills priorities as they have their interests embedded in their social contexts (Slot et al., 2019). Teachers, therefore, play a critical role in ensuring that boundaries are set for effective learning.

Lack of Teacher Training. Humphrey (2002) stated, "simplistic solutions to build strong middle school reading programs do not exist" (p. 757). Low effect sizes have been shown when using elementary reading interventions with middle grades readers (Flynn et al., 2012). Middle schools, unlike elementary schools, tend not to have teachers trained exclusively in reading instruction nor do they have comparable rates of use of school library books. Middle schools need teachers who have explicit reading backgrounds through licensure, while middle school libraries can motivate readers with new and high interest books and magazines (Humphrey, 2002). Middle school students who struggle to understand grade-level texts can participate in questions and discussions about the text when teacher read aloud is utilized (Marchessault & Larwin, 2013). Middle school students reported lowered motivation to read in and out of school and perceived reading to be less valuable as they progressed through grade

levels. However, there is a lack of validated reading motivation assessments for middle school students (Styck et al., 2020).

Complex Texts. Teachers have a positive perception of using increasingly higher-level texts with students. They often feel that the literacy blocks within the schedule do not give enough time to effectively instruct students. The use of learning intentions requires teachers to unpack the lesson standards to create a concise connection to student learning. Teachers discussed the continued gap between texts used at the reader's level and grade level texts. The use of more complex texts can help to bridge the gap. Teachers avoid introducing more complex texts because they want to avoid seeing students struggle or feel frustrated but peer collaboration with more complex texts gives students the ability to understand topics in a safe grouping (Fisher & Frey, 2016). Low-performing middle grades students who were explicitly taught to close read more complex texts perform significantly better on summative assessments than students who were not (Fisher & Frey, 2015).

Impact of Poverty and Culture. Students from low socioeconomic status backgrounds scored lower in reading, had lower reading skills, and perform worse on standardized assessments (Kazakoff et al., 2018). Fazal and Bryant (2019) determined, "while there is emphasis on higher levels of achievement, the resources and strategies needed to make it happen especially in high poverty middle schools are often insufficient in supporting instructional practices that meet the varying learning needs of students" (p.52). Cultural differences can change how students interact and collaborate with their peers (Tang, 2019). Female middle school students were even more successful with blended learning and avoided other online uses when working (Ceylan & Kesici, 2017).

Vocabulary and Fluency. Flink (2018) stated, "improving students' attitudes about reading is critical when attempting to improve reading comprehension and fluency" (p. 143). Issues with reading reflect in an inability to learn new information from texts. Learning to use context clues to determine the meaning of unknown words can be especially helpful for middle school readers. Vocabulary knowledge greatly effects reading comprehension in middle grades. As students transition to more difficult concepts, the difficulty of vocabulary also increases (Itler, 2019). While fluency is a determining factor in reading proficiency, there is a lack of concentration on teaching fluency in curriculum. Interventions are needed to correct the deficit. A variety of commercial reading interventions can be purchased and used by school districts to enhance fluency among struggling middle school readers (Lingo, 2014). Automaticity in word recognition relates to fluency but not to reading comprehension in middle school readers (Roembke et al., 2019). Reading comprehension, the ability to understand what is read, and morphological awareness, the understanding of the structure of the words, contribute to the academic success of students. In middle school, morphological awareness is a strong predictor of reading comprehension (Memis, 2019). Student reading levels are measured using Lexile® measures. The typical reader should have a Lexile® score of 855-1165 in sixth grade, 925-1295 in seventh grade, and 985-1295 in eighth grade (MetaMetrics, 2018). Students who read below these ranges are considered to be below grade level. An inability to read on grade level can result in student frustration (Ilter, 2019).

Middle grades reading is not simply decoding. It includes engaging with the text through social interactions. Middle grades students reported that collaboration among their peers was a positive motivator when using technology. Middle grades readers positively engage in intervention programs when they are able to make choices within the lessons and collaborate

with peers (Bippert, 2019). Middle grade students were highly motivated by the use of computer-based instruction. The use of technology in middle grades can improve academic performance of low performing students (Winter, 2019). With schoolwide initiatives, students with challenges have seen positive results socially, emotionally, and academically (Eber et al., 2011). Relevancy, engagement, and collaboration greatly impact the motivation of students, especially adolescent students. The use of technology as a motivator can benefit middle school students. However, it is necessary to ensure students are exposed to a variety of resources, strategies, and motivators (Elleman et al., 2019).

Chapter Summary

The use of reading interventions has a significant impact on student achievement as it enhances growth of reading skills among readers. Teachers have a chance to understand the weaknesses that their students present and ensure that they choose the correct reading intervention. Teachers use the interventions to ensure that students have developed fluency and confidence and can continuously engage in reading activities. Elementary schools shape the future of a learner which means that it is an important part of every student's life. For this reason, reading interventions are utilized to build confidence among learners, fluency, comprehension and develop skills related to reading, writing, test taking and following instructions. Based on the varying needs of learners, the use of different reading interventions is taken into consideration to ensure that the diverse needs of students are met with effectiveness. The use of reading interventions in elementary schools helps in shaping the future of learners thus considered a vital part of learning in these institutions.

The main challenge of using reading interventions is their ineffectiveness when students have a decoding ability that is below average. This implies that such students will have a hard

time in developing fluency as they cannot effectively decode the learning. Some of the learners may have underdeveloped fluency in reading and despite the use of different reading strategies, it is hard to improve the reading abilities among students. Due to these challenges, it is possible that despite the type of a reading intervention utilized, long term solutions for learners can be difficult to develop. The application of reading interventions is important in the elementary schools but teachers have a role of ensuring that they understand the needs of their students. Based on the problems associated with their use, it is crucial to design the most effective strategies that will enhance meeting the diverse needs among learners.

Blended learning is identified as the combination of digital technology with teacher-led instruction. The approaches in blended learning include independent student-guided, online activities with teacher-led (face-to-face), group or individualized instruction. Blended learning aims to offer flexibility to students in accessing the digital learning materials at any time or place and guide teachers in differentiating instruction to match the specific learning needs of students, including those at-risk for poor academic performance. The teachers make instructional decisions based on the real-time data on digital platforms. Teachers can have more time to offer targeted group instruction while other pre-readers can engage in independent online learning activities. There are many benefits associated with the use of blended learning, especially to the students. One of the main benefits is that it fosters increased engagement of the students, which improves student performance. Through online learning, the student can engage with the learning material repeatedly, thus ensuring that they master the learning concept more efficiently. This makes it possible for the learners to learn at their preferred pace and decide the places and schedules that are most convenient for them to learn and acquire new knowledge. The students can, for instance, prefer to go through the learning activities during their free time or during the vacation

to enable them to catch up with the rest of the students who may be ahead of them in various concepts. Blended learning fails in many cases where it is adopted and imposed on students without a clear plan how the learning institution will handle the challenges in the process of implementation. Poor planning before the adoption of the strategy leads to poor student performance. However, the challenges that lead to the failure of the blended learning strategy can be overcome.

There exist enormous differences between the learning processes of elementary and middle-grade students. Teachers not only take into consideration the age of students when teaching but also involve other factors such as their cognitive capabilities. While elementary learners are driven by curiosity to discover new concepts, adolescent learners are driven by needs that fulfill their learning expectations. With the guidance of teachers, systematic approaches are used to ensure the learning outcomes are achieved.

Despite the limitations associated with blended learning in terms of research conducted to support its application as a reading intervention on standardized assessment scores, there are various positive outcomes. Blended learning students seem more motivated than others. There is an increasing focus on learner's engagement and blended models to teaching and learning in different education levels. Blended learning allows teachers and learning to combine computer-based learning and traditional learning methods to ensure that the learning process is effective. The necessities for blended learning include the availability of education tools, accessibility of learning material, and selection of the best model for blended learning. This approach has a lot of benefits to both teachers and students, including increased flexibility, reduced educational costs, and increased fun during the learning process. The use of blended learning ensures that learners

with different learning styles can benefit from the learning process and that the teachers can give special attention to struggling students and special students.

CHAPTER III

METHODOLOGY

A variety of reading intervention programs continue the outdated use of repeated practice and assessing of skills that are not used in context, leaving students unable to transfer knowledge and apply skills (Dewitz et al., 2009). To avoid the continued use of ineffective reading intervention programs, this study aimed to determine the impact of Language! Live on students' reading comprehension. The purpose of the study was to determine the impact of an intensive blended learning reading intervention on the standardized assessment scores of middle school students who were at least two grade levels behind in reading at a Title I school in Georgia.

This chapter discusses the research design, data collection, and data analysis used to determine the effect of Language! Live on students' reading comprehension.

Research Questions

The research question guiding this study was as follows study (1) What is the effect of Language! Live reading intervention on students' post-intervention reading comprehension based on two learning modalities (Strategic, Intensive) while controlling for pretest reading comprehension?

The research question was addressed using participation scores from the Language! Live platform and GMAS scores which includes Lexile scores.

Research Design

The purpose of this quantitative study utilizing a quasi-experimental pretest/posttest research design was to determine to the impact of an intensive blended learning reading intervention on the post-intervention reading comprehension scores and aimed to establish if

students who were significantly below grade level could make sufficient growth with the assistance of an intensive blended learning reading intervention. Specifically, this study examined how the use of the commercially produced intervention program, Language! Live, impacted the standardized test scores of students as measured by GMAS scores and Lexile levels.

The archival data were quantitative in nature and were collected through the Language! Live platform and GMAS electronically at the end of the pre-treatment and posttreatment school years. This assessment was chosen due to its implications to the CCRPI score of the school within the study.

The study was quasi-experimental due to the fact that the Intensive Group and the Strategic Group were preexisting, intact, and mutually exclusive. The groups were manipulated differently within the intervention and a between-groups comparison is necessary. While both groups were significantly below grade level in reading ability, the Intensive Group was substantially lower.

Participants and Population

The participants were in two separate groups, an Intensive Group and a Strategic Group. Both the Intensive and Strategic Groups received the Language! Live reading intervention. The groups differed in the Lexile reading level of the instruction within the intervention. The Intensive Group was instructed at three grade levels below in the intervention classroom and each student received instruction on the Language! Live blended learning online platform at their personal level (Kindergarten- Third Grade). The Strategic Group was instructed at two grade levels below in the intervention classroom and each student receives instruction on the Language! Live blended learning online platform at their personal level (Third- Fifth Grade).

Students in the Intensive Group scored at a significantly lower level than the Strategic Group on GMAS and had a Lexile Level three or more levels below grade level. Students in the Strategic Group scored below grade level on GMAS and have a Lexile Level two or more levels below grade level. The participants were in two separate groups, an Intensive Group and a Strategic Group. In the Intensive Group, there were 25 sixth graders, 23 seventh graders, 25 eighth graders and 25 special education students in all three grades. In the Strategic Group, there were 29 sixth graders, 26 seventh graders, and 24 eighth graders. Students who were placed in the intensive group had the most significant needs. The Intensive Groups were designed to be smaller in size at 16 students or less, per the two classes in each grade level. The Strategic Groups were created with the remaining students while continuing to keep the class sizes as small as possible.

The study reviewed archival data from a single Title I middle school in an affluent suburban Georgia school district. The school district has five high schools, eight middle schools, 18 elementary schools and one alternative school. The research school had the lowest CCRPI score in the district, a score of 63.3 compared to the district score of 84.3. The research school implemented an intensive blended learning reading intervention to close the gaps in standardized assessment scores of subgroups who were significantly behind in reading skills.

The population was 690 students in sixth through eighth grade at a Title I middle school in a suburban school district in Georgia. The population of the school includes 54.8% White, 23.9% Black, and 9.9% Hispanic. The population includes 55.7% of students identified as economically disadvantaged. A total of only 59.65% of students met the target in the English Language Arts section of the Georgia Milestones Assessment.

Instrumentation

This study used archival data to determine the impact of the intensive blended learning intervention on standardized assessment scores. According to Turiano (2014), archival data is often used when completing studies of longitudinal assessments. Data were collected through the Language! Live platform to determine satisfactory participation in the intensive blended learning reading intervention. This study relied on de-identified archival data, made available to the researcher with permission from the school and district administration at the school studied. The GMAS scores which included Lexile scores were collected through the SLDS platform.

The collection of posttest reading comprehension scores were collected using the GMAS. At the end of each school year, learners in middle grades are evaluated on their knowledge of English Language Arts, Social Studies, Science, and Mathematics. Therefore, an adequate assessment system is essential for the process. Georgia Milestones Assessment System is the most effective comprehensive system used in Georgia to evaluate students in grades 3 through high school and gives a clear reflection of the learner's reading comprehension abilities.

According to GaDOE (2018), there are four levels of the Georgia Milestones Assessment System which include Beginning, Developing, Proficient, and Distinguished. Beginning learners do not meet content standards and need significant academic support to improve. Developing learners demonstrate low proficiency of standards and require supports to become college and career ready. Proficient learners demonstrate proficiency in the skills and knowledge necessary and are on track for college and career readiness. Distinguished learners demonstrate proficiency above grade level standards. GMAS relates to Lexile Level scores and students' ability to read including the difficulty of a text. The learners must present a rising trajectory on their ability to read. A higher score determines the ability to read and comprehend a text.

The state of Georgia mandates the Georgia Milestone Assessments and uses the information to determine how well students have acquired skills and knowledge on the specified subject while also, identifying areas where the learners need to improve, and it informs the stakeholders involved.

Educational Intervention

Effective reading programs are essential in improving the reading skills of a child. According to Slavin et al. (2008), there are many learning programs with a variety of ratings on their ability to boost students' performance. One reading program that is efficient in improving students' learning skills is the Language! Live Program. According to Voyager Sopris Learning (2014), the program meets students where they are and moves them to where they need to be. The program and its objectives are as per the provisions of the Georgia Standards of Excellence (Voyager Sopris Learning, 2017). Language! Live reading program equips learners with skills to enable them to improve their reading. Language! Live reading program is designed in such a way that it meets the needs of struggling students. According to Voyager Sopris Learning (2019), the program offers both word training and text training. Word training is provided online, where students are provided with a self-paced environment to facilitate their skills development. Text training meets students where they need to be using teacher-led instruction. The training helps students gain literary and informational skills to comprehend complex ideas required in making connections between texts (Voyager Sopris Learning, 2014). Voyage Sopris (2019) states that the program has two entry levels, whereby level 1 is for children who need intense instruction and foundational skills, while level 2 is to help them continue the path to mastery. The program also involves live assessments for ongoing students where their benchmark progress and essential language art skills are assessed and provided with immediate corrective feedback.

The program engages students with teachers and learning materials through which their academic performance is improved. Practice enables the program to address all students' needs and improve their learning within a short time. Students get student-centered online instruction that helps them improve their foundational literary skills. The program had a significant positive impact on students in both Intensive Groups and Strategic Groups. Evidence-based research is vital in the development of any learning program. Over the years, several researchers have conducted different studies to determine the importance of reading interventions and how they should be designed. One such study by Slavin et al. (2008) analyzed effective reading programs for middle and high schools and examined reading curricula, computer-assisted instruction, instructional process programs, and combined computer-assisted instructions and instructional process models. The findings of the studies indicate that the Language! Live program meets all requirements needed in the provision of quality education. As stated by Voyager Sopris Learning (2019), the Language! Live program is based on findings of research conducted over two years. As such, most of the skills and techniques used are based on evidence-based research that makes it suitable and efficient. The studies show that the most efficient programs are those that offer one-to-one tutoring, cooperative learning, and emphasize the use of technology in the learning process (Baye et al., 2016). The Language! Live program meets all these requirements, hence its success in improving students' learning performance.

The teacher-led segment of Language! Live is a scripted program which begins with letter sounds and builds with each unit to create a strong foundation for reading. Whether students begin with the intervention in fourth grade or tenth grade, students are instructed at two or three grade levels below their current actual grade level. Vocabulary is taught in isolation within each unit. Each unit also includes a text at the Lexile level of the instruction. The text is

read aloud, reread, and discussed before students are assessed at the end of the unit. The computer-based segment instructs students on their own personal Lexile level. While some students may only be two to three grade levels below, others within the same group operate five to six grade levels below.

Lexile is a score determined to illustrate a student's ability to read. There are two Lexile measures which include text and reader measures. A reader measure is used to represent an individual's ability to read while the difficulty level of a text on a Lexile scale is determined by text measure. The Lexile framework bases its results on both the reader and the material being read and therefore, clearly describes a student's reading ability (Archer, 2010). A Lexile text measure is achieved by assessing the readability of a piece of text such as an article or a book. A program can be used to evaluate reading demand, examine word frequency, and sentence length to determine the Lexile measure (Lennon & Burdick, 2004). Lexile reader and text measures can be helpful to guide teachers and students to texts that are accessible to the students' reading abilities.

These measures are very helpful in schools as they are tools used by teachers as well as students to achieve a higher level of difficulty in a student's reading ability. Lexile measures are used to determine how best a student reads and how difficult a particular book will be to understand. This can give students and teachers a clear understanding allowing for prediction of how well a student will understand a particular book (Stenner et al., 2006). With the determination, students are able find books within their comfort zone and it helps them grow as a reader. By comparing a student's Lexile measure to that of a particular book, students can find books that have some difficulty, as well as, those that are simple enough to avoid struggling which helps to lower the frustration felt by students, teachers, and parents.

Data Analysis

The data collected were analyzed by reviewing the GMAS scores of students who were assigned to the Intensive or Strategic Group. A one-way between groups Analysis of Covariance (ANCOVA) were conducted to investigate the effect of the intensive blended learning reading intervention on standardized test scores. The learning modality served as the between-subjects factor. The outcome being measured was the posttest reading comprehension and the pretest reading comprehension served as the covariate.

Data were screened for univariate outliers using box-and-whisker plots and for requisite statistical assumptions, including normality, homogeneity of variance, sphericity, and homogeneity of regression (slope) coefficients. There were no outliers detected in the data that would otherwise undermine the trustworthiness of the data, and hence, data analysis proceeded with 133 cases with complete data. All requisite statistical assumptions were met, except for the homogeneity of regression (slope) coefficients assumption, in which the slopes of baseline Lexile scores varied by group (strategic, intensive). Therefore, baseline Lexile score could not be employed as a covariate, as initially intended. Thus, the data analysis plan changed to a 2 (group: strategic, intensive) x 2 (testing occasion: baseline, posttest) factorial analysis of variance (ANOVA).

Reporting the Data

Findings were presented in two primary sections. The first addressed the Intensive Groups' reading growth of GMAS scores and Lexile scores, along with the participation within the Language! Live platform. The second addressed the Strategic Groups' reading growth of GMAS scores and Lexile scores, along with the participation within the Language! Live platform. The data were presented using tables and matrices, as appropriate.

Chapter Summary

This quantitative study used a quasi-experimental pretest/ posttest design because the participants were not randomly assignment, but were assigned to the Intensive and Strategic Group based on low scores on GMAS, a 2 x 2 factorial ANOVA was used. The data collected and analyzed in Chapter Four will be used to determine the effect of Language! Live on students' post-intervention reading comprehension.

CHAPTER IV

RESULTS

This chapter includes a review of the purpose of the study and the guiding research question, as well as, the research methodology and changes to data analysis. The research question was addressed through data tables and narrative discussion of the findings. The conclusion of this chapter includes a summary of results and findings which serve as the foundation for discussion and implications within Chapter Five.

Intensive blended learning reading interventions include a variety of theories and best practices to meet students at their current abilities and close the gap of academic achievement. Students who participated in a blended learning program which was implemented with fidelity made significant growth (Kazakoff et al., 2017). Delivering reading interventions with technology can give students an even more personalized learning experience within the small-group reading intervention. Presenting reading passages with computers improves both reading fluency and comprehension in 86% of students (Bennett et al., 2017). While research has identified benefits and positive impacts of blended learning, a variety of issues have been found to negatively impact learning and instruction (Reynolds et al., 2011).

It is essential for school districts to continue to assess and reassess the interventions being used in classrooms. The assessments should describe the benefits to stakeholders while accounting for the issues that may present themselves, including cost, trainings, and further needs. An in-depth assessment of the intervention allows for understanding and adapting. Adaptation of reading intervention programs should only happen after implementing with full

fidelity. Adapting programs requires teachers to completely understand the theories used within the program (Quinn & Kim, 2017).

The purpose of the study was to determine the impact of an intensive blended learning reading intervention on the standardized assessment scores of middle school students who were at least two grade levels behind in reading at a Title I school in Georgia. This study aimed to establish if students who were significantly below grade level could make growth with the assistance of an intensive blended learning reading intervention.

The research question that guided this study was What is the effect of Language! Live reading intervention on students' post-intervention reading comprehension based on two learning modalities (Strategic, Intensive) while controlling for pretest reading comprehension? The research question was addressed using participation scores from the Language! Live platform and GMAS scores which includes Lexile scores.

The study was quasi-experimental due to the Intensive Group and the Strategic Groups are preexisting, intact, and mutually exclusive. The archival data were quantitative in nature and were collected through the Language! live platform and GMAS electronically at the end of the pre-treatment and posttreatment school years. A coded name was created for each student which does not identify the student. A one-way between groups ANCOVA were conducted to investigate the effect of the intensive blended learning reading intervention on standardized test scores. Baseline Lexile score could not be employed as a covariate, as initially intended. Thus, the data analysis plan changed to a 2 x 2 factorial ANOVA.

Findings

To answer the research question effectively, the descriptive statistics for the Full Sample, as well as, the Intensive Group and Strategic Group were reported. Descriptive statistics are found in Table 1 and bivariate, zero-order correlations are displayed in Table 2.

Table 1

Descriptive Statistics and Zero-Order Correlation Matrix of Lexile Scores at Baseline and Posttest by Group and for the Sample

Variable	Intensive ($n = 62$)				Strategic ($n = 71$)				Sample ($N = 133$)			
	Baseline		Posttest		Baseline		Posttest		Baseline		Posttest	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Lexile	633.71	172.15	769.44	120.987	799.72	123.525	870.21	122.930	722.33	169.404	823.23	131.623

Sample. The full sample included 133 participants. Of the 133 participants, 48% were in the Intensive Group while 52% were in the Strategic Group. The baseline minimum was 100 while the baseline maximum was 1060. The posttest minimum was 530 while the posttest maximum was 1175. The Lexile baseline had a mean of 722.33 and the Standard Deviation was 169.404. The Lexile posttest had a mean of 823.23 and the Standard Deviation was 131.623. Across both variables, the skewness and kurtosis were relatively normally distributed.

Intensive Group. The Intensive Group included 62 participants. The Lexile baseline had a mean of 633.71 and the Standard Deviation was 172.154. The Lexile posttest had a mean of 769.44 and the Standard Deviation was 120.987.

Strategic Group. The Strategic Group included 71 participants. The Lexile baseline had a mean of 799.72 and the Standard Deviation was 123.525. The Lexile posttest had a mean of 870.21 and the Standard Deviation was 122.930.

Correlation was determined for the Intensive Group and the Strategic Group as to avoid masking within the Full Sample of differences of the magnitude of the correlation coefficient between groups.

Table 2

Zero-Order Correlation Matrix of Lexile Score at Baseline by Group

Variable	1	2
1. Baseline Lexile	-	.240**
2. Posttest Lexile	.381*	-

* $p < .05$ ** $p < .01$

Note. Correlations above the diagonal are for the Strategic Group and those below the diagonal are for the Intensive Group.

$N = 133$ (Intensive, $n = 62$; Strategic, $n = 71$)

Intensive Group. Lexile at baseline and Lexile at posttest for the Intensive Group was weakly to moderately positively correlated. Correlation was significant at the 0.01 level of security.

Strategic Group. Lexile at baseline and Lexile at posttest for the Strategic Group was weakly positively correlated. Correlation was significant at the 0.05 level of security.

Data Analysis

The results of the data analysis are presented in four sections which include main analysis, analysis of Group x testing occasion within the group, analysis of Group x testing occasion within testing occasion, and main effects. The results are based on the Lexile baseline and Lexile posttest of the Intensive Group and the Strategic Group. The results were presented in order of statistical significance.

Main Analyses. Results revealed a statistically significant group x testing occasion interaction, $F(1,131) = 5.51$, $p = .02$, $\eta^2_p = .04$. Both the group main effect, $F(1,131) = 48.94$, $p < .001$, $\eta^2_p = .27$, and the testing occasion main effect, $F(1,131) = 55.08$, $p < .001$, $\eta^2_p = .30$, also reached statistical significance. The follow up results of the significant interaction and each individual main effect were interpreted next.

Group x testing occasion within group. Follow up inspection of the estimated marginal means (EMMs) of the significant group x testing occasion interaction with the Bonferroni adjustment to statistical significance for multiple comparisons within group (i.e., simple effects) revealed that the two groups significantly differed at baseline Lexile (Intensive Group EMM = 633.71; Strategic Group EMM = 799.72; $\eta^2_p = .24$) and posttest Lexile (Intensive Group EMM = 769.44; Strategic Group EMM = 870.21; $\eta^2_p = .15$), with the Strategic Group significantly outperforming the Intensive Group at both testing occasions.

Group x testing occasion within testing occasion. Within testing occasion, simple contrasts of the significant group x testing occasion interaction with the Bonferroni adjustment indicated that both the Intensive Group (Baseline EMM = 633.71; Posttest EMM = 769.44; $\eta^2_p = .25$) and the Strategic Group (Baseline EMM = 799.72; Posttest EMM = 870.21; $\eta^2_p = .10$) exhibited significantly higher Lexile scores at posttest compared to baseline.

Main effects. The group main effect post hoc results suggested that the Strategic Group manifested significantly higher Lexile scores than the Intensive Group. The significant testing occasion main effect revealed that posttest Lexile scores were significantly higher than baseline Lexile scores.

Chapter Summary

In order to effectively determine the effect of the Language! Live reading intervention on students' post-intervention reading comprehension, data were analyzed using a 2 x 2 factorial ANOVA. The results suggested the baseline Lexile scores were significantly lower than the posttest Lexile scores within both groups. The Strategic Group had significantly higher Lexile scores at posttest than the Intensive Group at posttest. However, the Intensive Group showed greater growth from baseline to posttest than the Strategic Group. A more detailed interpretation of the findings, as well as, future recommendations and implications will be provided in Chapter Five.

CHAPTER V

DISCUSSION AND RECOMMENDATIONS

This chapter begins with an overview of the study which includes the purpose of the study, the research question which guided the study, and the research methodology employed in the study. Within this chapter, the research question along with a brief summary of the results will be discussed in depth. Implications for practice and recommendations for future research will be thoroughly examined and discussed. A summary of the study will conclude this chapter.

Summary

The implementation of blended learning in reading interventions has increased recently as technology continues to develop and advance (Bippert, 2019). Implementing new interventions, especially blended learning interventions, can present a variety of challenges to administrators, educators, and students including fidelity, accessibility, and additional costs. However, the cost of early intervention programs and materials is far outweighed by the success of the students, both immediately and in future years of their education (Lovett et al., 2017).

The purpose of this study was to determine the impact of an intensive blended learning reading intervention on the standardized assessment scores of middle school students who were at least two grade levels behind in reading. The study aimed to establish if students who were significantly below grade level could make growth with the assistance of an intensive blended learning reading intervention. The research question that guided this study was What is the effect of Language! Live reading intervention on students' post-intervention reading comprehension based on two learning modalities (Strategic, Intensive) while controlling for pretest reading comprehension?

The theoretical framework of the study was Tomlinson's Theory of Differentiated Instruction. Differentiated instruction includes accommodating for content, learning environment, learning process, and product (Tomlinson & Imbeau, 2013). A review of literature explored the necessities, successes, poor practices, failures, and shortcomings of reading interventions and blended learning, along with the necessary reading skills of middle grades readers and impact of adolescences on reading. Current research focuses on early childhood and higher education application of blended learning instruction and intervention. The current study aimed to enhance the literature with the addition of implementation of intensive blended learning reading interventions in middle grades reading. Throughout current literature and the addition of this study, differentiation of content, learning environment, product, and learning process can address a variety of educational needs and allows for growth and inquiry when blended learning is used (Horn & Fisher, 2017). The implementation of the Language! Live reading intervention as individualized instruction can facilitate better results for at-risk learners (Shanahan & Lonigan, 2010).

Analysis of Research Findings

This study relied on de-identified archival data collected by Georgia Milestones Assessment Systems in the Spring of 2018, before students received the Language! Live reading intervention and in the Spring of 2019, after completing a full school year of intervention. Archival data were disseminated and included Lexile scores which represent students' ability to comprehend texts (Archer, 2010). Data were de-identified using a created, coded name. From the initial 152 students who received intervention, 133 participants, 87.5%, were included in this study with complete baseline data. The Intensive Group included 62 participants and the Strategic Group included 71 participants. A one-way between groups ANCOVA was originally

determined as the data analysis plan. As the Lexile score could not be employed as the covariate, the data analysis plan changed to a 2 x 2 factorial ANOVA to determine the effect of the Language! Live reading intervention on students' post-intervention reading comprehension.

To avoid the masking of data, statistical results were determined for the Intensive Group and the Strategic Group, as opposed to a single Full Sample. As a result, the correlation coefficient for each variable was evident and explicit. The correlation between the baseline and posttest within the Intensive Group was weak to moderate while the correlation within the Strategic Group was weak. Since the relationship between the baseline and posttest should be linear, the weak to moderate correlation in the Intensive Group and the even weaker correlation in the Strategic Group are concerning. The results of the data analysis revealed that, within the Intensive and Strategic Groups, posttest Lexile scores were significantly higher than the baseline Lexile scores. Additionally, posttest Lexile scores were significantly higher in the Strategic Group than in the Intensive Group. However, growth from baseline to posttest was greater in the Intensive Group than the Strategic Group.

Discussion of Research Findings

Study results will be discussed in the following four sections to address the guiding research question in order to determine the impact of an intensive blended learning reading intervention on standardized assessment scores, data were analyzed using descriptive statistics and correlations. The four main effects of the Language! Live reading intervention were determined to be significantly higher Lexile scores from baseline to posttest in both groups, significantly higher posttest scores in the Strategic Group, greater growth from baseline to posttest in the Intensive Group, and a weak correlation between baseline Lexile score and posttest Lexile score between variables.

Significantly Higher Lexile Scores from Baseline to Posttest in Both Groups. The use of the Language! Live reading intervention had a positive effect within the Intensive Group and the Strategic Group. Students in both groups participated in small-group interventions which allowed for differentiated instruction that met the needs of each struggling reader (Hall & Burns, 2018). Both groups received process modification with the use of blended learning within the intervention. It can be assumed that content modification, process modification, and learning environment modification played a significant role in the positive findings of this study (Tomlinson & Imbeau, 2013). The results suggest that the use of an intensive blended learning reading programs can successfully help to increase student achievement in reading and decrease gaps in reading comprehension ability. Similarly, Miciak et al. (2017) found that students in reading interventions had significantly higher scores in reading and word fluency. Swanson et al. (2016) also found that students who received interventions scored statistically higher in knowledge acquisition, content reading comprehension, and vocabulary recall. In contrast to the findings of this study, Flynn et al. (2012) determined that reading interventions did not significantly benefit middle school struggling readers. Furthermore, Fien et al. (2018) and Pace and Mellard (2016) found no evidence that changes in reading abilities were exclusively due to the use of reading interventions. Due to the nature of the current study, with a lack of a control group who did not receive the intervention, exclusivity of growth between baseline and posttest Lexile scores cannot be determined. However, the results clearly show that there was success within in the Intensive and Strategic Groups. The possible differences in results between studies that show significant success with the use of reading interventions and those that do not could be related to the population of students, the fidelity of the implementation and use of the

intervention, the type of reading intervention, and the standardized assessment in use from baseline to posttest.

Significantly Higher Posttest Lexile Scores in the Strategic Group. As seen in Table 1, the Strategic Group had a mean of 870.21 at posttest while the Intensive Group has a mean of 769.44. The difference of over 100 can be associated with the higher baseline Lexile score in the Strategic Group. The current study reflects two separate and exclusive groups who received varying levels of intervention and therefore, cannot be directly compared to studies with a single group receiving intervention and a control group not receiving intervention. However, Memis (2019) did compare 1561 students in Fifth through Eighth grade at varying language and reading abilities. In his study, he found students who had a higher level of morphological awareness scored higher in reading comprehension while students who had a lower level of morphological awareness scored lower in reading comprehension. These findings are similar to the current study, as students in the Strategic Group, who had higher baseline Lexile scores also had a higher posttest Lexile scores. Tomlinson and Imbeau (2013) established that lower performing students receive curriculum at lower levels of relevance. Therefore, the content modification for students in the higher performing, Strategic Group enabled them to receive curriculum at a higher level of relevance than the lower performing, Intensive Group.

Greater Growth from Baseline to Posttest in Intensive Group. The growth between baseline Lexile score and posttest Lexile score, as reported in Table 1, was significantly greater in the Intensive Group than in the Strategic Group. The growth between baseline and posttest in the Strategic Group was 70.49. At more than twice the growth, the Intensive Group was 135.73. The difference in growth appears to be consistent with the research of Fuchs et al. (2001) which found that blending learning provides opportunity to low performing students to improve their

skills using online activities. The low performing students, similarly to students in the Intensive Group, were able to achieve better scores. Due to the modification of learning environment with fewer students in the intervention group, the Intensive Group is able to receive high-quality instruction. It can be assumed that the greater growth from baseline to posttest in the Intensive Group is due to the modifications of content and process within the Language! Live platform which allowed students to learn at their own pace, at their own Lexile level, and with a variety of games and lesson structures (Tomlinson & Imbeau, 2013). As the students in the Intensive Group and the Strategic Group are at least two grade levels behind and attending a Title I school, they are often described as at-risk. Fuchs et al. (2001) also determined that the use of blended learning to support low performing students is an effective intervention that benefits at-risk learners. As previously discussed within the literature reviewed in the current study, blended learning allows students to learn at their own pace and achieve more success on standardized assessments (Gonzalez-Gomez & Jeong, 2019; Prescott et al., 2017). Students in the Intensive Group, though significantly lower in baseline abilities, were able to make gains with the use of an intensive blended learning reading intervention.

Weak Correlation Between Baseline Lexile Score and Posttest Lexile Score Between Both Variables. A weak correlation between baseline Lexile score and posttest Lexile score within the Intensive Group and the Strategic Group is concerning and requires reflecting on the validity of the statistics. The lack of linear relationship within both groups may suggest that grouping of students in the Intensive Group and Strategic Group are not effective. Students were placed in these groups because of their Fastbridge CBM Reading scores, prior year ELA grades, and most importantly, their Georgia Milestones scores. Students in both groups were at least two grade levels behind and had a Lexile score below 900. Students with the lowest Georgia

Milestones and Lexile scores were placed in the Intensive Group then the Strategic Group was filled with remaining students. In contrast, Hall and Burns (2017) determined that students should be placed in small-group reading interventions based on need pertaining to specific skill development, as opposed to a single standard assessment score. Additionally, Humphrey (2002) stated blended learning should not be applied as a solution for every learner who might be struggling to read. Therefore, it can be assumed that placing struggling readers in an intensive blended learning reading intervention based on previous standardized assessment scores may not be beneficial to all students and can lead to weak correlations between baseline Lexile scores and posttest Lexile scores between both variables.

Implications for Practice

This study served as a foundation for understanding how reading interventions, blended learning, and middle school reading are related to the benefit of student academic achievement. Though current literature is divided on the benefits of reading interventions and blended learning, this study adds to the understanding of the positive aspects of using an intensive blended learning in middle grades. This study also adds to the discussion of interventions implemented to close the gaps in reading abilities on standardized assessments, especially within subgroups. Though the intervention did not effectively close the gap and ensure all students in the intervention were reading at grade level, students did show growth after the intervention. This study aimed to establish if students who were significantly below grade level could make growth with the assistance of an intensive blended learning reading intervention and the results suggest that the Language! Live reading intervention can enhance student growth.

Though the implementation and use of the Language! Live reading intervention was successful with the population in this study, it should be used cautiously and implemented with

integrity. As Rodriguez et al. (2016) determined, implementation requires consistency and the continuous evaluation of instruction. The effective instruction and implementation of an intervention is key to student success.

The results of this study can be used by middle school administrators at the school and district level to make decisions about the future use of the Language! Live reading intervention, as well as, decisions about purchasing, policy, and personnel. The results of this study can also be used by teachers and instructional specialists to determine the best placement and strategies to use to benefit struggling readers in the middle grades classroom. Teachers and instructional specialists can use the results of this study to support flexible grouping of students who are more or less successful in their intervention grouping.

Recommendations for Future Research

The results of this study are beneficial to the continuing discussion of the use of blended learning and reading interventions to effectively help struggling middle school readers. The data collected provide a foundation for further research regarding intensive blended learning reading intervention in middle grades. As there is discourse between current studies relating to the success of reading interventions, additional research is necessary.

Due to the Covid-19 Pandemic and the cancellation of standardized assessments in the Spring of 2020, data were not able to be collected after the second year of intervention. Roberts et al. (2015) found that the use of an intensive reading intervention improved reading achievement over a three year period. The continued collection of intervention data is recommended to be analyzed again once standardized assessments are reinstated. The information gathered from the continued collection and analysis of data will add to the

establishment of Language! Live as a quality blended learning reading intervention to be used in middle grades to help struggling readers.

Additionally, to continue determining the effect of the Language! Live reading intervention on standardized assessment scores, it is recommended to compare data of students who received intervention at the Intensive and Strategic level to the data of students who did not receive intervention. As many of the current studies have a control group, it would be beneficial to add Language! Live to the literature and continue the discussion of blended learning in reading interventions (Miciak et al., 2017).

Finally, the current study took place at a single Title I middle school and further research is recommended to include all of the middle schools within the school district, as well as, the surrounding school districts. Though, it should be noted that if research were to continue to the surrounding school districts, those counties would have to purchase the Language! Live program in order to implement. Kazakoff et al. (2018) stated that students from low socioeconomic status backgrounds scored lower in reading, had lower reading skills, and perform worse on standardized assessments. As the Title I middle school means that there a students of low socioeconomic status in the population, it is also recommended to follow-up research with determination of the impact of the feeder elementary schools and socioeconomic status on the students' reading abilities.

Chapter Summary

The implementation of the Language! Live reading intervention positively impacted the Lexile scores of the students in both the Intensive Group and the Strategic Group. Though the posttest Lexile scores were higher in the Strategic Group, the Intensive Group had double the growth of the Strategic Group from baseline to posttest. The results corroborated that the use of

an intensive blended learning reading intervention can successfully assist students who were significantly below grade level to make growth in their reading skills.

Impact Statement

As school districts continue to implement reading interventions and blended learning, it is imperative for administration at the school and district level to support the intervention with planning, purchasing, and evaluating (Prescott et al., 2018). In regards to educational leadership, the need for understanding of the varying facets associated with implementing changes to environment or curriculum is vital. At the district level, leaders should understand how the decision to purchase and implement a commercial reading intervention program will impact stakeholders. The additional cost of personnel, training, and technology should be considered, along with determining if these costs will be covered at the district or school level. As a school administrator, it is necessary to understand all aspects of the intervention being used, how students are placed in interventions, and plan for continuous evaluation of data. School administrators must be aware of the impacts of the intervention on student success.

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APPENDIX A

Major Research Studies

Studies Related to Reading Interventions

Author(s)	Purpose	Participants	Design	Outcomes
Miciak et al. (2017)	Determine the effects of one versus two years of reading intervention	484 Fourth Graders	Quantitative: Multiple Pretest/ Posttest	Students in the two year intervention had significantly higher scores in reading fluency and word recognition.
Lovett et al. (2017)	Determine the effects of early interventions when started in First-, Second-, or Third- Grade	219 First-, Second-, and Third- Graders	Quantitative: Pretest/ Posttest	Earlier intervention provided twice the gains as later interventions.
Snyder & Golightly (2017)	Determine the effects of a balanced approach reading intervention	One Seven-year-old Second Grade Student	Quantitative: Pretest/ Posttest	Balanced approach intervention showed positive gains in reading skills.
LARRC et al. (2019)	Investigate language-focused intervention on reading comprehension	938 Primary Grades Students	Quantitative: Pretest/ Posttest	Language- focused intervention had a positive impact on students' reading comprehension abilities.

Austin et al. (2019)	Investigate reading intervention research findings and their effectiveness	88 Studies	Quantitative: Likert-type Scale Code Sheets	Effectiveness of interventions was not impacted by the quality of the studies.
Coyne et al. (2018)	Evaluate the effects of providing supplemental interventions for struggling readers in First- Third grade	318 Students	Quantitative: Pretest/ Posttest	Interventions were beneficial to students' phonemic awareness and word decoding. No statistical significance was found in reading fluency or comprehension.

Studies Related to Blended Learning

Author(s)	Purpose	Participants	Design	Outcomes
Harahap et al. (2019)	Determine the effect of blended learning on students' learning achievement	94 Students	Quantitative: Multiple Pretests/posttests	Blended learning was more effective than traditional learning in enhancing students' learning achievement
Baranova et al. (2019)	Evaluate student engagement in a blended learning environment and its effect on their learning outcomes	63 Third-Year Undergraduate Students	Quantitative: Surveys Qualitative: Interviews	Blended learning positively impacted learning outcomes. Learning outcomes correlated to learners' engagement.
Sever et al. (2019)	Investigate teacher candidates' perception of the effect of flipped learning in a scientific research course	102 Elementary Education Undergraduate Students	Quantitative: Pretest/ Posttest Qualitative: Observations Diaries Interviews	Flipped learning led to negative attitudes towards scientific research. Many of the problems were due to implementation.
Almodaires et al. (2019)	Explore perspectives of the effectiveness of flipped learning	195 Student-Teachers	Quantitative: Questionnaires	Students in flipped learning classes had positive attitudes and better performance in class.

Seage & Turegun (2020)	Determine the effects of blended learning and traditional learning on STEM achievement	129 Third-, fourth-, and fifth-grade students from low socioeconomic areas	Quantitative: Pretest/ Posttest	The blended learning approach had statistically significant positive results on science, technology, engineering, and mathematics achievements.
Jdaitawi (2019)	Examine the effects of the flipped classroom strategy on students' self-regulation and social connectedness	160 University Students	Quantitative: Pretest/ Posttest	Students' self-regulation and social connectedness improved when enrolled in a flipped classroom model versus a traditional learning environment.
Alsalhi et al. (2019)	Investigate the effects of blended learning on ninth grade students' achievement in science	112 Students	Quantitative: Pretest/ Posttest Questionnaire	Students in the blended learning course had higher academic achievement and positive attitudes towards the achievement.

Studies Related to Middle School Reading

Author(s)	Purpose	Participants	Design	Outcomes
Flynn et al. (2012)	Review research focusing on middle school interventions for students identified as having reading disabilities	Ten studies	Qualitative: Meta-Analysis	Reading interventions did not significantly benefit middle school struggling readers in each study.
Babayigit (2019)	Investigate Sixth Graders' use of metacognitive reading strategies	388 Sixth Grade Students	Quantitative: Surveys Qualitative: Interviews	Students use pre- and post-metacognitive strategies more frequently than recall strategies.
Sukhram & Monda-Amaya (2017)	Examine the effects of oral repeated reading and corrective feedback on fluency and comprehension	60 Seventh Grade Students	Quantitative: Pretest/ Repeated Posttests	Students improved with the intervention whether they were given corrective feedback or not.
Itler (2019)	Compare the use of context clue strategy instruction and wide reading practices on vocabulary knowledge	44 Sixth Grade Students	Quantitative: Pretest/ Posttests	Vocabulary knowledge improved to higher levels with interventions than without interventions.

Lingo (2014)	Evaluate the effectiveness of a reading fluency supplementary instructional program	Four Sixth Grade Students	Quantitative: Pretest/ Posttest Student and Tutor Questionnaires	Middle schoolers' oral reading fluency improved. The program was successfully implemented by tutors.
Swanson et al. (2016)	Determine the efficacy of a content knowledge and reading comprehension intervention in middle school	78 Eighth Grade Students with Learning Difficulties	Quantitative: Multiple Pretests/ Posttest Qualitative: Observations	Students who received the intervention scored statistically higher in knowledge acquisition, content reading comprehension, and vocabulary recall than those students who did not receive the intervention.
Memis (2019)	Determine the levels of reading comprehension and morphological awareness in middle school students	1561 students in Fifth, Sixth, Seventh, and Eighth grade	Quantitative: Pretest/ Posttest	Students who had a higher level of morphological awareness scored higher in reading comprehension. Students who had a lower level of morphological awareness scored lower in reading comprehension.
Marchessault & Larwin (2014)	Research the effectiveness of read aloud as technique used in middle schools	160 Middle School Students	Quantitative: Pretest/ Posttest	The use of read-alouds as an intervention can positively impact students' gains in vocabulary and comprehension.

Studies Related to Multiple Elements of the Study

Author(s)	Purpose	Participants	Design	Outcomes
Fien et al. (2018)	Determine the effects of the implementation of a middle school reading intervention	25 Middle Schools	Quantitative: Pretest/ Posttest	No evidence of positive effects on 8th grade reading achievement
Bowers et al. (2105)	Examine the influence of the Student Success Skills intervention program on middle school students	201 8th Grade Students	Quantitative: Student Likert-scale Survey	Significant positive gains in academic achievement, executive functioning, and feelings of school connectedness.
Bippert (2019)	Analyze the perceptions of students, teachers, and administrators of a middle school intervention program	Four Middle School Students Two Middle School Teachers Two Middle School Administrators	Qualitative: Interviews Observations	Many contradictions exist between the perceptions of students, teachers, and administrators on the effectiveness of the intervention and the technology used.
Winter (2018)	Identify how student motivation and student performance are related in a middle school flipped learning course	35 Sixth Grade Students	Quantitative: Student Likert-scale Survey Cumulative Grades	Flipped learning motivates students and leads to student success in middle schools.

				Flipped learning allows for student success through differentiation.
Pace & Mellard (2016)	Evaluate the effects of a blended learning in an English/Language Arts Class	495 Sixth Grade Students	Quantitative: Pretest/posttest	No significant changes were found due exclusively to the intervention.
Roberts et al. (2015)	Estimate the impact of reading intervention on ratings of student attention over time	768 Fifth Grade Students	Quantitative: Pretest/ Posttest	Intensive reading intervention improved reading achievement over a three year period. Intensive reading intervention also improved behavioral attention in middle school struggling readers.
Fazal & Bryant (2019)	Investigate the effects of blended learning on the math achievement of sixth graders	413 Sixth Graders	Quantitative: Pretest/ Posttest	Blended learning was more effective in facilitating growth in math achievement than traditional learning.
Prescott et al. (2017)	Examine the implementation of a blended learning program for literacy instruction in elementary schools	641 Elementary Students	Quantitative: Pretest/ Posttest	Students who successfully completed the blended learning program online were more successful on standardized assessments than those students who did not participate in the blended learning program.

				Students showed greater gains in Kindergarten through second grade than students in third through fifth grade.

APPENDIX B

Institutional Review Board Approval

GEORGIA SOUTHERN UNIVERSITY
RESEARCH INTEGRITY

Institutional Review Board (IRB)
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To:	Snyder, Ashley Marie; Brinson, Paul
From:	Eleanor Haynes, Director, Research Integrity
Approval Date:	9/28/2020
Subject:	Institutional Review Board Exemption Determination - Limited Review

Your proposed research project numbered **H21079,** and titled **"The Impact of an Intensive Blended Learning Reading Intervention on Standardized Assessment Scores."** involves activities that do not require full approval by the Institutional Review Board (IRB) according to federal guidelines.

According to the Code of Federal Regulations Title 45 Part 46, your research protocol is determined to be exempt from full review under the following exemption category(s):

Exemption 4 Secondary research uses of identifiable private information or identifiable biospecimens, if at least one of the following criteria is met: The identifiable private information or identifiable biospecimens are publicly available; Information, which may include information about biospecimens, is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained directly or through identifiers linked to the subjects, the investigator does not contact the subjects, and the investigator will not re-identify subjects.

Any data use agreement or agreement change required by the data owner must be supplied to the IRB prior to execution for review. This approval is contingent upon researcher compliance with the conditions of the data use agreement (where required) and current institutional data security policy.

Any alteration in the terms or conditions of your involvement may alter this approval. *Therefore, as authorized in the Federal Policy for the Protection of Human Subjects, I am pleased to notify you that your research, as submitted, is exempt from IRB Review. No further action or IRB oversight is required, as long as the project remains the same. If you alter the project, it is your responsibility to notify the IRB and acquire a new determination of exemption. Because this project was determined to be exempt from further IRB oversight, this project does not require an expiration date.*