The Effects of a Mobile Book Lab on the Summer Reading Regression of Elementary At-risk Students at a Select School District in Upper East Tennessee

By

Tammy Markland

A dissertation submitted in partial fulfillment of the requirements for the degree of

Doctor of Education

Education Department

School of Social Sciences and Education

Milligan College, Tennessee

2019

Doctoral Committee:

Dr. Patrick Kariuki

Dr. Angela Hilton-Prillhart

Dr. Mark Dula

Copyright Page

Abstract

The purpose of this quantitative study was to determine the effects of a mobile book lab on summer reading regression for at-risk elementary students in a select school district in Upper East Tennessee. The sample consisted of 200 at-risk elementary students who were randomly selected for the study. Fifty males and 50 females who participated in the mobile book lab, and 50 males and 50 females who did not participate in the mobile book lab were randomly assigned to each group. Data were collected from AIMSweb universal screeners for second through fifth grade at-risk students at three elementary schools. The names of the second through fifth grade students who participated in the mobile book lab during the summer of 2018 were acquired from the director of the mobile book lab. These lists were then used to separate the students into two groups, at-risk students who participated in the mobile book lab program and those who did not participate. Oral reading and comprehension activity questionnaires were also completed weekly by all mobile book lab attendees. This study suggests at-risk students who participated in the mobile book lab experienced a lesser amount of summer reading regression in reading comprehension and fluency than those who did not participate. Gender was not a factor in the amount of summer reading regression experienced in reading comprehension and fluency for at-risk students who participated or did not participate in the mobile book lab.

Keywords: Achievement Gap, Advantaged Student, AIMSweb Universal Screener, At-risk Student, Summer Reading Regression, Mobile Book Lab, Multiple-choice Task (MAZE), Reading Curriculum-based Measurement (R-CBM)

Milligan College Dissertation Defense Approval Form

Candidate Name: Tammy Markland

Date of Defense: April 23, 2019

Dissertation Title: The Effects of a Mobile Book Lab on the Summer Reading Regression of Elementary At-risk Students at a Select School District in Upper East Tennessee

Final Approval of Dissertation Defense

A signature below indicates committee members agree with the following:

1) Agreement the dissertation meets with the committee's approval.
2) Agreement the oral defense of the dissertation was successful.

Patricia M. Kariuki — Dissertation Chair Signature — 4/23/19 — Date

[signature] — Dissertation Committee Member Signature — 4/23/19 — Date

Angela Hilton-Pritchard — Dissertation Committee Member Signature — 4/23/19 — Date

Other Required Signatures

Patricia M. Kariuki — Ed.D. Research Director Signature — 4/23/19 — Date

Angela Hilton-Pritchard — Area Chair of Education Signature — 4/23/19 — Date

Dedication

I wish to dedicate this dissertation to those in my life, who provided a constant stream of support and encouragement during this long process. Each of you had your own unique way of supporting the accomplishment of my goal.

Thank you to my doctoral study buddies, JoDee Dotson and Jan Zuehlke, for your constant reassurance and prodding. You pushed me to excel and made sure I met deadlines, whether they were self-imposed or program requirements. You answered every text, email and phone call with words of encouragement and support, even when I was falling apart and ready to quit. I would have never finished this dissertation in a timely manner, if it had not been for our many Dissertation Sundays in the library. You never stopped believing WE would become doctors. Thank you and congratulations to us!

Thank you to my children, Josh, Zac, and Shawnee for your patience and understanding every time I had to alter our family plans so I could study, conduct research, or work on my dissertation. Your love and comments of "I am proud of you Mom" mean more to me than you will ever know.

Last but never least, to my incredible husband, Kenny, thank you for supporting me every step of the way. You are my rock and my love. I treasure your wisdom, intellect, insight, and caring. Thank you for washing dishes, cooking meals, cleaning house, doing laundry, and running countless errands without hesitation so I could have time to work on my dissertation. Your willingness to read parts of my dissertation whenever I asked even though you said it was like "walking barefoot through glass" was a true measure of your love and support. You provided constant motivation for me to continue writing. Without your encouragement, this

would not have been possible. Thank you for the sacrifices you made in order to support my dream.

Acknowledgments

They say it takes a village to raise a child... I have come to the conclusion that, at least in my case, it took a village to write a dissertation. There are so many people for whom I owe a tremendous amount of gratitude for their encouragement and support on this academic journey. First, to my most important teacher, Jesus Christ who taught me through His word that "I can do all things through Christ who strengthens me." Philippians 4:13.

I was blessed to have a dissertation committee who values good teaching, discovery, and experiential learning, not to mention being dedicated, caring, Christian leaders, and professionals. Dr. Patrick Kariuki, Dr. Angela Hilton-Prillhart, and Dr. Mark Dula were incredible and helped me every step of the way. They were generous with their expertise and precious time. They provided amazing feedback and support during this process and helped me see what I was really trying to argue.

Thank you to Dr. Patrick Kariuki for your wisdom and vast knowledge of research methods. I will be forever grateful for the countless hours you spent reflecting, reading, and encouraging me with your expert feedback throughout this entire process. Dr. Angela Hilton-Prillhart, your kindness and knowledge of the literacy field provided a beacon of insight into my research. Dr. Mark Dula, thank you for providing thought-provoking feedback that forced me to dig deeper.

There could not have been a better advisor for Milligan's first Doctor of Education cohort, Dr. Lynn Howell. Thank you, Dr. Howell, for being my cheerleader and motivator. You are a true example of a Christian educator and Servant Leader.

I would like to acknowledge and thank my school district for allowing me to

conduct my research and providing any assistance requested. What our principals, supervisors, and board members do for our students and teachers is amazing. To be part of a school system that supports all students in so many ways is such a blessing. Dr. Corey Gardenhour deserves special thanks. He showed me how to make the impossible possible through his caring, thoughtful leadership. Thank you for supporting me and changing the lives of countless students and teachers. You are truly a transformational leader.

Many thanks to Dr. Myra Newman and Mr. John Hutchins who were always willing to answer my phone calls, texts, or emails even on nights and weekends. They were skilled and thorough in answering my questions and helping me locate much needed information.

Thank you to Mr. Chris Berry and Mr. John Wright for being such phenomenal mentors. Your transparency and willingness to let me experience leadership through your eyes was a lifechanging experience.

Thank you to Mrs. Anna Hurley for pushing me into applying for the doctoral program. You were the first to see me as doctoral material and pushed me outside my comfort zone. The mobile book lab team, Mrs. Carla Whiles and Dr. Brandi Maness, spent many long, hot, tiring, yet amazing hours with me and the participants of this study. Thank you for your passion for reading and desire to see all children become successful, lifelong readers.

Finally, a heartfelt thank you to Mrs. Tabitha Wandell. This research project would not have been possible without her vision. Several years ago, she envisioned a bus filled with books that would travel to the neighborhoods of her students and provide them with resources that could help curtail the summer slide. Her passion for ALL students to be successful and achieve to their fullest potential is unwavering.

For each of you, I am grateful.

TABLE OF CONTENTS

Page

LIST OF TABLES

Table Page

LIST OF FIGURES

Figure Page

CHAPTER 1

Introduction

For at least 30 years, researchers have been studying summer reading regression, the lapse in student's reading progress that can transpire during summer vacation when they are missing formal literacy instruction that is provided in the classroom (Allington & McGill-Franzen, 2003). The authenticity of summer reading regression is well recognized and is more prevalent among students from lower socioeconomic backgrounds who are already at-risk academically (Mraz & Rasinski, 2007).

The hardships of students' lower socioeconomic status put them in an underprivileged position. This deprivation often causes a lack of positive home environment and support which can result in student underachievement. Previous studies have identified the socioeconomic status of a student as a central element in their at-risk status. Whether at-risk is measured by the parent's occupation, level of education, or solely on income, students from low socioeconomic families are more likely to encounter failure in school compared to their more advantaged peers (National Center for Education Statistics, 2010). These disproportions begin before children enter school and expand during their academic career. Income-based gaps in reading achievement materialize more quickly for at-risk students during the summer months as compared to the school year (Kim, Cooc, & Quinn, 2013). Evidence suggests there is substantial effect on summer reading regression for these students (Mraz & Rasinski, 2007).

Equated with their peers, summer vacation, on average, creates a three-month gap in reading achievement for lower socioeconomic students (Allington, McGill-Franzen, Camilli, Williams, Graff, Zeig, Zmach, & Nowak, 2010). Other evidence indicates the same amount of summer reading regression occurs for struggling readers regardless of the socioeconomic status

of their family (Allington & McGill-Franzen, 2013). The broadening of income-related achievement disparities can partially be accredited to the deficit in literacy skills that at-risk students display during the summer months (Cooper, Nye, Charlton, Lindsay, & Greathouse, 1996).

Although there are many potential causes of summer reading regression, the importance placed on literacy in the home, time devoted to reading with children, and the accessibility and usage of reading materials has been acknowledged as important foundations in students' reading success (Snow, Burns, & Griffin, 1998). Recurring contact with print over a child's life span is a sound predictor of reading comprehension and verbal aptitude (Kim et al., 2013).

Unfortunately, research indicates that, on average, students spend very little time outside of school reading, about 10 minutes (Anderson, Wilson, & Fielding, 1988). Extensive practice is required to become competent at almost any activity, no matter if the activity is cognitive or physical in nature (Allington, 2009).

However, hope does exist, studies by Allington and McGill-Franzen (2013) on voluntary summer reading, suggest that summer reading regression can be reduced and even curtailed with a small investment by school districts. One way to do this is to provide easy access to books for at-risk students that are in their interest and independent reading level, or by adjusting existing summer school programs to significantly increase the amount of self-selected reading students do during summer school. This venture can enhance students' mindsets toward reading, the quantity of reading that they complete, their attainment of basic literacy skills, and their reading achievement.

Without instructional interventions, at-risk students experience summer reading regression. However, increasing the amount of time these students spend voluntarily reading,

results in added reading growth (Allington & McGill-Franzen, 2013). Reading books is a foundation, not merely an indicator, of proficiency in reading (Anderson et al., 1988). Krashen (2004) stated that by merely increasing the opportunities to read seemed to largely yield improved reading fluency and reading comprehension (Krashen, 2004). Extensive voluntary reading creates excessive levels of reading accuracy in addition to the capability to read aloud precisely and with expression (Allington, 2014).

Alexander, Entwisle, and Olson (2007) stated that more than 50% of the disparity in reading comprehension scores in ninth-grade reading between at-risk students and advantaged students was supported by differences in summer regression that accumulated from first to fifth grade. Given steady access to independent reading materials, coupled with the occasional scaffolding of reading instruction during the summer months of their primary school years, the academic success for at-risk students may parallel that of their more advantaged peers (Allington & McGill-Franzen, 2013).

According to Kim and White (2011), students who were given books to read during the summer but did not receive reading support had reading achievement gains from spring to fall that were no greater than their peers, even though the books corresponded to their interests and reading levels. However, students who were provided with books and fluency and comprehension scaffolding made considerably greater gains from spring to fall (Kim & White, 2011).

The voluntary reading of books may result in greater academic benefits when students are engaged in independent reading practice and oral reading of the text with family (Shanahan, 2004). Barker (2003) stated, reading aloud from children's books creates cognitive and emotional benefits for elementary students. Voluntary reading can be considered a solitary and

social activity intended for recreation and to nurture learning. Students at-risk for summer regression may need support to assure that they actually read the books they select in approaches that are probable to build decoding skills, fluency, and comprehension (Kim, 2006).

Parker and Reid's case study (2017) noted that parents felt empowered to support their children's reading skills during the summer when teachers acted as facilitators. This created a culture of teamwork and nurtured a summer leap. The students experienced gains in their reading levels or at least sustained their achievement from the previous school year. Involving parents as situationally positioned educators may avert summer reading regression and the need for the beginning of the year reteaching (Parker & Reid, 2017).

Statement of the Problem

Access to independent reading materials has been constantly identified as an essential component in improving the reading development of children. Without exposure to rich texts throughout the summer, many students fall behind academically (Cullinan, 2000). Of all the extracurricular activities in which children participate, the time they spend reading is the most accurate forecaster of reading achievement. Students that read more, become better readers (Anderson et al., 1988, p. 294). However, all too often, at-risk readers are offered little or no chance outside of the classroom to improve upon their reading ability (Coats & Taylor-Clark, 2001). Children from low socioeconomic families have a narrow selection of books available to them in their homes and communities (McQuillan, 1998).

In order, to reduce summer reading regression, it is imperative that a variety of books be made available on a recurring basis to at-risk students during the summer months (Blanton, 2015). Therefore, it is essential to examine the effects of a mobile book lab on the summer reading regression of elementary at-risk students. Kim and White (2011) suggest that continuing

to scaffold reading for at-risk children during the summer might produce even more positive results on their reading achievement.

Purpose of the Study

The purpose of this quantitative study was to determine the effects a mobile book lab, where teachers maintain literacy routines for the children and provide parents with ways to support their children's literacy development, had on summer reading regression for at-risk elementary students.

Research Questions

Four important research questions arise to address the purpose of this study:

1. Is there a significant difference in reading comprehension between at-risk students who participated in the mobile book lab program and at-risk students who did not participate?
2. Is there a significant difference in reading fluency between at-risk students who participated in the mobile book lab program and at-risk students who did not participate?
3. Is there a significant difference in reading comprehension between at-risk female and male students who participated in the mobile book lab program and at-risk female and male students who did not participate?
4. Is there a significant difference in reading fluency between at-risk female and male students who participated in the mobile book lab program and at-risk female and male students who did not participate?

Significance of the Study

Children, especially those who are at-risk academically, must have access to books to read over the summer. Children who are at risk for summer reading loss may need support to guarantee that they read the books they are given and that they do so in ways that are likely to

build decoding skills, fluency, and comprehension. Summer reading programs should be easy to put into operation and be low-cost. Kim and White (2011) observed that children who received books coupled with fluency and comprehension support made considerably greater spring-to-fall gains.

Sending students home with a bag of books at the end of the school year, may not be enough. Replacement books that match their individual interests and reading levels must be available to them throughout the summer months (Kim & White, 2011). At-risk children need teacher and parent scaffolding that boosts thorough comprehension and fluency exercises to achieve the greatest academic benefits (White & Kim, 2008). Expressing to parents the importance of reading to their children is not sufficient. Parents, especially parents of lower socioeconomic-status, need to be offered tangible, specific ideas on how to engage their children in family literacy, and they should be supported in their efforts (Mraz & Rasinski, 2007).

Bridging the gap starts by ensuring that all students have access to books. At-risk children from families with a lower-income are not as likely to accumulate a large personal book collection. For these same families, oftentimes public libraries are not a consistent option due to the lack of reliable transportation. The solution is to bring books to students (Alexander, Pitcock, & Boulay, 2016). Boosting children's access to books has been proven to dramatically affect their reading growth and achievement levels in a positive way (Lindsay, 2013). Typically, students from low-income families have limited access to books. By altering this situation to improve their access to books, their reaching achievement also improves (Allington, 2014).

Definition of the Terms

The following definition of terms ensures understanding and uniformity throughout the study. Definitions without a citation were developed by the researcher.

Achievement gap: a substantial and lingering discrepancy in the academic performance between different groups of students, such as those from low and high socioeconomic status families (Carpenter, Ramirez, & Severn, 2006).

Advantaged student: students or groups of students who have a high probability of experiencing success in school due to their middle or upper socioeconomic status (National Center for Education Statistics, 1992).

AIMSweb universal screener: a process in which students are benchmarked three times per school year using standardized assessment forms developed by Pearson. These scores are compared to recognized cut scores and national norms. The results help educators identify at-risk students, gage their progress, project annual growth, and serve as a tool for school system improvement (Pearson, 2018).

At-risk student: students or groups of students who have a high probability of experiencing school failure due to their low socioeconomic status (National Center for Education Statistics, 1992).

Summer reading regression: the lapse in student's reading progress that can transpire during summer vacation when children are missing formal literacy instruction that is provided in the classroom (Allington & McGill-Franzen, 2003).

Mobile Book Lab: a library housed in a bus that travels to various locations to distribute books.

Multiple-Choice Cloze Task (MAZE): a multiple-choice test completed by students during silent reading. The first sentence of the passage is intact. Every seventh word is replaced with three words in parenthesis. The student chooses the one word that best fits in the passage. In three minutes, the student must answer as many questions possible (Pearson, 2018).

Reading Curriculum-Based Measurement (R-CBM): a fluency test read aloud by students. They have one minute to read a passage. There are scored based on the number of correct words read and the number of errors (Pearson, 2018).

Limitations and Delimitations of the Study

The research being conducted is based on a very specific demographic in one small school district in Upper East Tennessee which might not transfer to another situation. An affecting variable for the Mobile Lab group might be the parents pushing their children to read or untruthful responses on the questionnaire due to participation in the study.

Organization of the Study

Chapter 1 contains the introduction, statement of the problem, the purpose of the study, the research questions, significance of the study, definition of terms, and the study limitations and delimitations. Chapter 2 presents the review of related literature and research that focuses on the value of summer reading, why summer reading regression occurs, reading programs, literacy engagement, reading strategies, reading comprehension and fluency, and how summer loss effects student reading achievement. The methodology and procedures used to collect data are communicated in Chapter 3. Chapter 4 provides results for the analysis of data and the study findings. Chapter 5 encompasses a summary of the study and its findings, the resulting conclusions, a discussion, and future study recommendations.

CHAPTER 2

Review of Literature

Literacy is an important contributing factor in becoming a productive and successful member of society. However, summer break often hinders student learning, especially for students from low socioeconomic households (Cahill, Horvath, McGill-Franzen, & Allington, 2013). For the past three decades, educational researchers have developed a growing consensus that summer break plays a significant role in the reading achievement gap between at-risk and advantaged students in the United States (Allington & McGill-Franzen, 2013). Schools in both low socioeconomic, at-risk, and middle-class, advantaged, neighborhoods are equally effective in terms of student's school year reading achievement (Duncan & Murnane, 2011).

A review of 13 studies involving 40,000 students found that on average, the reading proficiency levels of students from at-risk backgrounds dwindled during summer break, while their more advantaged peers saw modest improvement. This decline, in one school year, accounted for approximately a three-month achievement gap between at-risk and advantaged students. For students in grades one through six, this achievement gap has the potential to multiply to 1.5 years' worth of reading loss during summer break alone (Cooper et al., 1996).

Borman and D'Agostino (1996), when reviewing reading achievement gains in Title I reading programs, found the students' gains in reading were substantially higher when they were in school reading classes, fall to spring, as opposed to spring to spring when the summer break months were considered. In other studies of at-risk and advantaged students, the reading achievement gap during the school year between the two groups remained high. However, by the end of sixth grade, the achievement gap between at-risk and advantaged students had increased to an approximate difference of three years (Entwisle, Alexander, & Olson, 1997).

Heyns (1987) examined 3,000 students over two years and discovered that the top quartile of students swiftly made gains during the school year and continued to grow during summer break albeit at a slower rate. For average students, their reading achievement remained steady or decreased slightly during summer break. In comparison, the reading achievement gains for the bottom quartile of students was slower during the school year and exhibited a significant loss of those gains over summer break. Nearly 80% of the difference in reading achievement between advantaged and at-risk students can be attributed to summer reading loss (Hayes & Grether, 1983).

Summer Reading Regression

Summer reading regression is the drop in children's reading development that occurs during summer break when children are not in school and don't participate in any type of formal literacy program (Allington & McGill-Franzen, 2003). Summer reading regression is well documented and more prevalent among students from low socioeconomic families that are already at risk for failure academically (Allington & McGill-Franzen, 2003). Children from at-risk families typically lose two to three months of proficiency in reading during summer break (Cooper et al., 1996). Summer reading regression also occurs for struggling readers regardless of their socioeconomic status. The loss in reading achievement during summer break accumulates over time and can account for most of the gap between at-risk and advantaged students (Duncan & Murnane, 2011).

Summer reading regression can have a significant impact on a student's reading achievement (Allington & McGill-Franzen, 2013). If you compute score gains by season, summer versus winter, the data imply that during the school year, all students, regardless of their economic status, progress at roughly the same rate. However, there is a clear inverse relationship

between summer achievement rates and the socioeconomic status of the students. The rates vary significantly only during the summer. The pace of academic growth for at-risk students slows during the summer for students of families with low socioeconomic status. Economically advantaged students are more likely to travel to distant places, take their children to libraries and museums, and spend more time reading (Entwisle et al., 1997). Socioeconomically advantaged parents have the resources to purchase computers, reading games, and age-appropriate books for their children. They model reading as a form of enjoyment and often engage their children in conversations practicing extensive vocabulary (Baker, Gersten, & Keating, 2000).

The long-term effects of summer reading regression can be profound. Numerous theorists have investigated children's procurement of learning. It was established by Neuman and Celano (2001), that a child's intellect depends on their micro and macro environment systems. Constructivists recognize that a child's knowledge is built from their experiences. This results in the literacy development of a child through exposure to print over time. If this exposure does not occur, a child's ability to decode, understand, and reply to text will suffer (Pacquette & Ryan, 2000).

The reading achievement rates of some students appear to slow down or even decrease during summer break. While for others, summer break has a nominal or even positive influence on their reading achievement rates. Hayes and Grether (1983) were possibly the first researchers to formally acknowledge the differential impact summer break has on students of varied socioeconomic backgrounds. They performed an analysis of word and reading achievement scores for 370,000 students, attending 600 New York City schools, in second through sixth grade during the summer and school year. They discovered overall gains in vocabulary and reading achievement during summer break for the entire group. However, when the data was

disaggregated, the schools serving at-risk students showed a decrease in reading and vocabulary achievement while schools serving more advantaged students showed gains. Hayes and Grether (1983) felt validated in concluding that "in short, very little of the enormous difference in word knowledge performance appears to be attributable to what goes on in school; most of it comes from out of school… and can be accounted for by the differential effect of summer vacations." (p.64).

Probably the best-known study of seasonal differences and the one that explained a conceptual framework for studying seasonal differences in learning comes from Barbara Heyns (1978). She compared student's academic growth during summer break, when schools are closed, to fall and winter, when schools are open. In doing so, she was able to separate the influences of a student's home background from the influence of school. During the school year, a student's home and school environment can affect a student's growth. However, during the summer, only a student's home environment can affect their growth. By studying the scores of several thousand sixth and seventh grade students in Atlanta, Heyns (1978) found their rates of gains made during the school year surpassed those made during the summer. The students' summer gains were also related inversely to their socioeconomic status. She determined that family income was vastly related to a student's summer academic losses or gains than it was to losses or gains during the school year (Allington & McGill-Franzen, 2013). Heyns's (1978) summer learning study in Atlanta discovered the reading gap between at-risk and advantaged students widened disproportionately during the months when schools were not in session.

Almost two decades later, a Baltimore school study by Entwisle et al. (1997) attained a conclusion extraordinarily similar to Heynes's (1978). They used the metaphor of a faucet to describe this phenomenon (Allington & McGill-Franzen, 2013). Their "faucet theory" states that

when school is in session, the faucet is turned on and all students reap roughly the same benefits. However, during summer vacation, when the faucet is turned off, reading growth for the advantaged students continues to develop, but similar growth is not evident for at-risk students (Allington et al., 2010).

A combination of research on summer learning loss by Cooper et al. (1996) exposed that advantaged students showed summer reading gains, whereas their at-risk counterparts lost ground. They reviewed 39 studies on summer reading loss, combining 13 of the most recent studies using meta-analytic measures. The meta-analysis signified that summer reading regression equated to one-tenth of a standard deviation on spring test scores, or one month on the grade equivalent scale. At-risk students seemed to lose ground on grade level equivalent reading tests over the summer while advantaged students showed gains. These findings suggest that the difference in opportunities to practice reading and learn over the summer are susceptible to academic decline. Cooper et al. (1996) concluded that on average summer break accounted for a reading gap of approximately three months between at-risk and advantaged students.

Longitudinal studies have continued to illustrate that reading achievement gaps based on student's socioeconomic status increase during summer vacation as opposed to during the school year (Alexander et al., 2007). The research by Alexander et al. (2007) established that when summer learning is grounded in community and family influences, the reading achievement gap widens across social lines. However, schooling can counterbalance those community and family influences. Entwisle et al. (1997) examined the impact of family socioeconomic level on long term educational consequences of differences in summer learning. They disintegrated achievement scores from high school freshmen back to first grade using data from the Baltimore Beginning School Study youth panel. They found that the increasing gains in achievement over

the first nine years of a students' academic career mainly reflect what is learned during the school year. Whereas the advantaged versus at-risk students' achievement gap at the ninth-grade level can be traced back to differences in summer learning over the course of their elementary schooling. These early disparities in summer learning are significant for the achievement related differences created by the socioeconomic status of families in relation to high school track placements, noncompletion of high school, and college attendance (Alexander et al., 2007).

According to reproductionist theorists, schooling plays a crucial role in replicating and intensifying existing disparities in achievement. However, seasonal comparison research has presented evidence that gaps in reading skills increase primarily during summer break. This suggests that factors outside of the school setting, such as family and community, are the chief cause of this inequality. Downey, von Hippel, and Broh (2004) analyzed the Early Childhood Longitudinal Study Kindergarten Cohort of 1998 - 1999 data to investigate socioeconomic gaps in achievement during the school year versus summer break. They examined the inequality in learning associated with socioeconomic status. This unexplained inequality equates to more than 90% of the total inequality in achievement rates. Low socioeconomic children showed 2.5 months more reading regression compared to their more advantaged peers during the summer months between kindergarten and first grade. The achievement gap grew at a faster rate during the summer break as opposed to during the school year. Therefore, the results suggest that schools function as great equalizers (Downey et al., 2004). These findings mimic those found in the meta-analysis by Cooper et al. (1996).

The reading achievement gap between at-risk and advantaged students is considerable and persistent. The National Assessment of Educational Progress in Reading points to solid evidence of the prevalent nature of this apparently troublesome problem (Perie, Grigg, &

Donahue, 2005). For advantaged fourth grade students, 77% scored above the basic level of proficiency. Whereas only 46% of at-risk students achieved this moderate level of reading proficiency. This 27-point gap is significant and consistent even with the advent of the No Child Left Behind Act of 2001 that was aimed at closing the achievement gap (Gamse, Jacob, Horst, Boulay, & Unlu, 2008). The failure of federal education initiatives in closing the reading achievement gap may come from the failure to focus attention on summer reading regression. Summer reading regression is a deep-rooted fact (Alexander et al., 2007; Allington & McGill-Franzen, 2003; Cooper et al., 1996; Entwisle, et al., 1997).

The larger issue of the existing achievement gap between at-risk and advantaged students overshadows the debate of whether at-risk student's reading proficiency simply does not increase during the summer months or whether it declines. This is irrelevant because in both cases summer break seems to consistently generate differences in reading achievement between at-risk and advantaged students. These small differences increase over time. Using reading achievement data from New York City public schools, Hayes and Grether (1983) projected that as much as 80% of the difference that existed in reading achievement between sixth grade at-risk and advantaged students could be attributed to summer reading regression. Alexander et al. (2007) reported similar findings for ninth graders. Each of these studies suggest that the existing reading achievement gap between at-risk and advantaged children is impacted by the major contributing factor of summer reading regression (Allington et al., 2010). Clearly, the need for continuous improvement in reading and literacy throughout the summer months cannot be overemphasized (Pacquette & Ryan, 2000).

Values of Summer Reading

Children read for themselves to find out about the world, discover who they are, and to grow and mature as people (Cahill et al., 2013). Summer reading ensures that reading is a practice that all children possess. The time that a child spends actually reading is the greatest forecaster of reading achievement of all the activities engaged in by children outside of the school setting. Students will become better readers by reading more (Allington, 2006; Anderson et al., 1988).

Barbara Heyns (1978) conducted a research study 40 years ago, that demonstrated, reading during the summer was the only summer activity that was consistently correlated to improving reading achievement. Her research focused on the activity of reading during the summer, or the lack of it, as a major source of summer reading regression. After gathering an array of data on student's summer break experiences, she found that a larger percentage of the difference on a standardized test of word recognition stemmed from the frequency they used the library and the amount of daily independent reading time as opposed to other recreational and summer enrichment activities (Heyns, 1978).

An analysis completed by Kim (2004) of a school district-sponsored voluntary summer reading program for sixth graders, he wanted to see if reading books in the summer improved student's reading proficiency in the fall and if access to books would increase the amount of summer reading. Kim's (2004) multivariate regression analyses results proposed the effect of reading four to five books on fall reading scores is possibly great enough to avoid a decline in student's reading achievement scores from spring to fall. Additionally, children who stated they had easy access to books also read more books. His findings implied that reading a small number of books during summer break can curtail students' reading achievement loss. Reading

during summer break is crucial to sustaining school year academic success for all students (Cahill et al., 2013). Focusing on summer reading activity is a proven strategy for narrowing the reading achievement gap (Neumand & Celano, 2001).

Why Summer Reading Regression Occurs

Students who are poor readers are offered very little if any, time outside of the classroom to develop their reading proficiency (Coats & Taylor-Clark, 2001). Research indicates that, on average, students spend about 10 minutes reading outside of school (Anderson et al., 1988).

Family involvement in the literacy experiences of their children is needed and valued, especially when trying to increase their literacy experiences during summer break. Parents who are unaware of the benefits of reading to their children and who are struggling readers themselves are barriers to children when it comes to reading at home. On average, students from at-risk families experience a lesser amount of reading achievement growth during the summer months than their peers from more advantaged families (Neuman et al., 1998).

Educators strive to create an effective climate for family literacy programs and to prompt significant participation by the family in these programs (Neuman, Caperelli, & Kee, 1998). Schools often suggest books to read during the summer, provide summer book lists, or offer summer reading intervention programs to curtail the lack of consistent access to reading materials during the time school is not in session (Mraz & Rasinski, 2007). During the summer months when formal reading instruction is not part of all students' activities, teachers can offer suggestions to assist families in supporting their children's reading development (Mraz & Rasinski, 2007).

It has been consistently demonstrated by research that at-risk students read significantly less during the summer than advantaged students. According to research, one of the primary

reasons at-risk students do not read during summer break is due to their restricted access to books in their schools, homes, and neighborhoods. This results in less voluntary reading. More affluent communities often have a 3:1 ratio of stores selling children's books compared to poorer communities (Neuman & Celano, 2001).

Reading Programs

Summer School

Historically, school districts have tried to avert summer reading regression with summer school programs (Cooper, Charlton, Valentine, Muhlenbruck, & Borman, 2000). Since almost every U.S. school district is facing a dwindling budget, this approach is just not practical. Many districts have already been pushed to eliminate expensive summer school programs because of facilities cost and significant personnel costs (Cooper et al., 2000). Moreover, research shows that although summer school can improve overall reading achievement, it actually increases the gap between advantaged and at-risk students (Cooper et al., 2000).

The design of any summer school program is a crucial element in addressing summer reading regression (Cahill, Horvath, McGill-Franzen, & Allington, 2013). Summer school programs that are not designed in a thoughtful, informed manner, result in a program of worksheets that do nothing to promote improved reading habits of children (Cahill et al., 2013). This can result in students starting the new school year that are even more detached from reading (Cahill et al., 2013). Schools are often quick to fund packages and computer programs that are easy to implement and offer quick results. The teaching in these programs is often structured on models of authority and submission that promote passive, compliant children instead of independent thinkers and children who want to succeed and grow (Cahill et al., 2013).

It is common practice in school districts to assign struggling readers, who have not attained the desired level of achievement during the school year, to summer school (Cahill et al., 2013). This results in summer school often being viewed as a punishment. Art and physical activities consume a large amount of time during summer school programs which do not allow enough time for authentic reading even with the best intentions (Cahill et al., 2013).

However, Shin and Krashen (2008) identified summer school programs that drastically increased the amount of time children spent engaged in reading self-selected books. This coupled with peer discussions about what they were reading produced significant gains when compared with children who participated in traditional summer school activities. Social interaction centered around books can come into play even during the summer months when children are able to borrow, trade or exchange books, and talk about books with others (Cahill et al., 2013). Gambrel, Hughes, Calvert, Malloy, and Igo (2011), noted that authentic literacy tasks possess the ability to maintain motivation in literacy.

Year-Round Supplemental Programming

Once in school, at-risk students need additional year-round programming to offset the continuing influence of family and community conditions that confine them (Chin & Phillips, 2004). The elementary school curriculum is often reinforced at home by parents working with their children on their letters, numbers, and reading skills (Chin & Phillips, 2004). Parents of advantaged students usually did well in school themselves. They recognize the skills and behaviors expected and demonstrate them in their family life (Chin & Phillips, 2004). On the contrary, parents of at-risk students often struggled themselves in school and have lower literacy levels (Chin & Phillips, 2004). This often results in difficulties in fostering educational skills in their own children. Parents of low socioeconomic status usually desire the same kinds of

enriching experiences for their children as parents of higher status, however, they often lack the resources needed to provide them (Chin & Phillips, 2004).

Bookmobile

America has a lengthy and abundant history with bookmobiles (Wood, 1988). They historically and currently are mostly an addition to the services offered by public libraries (Wood, 1988). Bookmobiles date back to the late 1850s when horse-drawn carriages with collections of books began making their rounds in Cumbria, England (Amundsen & Wilson, 2012). Historians think the first American bookmobiles were horse-drawn wagons that circulated books in Washington County, Maryland in 1905 (Garber, 2012). Dr. Derek Attig argues that the idea for bookmobiles began even earlier. In the 1890s, clubwomen in Kansas began shipping boxes of books by train from Topeka to the western, rural parts of the state. These less populated areas did not have libraries. Therefore, they had little access to books. This progressive club of women thought it was a waste that so many books in the state library were not being read or used. Their answer was a wider distribution of the books, thus effectively using government resources (Garber, 2012).

Bookmobiles were also part of a renewal project in Taos, New Mexico that brought irrigation, healthcare, and standardized American education to the mostly Latino residents. In the Appalachian Mountains of Kentucky where trails were too rough for motorized vehicles to pass, local women delivered books with a packhorse to the most remote of areas (Garber, 2012).

During the World War II era, bookmobiles were still active throughout the U.S. They served men training on military bases, people working at munitions plants, as well as civilians. The bookmobiles would display maps so patrons could locate a loved one who was fighting overseas. The books provided by the bookmobiles offered an escape from the pressures of

wartime as well as practical information like Victory gardening and foreign culture history. Books also followed troops as they moved overseas in the Pacific and across Europe. A bookmobile on the Western Front was simply a Jeep loaded with books (Garber, 2012).

A growing infrastructure, made possible through the New Deal's mass public works projects, helped to make bookmobiles more widespread and viable. Bookmobiles were actually part of the New Deal. They created an acceptable way to employ more women (Garber, 2012).

The 1950s and 60s saw bookmobiles reach the height of their iconic power. Suburbs were growing fast and bookmobiles provided a way for more people to be able to access information. Local governments relished the idea of people coming together and joining in a unified, homogenized culture. Bookmobiles helped promote this idea (Garber, 2012).

Bookmobiles are still going strong today. More than 900 mobile libraries are providing the same community spirit with innovative services in rural areas, towns, and cities across the country (Amundsen & Wilson, 2012). Bookmobiles have recently expanded their service to include DVDs, video games, e-readers, computers, and internet workstations. New programs such as career readiness, storytime, and even English language classes are now being offered (Amundsen & Wilson, 2012). They provide everything from crafting materials to free Wi-Fi to patrons across all parts of the U.S. Not to mention, being essential sources of information during times of natural disasters (Garber, 2012). Bookmobiles provide the opportunity for public libraries to offer their patrons in surrounding areas, as well as those who can't easily travel, a quality service that would otherwise not be available to them (Wood, 1988).

Literacy Engagement

Student Choice

In terms of literacy engagement, providing students with choice reflects a sense of urgency. For a student, it is not about just choosing whether to read or not but choosing what they want to read that empowers students' lives. Therefore, reading becomes not something that is thrust upon them but a desired choice. Having a teacher or parent act as an enforcer of summer reading will not bring about this result. Students need to recognize that reading is a positive life choice they can make (Cahill et al., 2013).

Allowing children to select their own text is extremely important in engaging them with voluntary reading during summer break. Guthrie and Humenick's (2004) meta-analysis found that when students had increased assess to texts they found interesting and were allowed to self-select that text, it had a positive effect on their reading comprehension. This effect was ten times greater than was reported by the National Reading Panel (2001) on reading comprehension that provided explicit phonics instruction.

It is not just about choice or the number of books read that is important. In order to maximize the possibility of voluntarily reading during summer break, the quantity of books that students can choose from must be diverse enough to reach a wide range of reading and interest levels (Cahill et al., 2013).

Twenty-two studies that were designed to improve reading outcomes were evaluated by Guthrie and Humenick (2004). They found that the two largest contributors to motivation and reading achievement of children were student choice and access to interesting books. These two factors propelled reading achievement ahead more than one standard deviation (effect size [ES]

≥ 1.0). This resulted in a student being moved from the 16th percentile to above the 50th percentile on reading comprehension standardized tests (Guthrie & Humenick, 2004).

Lindsay (2013) analyzed book distribution projects such as Reading is Fundamental (RIF) and noted that programs that were designed to simply improve students' access to interesting books, even though they didn't offer any additional support, had a powerful effect in fostering the students' development and motivation to read and to develop (ES = 0.44). Programs like RIF that gives books to students, as opposed to lending them, helps them improve their reading achievement. Lindsay looked at over 100 students that met the criteria for scientific rigor. After synthesizing those results, he identified that book giveaways produce five positive behavioral outcomes in students; motivation to read, the quantity of books read, improved attitudes toward reading, increased emergent literacy skills, and improved performance in reading achievement. As noted by Lindsay (2013), studies in which students were given choices of materials to read produced a significantly larger effect on reading achievement as opposed to those studies in which children were given no choice. The reading gains for children that were afforded the opportunity to choose books were almost twice of those for children who had their books chosen by someone else. For book distribution projects to be effective, they must have a large number of quality materials, teacher or parents must offer encouragement and guidance, and other literacy activities must be included (Lindsay, 2013).

Positive reading behaviors will follow if books are put in student's hands. This act alone lays a strong foundation for reading during the summer. This does not mean any book, but books that student's want to and are capable of reading (Cahill et al., 2013).

When students are given the choice of books to read, Lindsay (2010) found that the effect size on reading achievement was d = .766. However, when students were not allowed to choose

the books to read, the effect size was substantially smaller d = .402. The effects on reading achievement were almost two times as large when students were provided access to books in the summer and allowed to choose what they wanted to read versus access without choice (Allington & McGill-Frazen, 2013).

The difficulty of the text is only one factor to be considered. If you want to enhance student's motivation to read independently, they must have the opportunity to read books they find interesting (Guthrie & Humenick, 2004). To encourage voluntary reading outside of school, we must provide students with books that are appropriately challenging, match their reading levels, and are of interest to them (Morrow, 2002).

The power of self-selecting books to read cannot be underestimated. Researchers have found when students could make their own learning choices, they had increased task engagement (Deci & Ryan, 1985). When children are allowed to choose their own reading materials, they can feel empowered resulting in increased participating in voluntary reading (Hunter, 2001). Conversely, if students are not allowed to choose what they read, they may not actually read the book, or even pretend to read the book without any attentiveness (Allington & McGill-Franzen, 2013). The best way to motivate students to read is to permit them to read books they find of interest (Kim & White, 2011).

As stated by the National Center for Education Statistics (2010), successful readers are those that simply read more. Affording students, especially those that struggle in reading, with an active role in selecting books, affects their likelihood of reading longer and more frequently (Worthy, Morrman, & Turner, 1999).

Home Support

In order to provide their students with access to books during the summer months, some parents have plans for their children that include enrichment activities and trips to the local public library or bookstore. While other families do not have the resources to purchase books or get their students to the library. For summer reading to be successful, it requires support. Adding to this sense of urgency is the realization that the reading achievement gap may be broadening as family resources dwindle and many are unable to financially invest in these extras for their children (Cahill et al., 2013). Parental income has surpassed race as a factor of student reading achievement and now equals parental education as a predictor (Reardon, 2011).

Home support for literacy development is viewed by educators as issues surrounding access to books in the home. Eighty-three families of preschool children were studied by Dickinson and DeTemple (1998) for literacy support, reading to their child, trips to the library, number of book and other print resources in the home. They found a positive correlation between support for literacy in the home and their children's literacy achievement in first grade. Home support also played a significant role as a predictor of story comprehension and vocabulary performance for children in kindergarten. Children, coming to school for the first time, from a home where many books were available, do well in school despite other factors such as the education level of parents (Cahill et al., 2013). By simply providing books in students' ability level and interests, the reading performance significantly improves for most students. There is potential for an even greater amount of growth with the addition of parental support and teacher scaffolding (White & Kim, 2008).

Access to Books

With the end of the school year, comes the end of access to books for many students. The families of many at-risk students often have few printed materials in the home such as books, magazines, and newspapers (Cahill et al., 2013). The absence of a print-rich home environment enhances the belief that reading is exclusively a school activity. By not ensuring that all students have access to books during the summer, we may be setting them up for failure before the school year even begins. Public libraries often have summer programs with reading incentives and socialization focusing on books, but many at-risk students are not able to get to or use those libraries (Cahill et al., 2013).

Over the years, bookmobile programs that have been successful in providing access to books for underserved communities have declined recently due to the lack of funding (Andrews, 2012). This lack of access extends into the rural setting where resources such as libraries and access to online materials can be scarce (Malhoit, 2005). Resources that support student's educational achievement and literacy development, like books in the home, are affected by the family's income (Cooper et al., 1996).

A different relationship and effect are created when you put books in student's hands (Cahill et al., 2013). Providing at-risk students with books may be the most vital thing a school can do: "Because many of these families cannot afford to purchase children's books, it becomes all the more important to make (books)…easily and readily available within disadvantaged communities" (Helle, Kurtz-Costes, & Mahoney, 1997, p. 535).

According to a study by Fryer and Levitt (2002), less affluent families had two to three times fewer books in their home compared to their more affluent counterparts. This gap in ownership of books accurately predicted their children's reading achievement in kindergarten

and first grade (Fryer & Levitt, 2002). To interrupt this cycle of low achievement in school, we must provide resources that have an impact, books for summer reading (Cahill et al., 2013). Distributing magazines and books to children, either through a lending program or give-away, improves their thoughts toward reading, the amount of time they spend reading, their achievement of basic literacy skills, and their overall reading performance (Allington & McGill-Franzen, 2013).

The study by Allington et al. (2010) provides the best proof to date that safeguarding continued and easy access to self-selected books for reading during the summer is one approach for curtailing summer reading regression and tackling the gap in reading achievement that exists between at-risk and advantaged students (Allington, et al., 2010). Easily offering students books they can and want to read seems to merit a vital role in determining the best way to address the problem of summer reading regression. Children who grow up in homes with numerous books acquire three more years of schooling than children from bookless homes despite parental education, parental occupations, or social class. The advantage of books in the home is two times as great as the difference between a child that has a professional father versus an unskilled laborer father. Having easy access to books in the home equals the impact of children who have university educated parents as opposed to unschooled parents (Evans, Kelley, Sikora, & Treiman, 2010).

Access to books and voluntary reading play a crucial role in encouraging reading achievement outside of school (Cunningham & Stanovich, 1998; Entwisle et al., 1997; Heyns, 1978). Entwisle et al. (1997) suggested that programs designed to increase students' access to books may keep the faucet of learning open during summer break when schools are closed. Voluntary reading interventions in which students receive free books and are inspired to read at

home may signify a viable strategy for encouraging reading achievement during the summer. At-risk students who live in homes that have few books benefit the most from summer projects that can provide them access to books (Cahill et al., 2013).

Distributing books during summer break can reduce summer reading regression and improve reading achievement among at-risk students (Allington et al., 2010; Kim, 2004, 2006; Kim & Guryan, 2010; Kim & White, 2008). Even making only a small number of books available to students in the summer will lead to most student's voluntary engagement in reading (Allington et al., 2010; Kim, 2004, 2006; Kim & Guryan, 2010; Kim & White, 2008). This results in their summer reading regression being kept to a minimum (Allington et al., 2010; Lindsay, 2013).

Ignoring the substantial differences that are created by student's access to books, fulfills the long, sad prophecy of low socioeconomic students being struggling readers (Allington & McGill-Franzen, 2013). Summer reading regression can be curtailed with a modest investment by school districts such as providing free books that the students are interested in reading and that are in their reading level (Allington & McGill-Franzen, 2013). Heyns (1978) suggested one way to reduce this problem is to provide low socioeconomic students with improved access to books and increased opportunities to read while supporting them in practicing their reading skills during the summer months (White & Kim, 2008). When compared to the costs of many popular reading intervention programs, providing at-risk students with a rich, engaging supply of books is inexpensive (Allington & McGill-Franzen, 2013). The United States is wealthy enough to guarantee that every child who wants to read a book can have a book to read any day of the week, without regard as to whether school is in session (White & Kim, 2008).

The research of Allington and McGill-Franzen (2013) has shown that the simple act of providing books that are well matched to students interests and reading levels will improve their reading achievement. In fact, it can basically eliminate summer reading regression, thus reducing the reading achievement gap between at-risk and advantaged students (Allington & McGill-Franzen, 2013).

Reading Strategies

Strategies help students persevere despite the difficulties encountered when reading. By providing them with strategies during the school year, the teacher can equip students with the tools necessary to tackle difficulties and deepen their reading comprehension as they read books in which they are interested (Cahill et al., 2013). Duke, Pearson, Strachan, and Billman (2011) contend reading comprehension instruction may be an important scaffold to summer reading. In a summer books intervention study, White and Kim (2008), prior to summer break, supplied at-risk students in grades three through five with free books, oral reading, and comprehension scaffolding. The researchers developed the scaffolding procedures intended to boost the success of their voluntary summer reading project that the teachers would implement during the last three days of the school year. The lessons the teachers provided included modeling and making sure the students understood the five comprehension strategies: rereading, summarizing, questioning, making connections, and predicting so students could use them independently during summer break. The students were also provided with 100-word passages for oral reading practice (White & Kim, 2008). Students in this summer book study saw a significant improvement in their reading achievement.

Students need to be given the tools to work through reading struggles on their own since teachers will not be monitoring their stamina and perseverance during summer break. Purcell-

Gates, Duke, and Martineau (2007) stressed the importance of making sure students know that it's okay to discard some books, but they must understand that encountering a difficult book does not always mean it must be abandoned. If the content of the book they are reading on their own is interesting to them, it is probable they will be more engaged with the book, read it strategically, thus boosting their comprehension skills (Purcell-Gates et al., 2007).

Reading Comprehension and Fluency

Students who are at risk for summer reading regression may need help ensuring they read the books they are given and do so in a way that is likely to develop their decoding skills, fluency, and comprehension. These supports should include evidence-based instructional strategies used by teachers during the school year, such as instruction in reading strategies for reading comprehension and guided oral reading practice to build fluency. However, any type of summer reading needs to be easy to implement and inexpensive. Kim and White (2011) conducted an experiment in 2008 in which teachers, at the end of the school year, scaffolded student's summer reading with several lessons. Through these lessons, students were taught comprehension strategies they could use during the summer at home when they were reading independently and silently. The teachers also presented an oral reading fluency practice. Students were shown a simple procedure for reading aloud to their parents during the summer. Parents were asked to listen as their children told them about a book they had read, listen to them read aloud a short passage from the book, and provide feedback about their fluency, specifically the smoothness with which they read and the amount of expression they used. The research participants were third, fourth, and fifth graders from two schools where an average of 38% of the students received free or reduced lunch. The students were assigned randomly to one of four different groups: 1) received no books, 2) received eight books during summer break, 3) received

eight books during summer break and fluency lessons at the end of the school year, and 4) received eight books, fluency lessons, and comprehension strategy lessons at the end of the school year. The books that were distributed were matched to the students reading and interest levels. Kim and White (2011) established that the students who received books but were given no instruction did not make greater reading achievement gains from spring to fall than the students who did not receive any books. However, the reading achievement gains for students who received books, fluency, and comprehension lessons were significantly greater from spring to fall (Kim & White, 2011).

The research of a school in an advantaged neighborhood of 116 first, second, and third graders by Mraz and Rasinski (2007) observed that for nearly 45% of the students, their decoding skills declined during summer break. Twenty-five percent of the students saw a decrease in their fluency skills. At-risk students showed a greater decline than advantaged students (Mraz & Rasinski, 2007). When working with students already functioning substantially below expectations, the researchers found declines over summer break among fourth graders in their ability to decode words. Deficits in reading fluency and decoding words were also evident in sixth grade students (Mraz & Rasinski, 2007).

Guided oral reading and comprehension strategies improved reading practice effectiveness according to the National Reading Panel (2001). A large amount of instructional time is not required to teach oral guided reading and comprehension strategies. When children receive feedback during the oral reading of a text, their fluency and comprehension improve. Fluent readers can read related texts quickly, accurately, and with appropriate expression thus freeing up their mind to focus on comprehending the text (LaBerge & Samuels, 1974; Stahl, 2004). Readers who are less fluent, often lack the skills necessary to understand more

challenging texts (Daane, Campbell, Grigg, Goodman & Oranje, 2005). When you control the difficulty of a student's text, there is an improvement in oral reading fluency and (Shany & Biemiller, 1995).

The National Reading Panel (2001) also found that comprehension strategies that are used by good readers improve text understanding. Research on the use of multiple reading strategies signified that gains in reading achievement were similar regardless of the time teachers spent teaching the strategies (Rosenshine & Meister, 1994). During silent reading time, students have the potential to improve their reading when they practice fluency and comprehension strategies (Kim, 2006).

Chapter Summary

Summer reading regression can have a significant impact on student's reading achievement (Allington & McGill-Franzen, 2013), especially for students from low socioeconomic families that are already at risk for failure academically (Allington & McGill-Franzen, 2013). Children from at-risk families typically lose two to three months of proficiency in reading during summer break (Cooper et al., 1996). This loss in reading achievement accumulates over time and can account for most of the gap between at-risk and advantaged students (Duncan & Murnane, 2011).

Students who are poor readers are offered very little if any, time outside of the class to develop their reading proficiency (Coats & Taylor-Clark, 2001). It has been consistently demonstrated by research that at-risk students read significantly less during the summer than advantages students. According to research, one of the primary reasons at-risk students do not read during summer break is due to their restricted access to books in their schools, homes, and neighborhoods (Neuman & Celano, 2001).

Access to books and voluntary reading play a crucial role in encouraging reading achievement outside of school (Cunningham & Stanovich, 1998; Entwisle et al., 1997; Heyns, 1978). By not ensuring that all students have access to books during the summer, we may be setting them up for failure before the school year even begins (Cahill et al., 2013). Voluntary reading interventions in which students receive free books and are inspired to read at home may signify a viable strategy for encouraging reading achievement during the summer (Cahill et al., 2013).

At-risk students who live in homes that have few books benefit the most from summer projects that can provide them access to books (Cahill et al., 2013). Distributing books during summer break can reduce summer reading regression and improve reading achievement among at-risk students (Allington et al., 2010; Kim, 2004, 2006; Kim & Guryan, 2010; Kim & White, 2008). The research of Allington and McGill-Franzen (2013) has shown that the simple act of providing books that are well matched to students interests and reading levels will improve their reading achievement.

Bookmobiles provide the opportunity for public libraries to offer their patrons in surrounding areas, as well as those who can't easily travel, access to books that would otherwise not be available to them (Wood, 1988). Bookmobiles allow children to select their own text which is extremely important in engaging them with voluntary reading during summer break (Guthrie & Humenick, 2004). The power of self-selecting books to read cannot be underestimated. When children are allowed to choose their own reading materials, they can feel empowered resulting in increased participating in voluntary reading (Hunter, 2001). Affording students, especially those that struggle in reading, with an active role in selecting books, affects their likelihood of reading longer and more frequently (Worthy et al., 1999). Even making only

a small number of books available to students in the summer will lead to most student's voluntary engagement in reading (Allington et al., 2010; Kim, 2004, 2006; Kim & Guryan, 2010; Kim & White, 2008). In fact, it can basically eliminate summer reading regression, thus reducing the reading achievement gap between at-risk and advantaged students (Allington & McGill-Franzen, 2013).

At-risk students need additional year-round programming to offset the continuing influence of family and community conditions that confine them (Chin & Phillips, 2004). Students who are at risk for summer reading regression need help to ensure they read the books they are given and do so in a way that is likely to develop their decoding skills, fluency, and comprehension. Summer schools can improve overall reading achievement, but they actually increase the gap between advantaged and at-risk students (Allington, 2006; Anderson et al., 1988). Providing students with reading strategies during the school year, teachers can equip students with the tools necessary to tackle difficulties and deepen their reading comprehension as they read books in which they are interested (Cahill et al., 2013). Duke et al. (2011) contend reading comprehension instruction may be an important scaffold to summer reading.

The time that a child spends reading is the greatest forecaster of reading achievement of all the activities engaged in by children outside of the school setting. Students will become better readers by reading more (Allington, 2006; Anderson et al., 1988). It seems unlikely that the gap in reading achievement can decrease without focusing our efforts on factors outside of the school setting, with the critical factor being voluntarily reading (Allington & McGill-Franzen, 2013). Will we select to concentrate on narrowing the gap in reading achievement between at-risk and advantaged students by affording them books to read during the summer months, or will we persist in doing nothing (Allington & McGill-Franzen, 2013)?

CHAPTER 3

RESEARCH DESIGN AND METHODS

The purpose of this study was to determine the effects a mobile book lab, where teachers maintained literacy routines for the children and provided parents with ways to support their children's literacy development, had on summer reading regression for at-risk elementary students. This study was a quantitative design using randomization, a comparison group, and manipulation of a variable when examining the direct causal or predicted relationship between variables. These characteristics provide increased confidence of cause-and-effect relationships.

This chapter is designed to address the methods that were used in the completion of this study. The methodology includes the research questions and null hypotheses, population and sample, instrumentation, data collection, and data analysis.

Research Questions and Null Hypotheses

The methodology for this study was selected to focus on the following research questions:

1. Is there a significant difference in reading comprehension between at-risk students who participated in the mobile book lab program and at-risk students who did not participate?

   $H_0$1: There is no significant difference in reading comprehension between at-risk students who participated in the mobile book lab program and at-risk students who did not participate.

2. Is there a significant difference in reading fluency between at-risk students who participated in the mobile book lab program and at-risk students who did not participate?

   $H_0$1: There is no significant difference in reading fluency between at-risk students who participated in the mobile book lab program and at-risk students who did not participate.

3. Are there significant differences in reading comprehension between at-risk female and male students who participated in the mobile book lab program and at-risk female and male students who did not participate?

   $H_0$2: There are no significant differences in reading comprehension between at-risk female and male students who participated in the mobile book lab program and at-risk female and male students who did not participate.

4. Are there significant differences on reading fluency between at-risk female and male students who participated in the mobile book lab program and at-risk female and male students who did not participate?

   $H_0$3: There are no significant differences on reading fluency between at-risk female and male students who participated in the mobile book lab program and at-risk female and male students who did not participate?

Population and Sample

The population for this study came from the three elementary schools in the selected district where this study was conducted. The demographics of the select school system are displayed in Figures 1 and 2.

Figure 1.

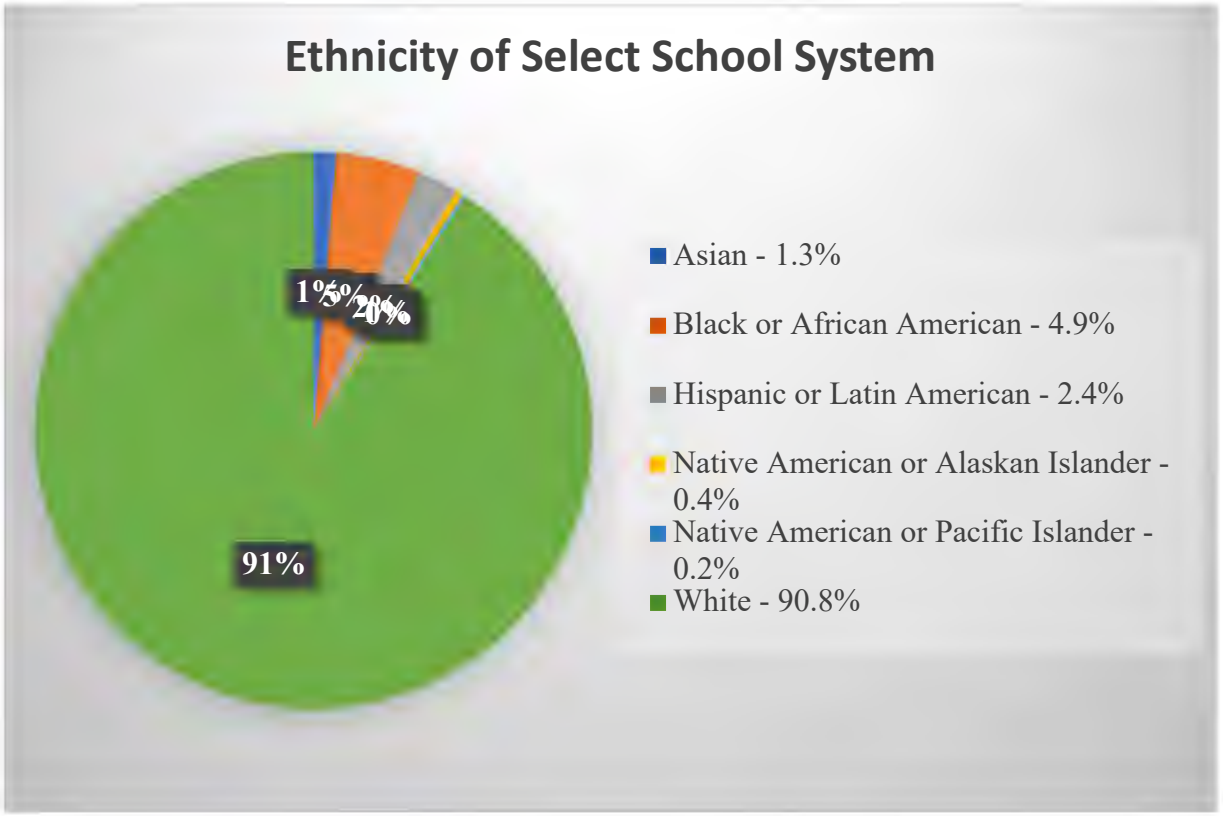
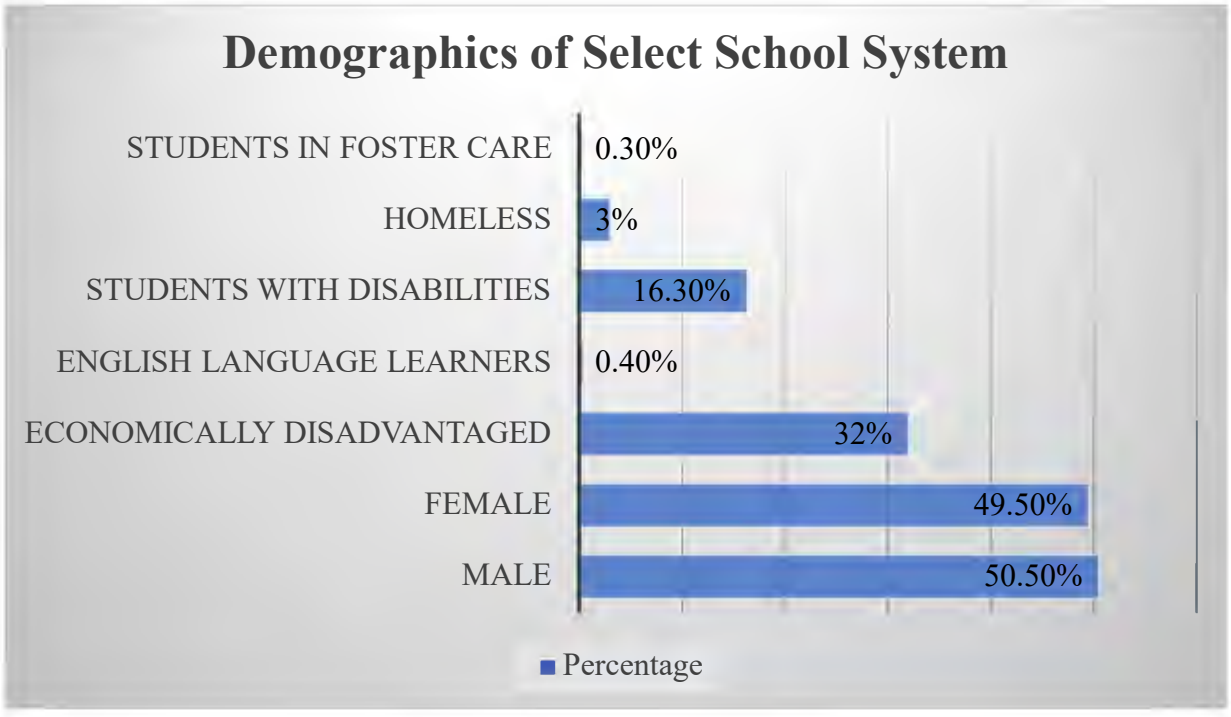


Figure 2.



In the summer of 2018, the Governor's Books from Birth Foundation (GBBF), which promotes early literacy efforts across the state of Tennessee chose the school district in this study to work with in promoting an expanded engagement around books by launching a summer mobile book lab (Governor's Books from Birth Foundation, 2018). Working with community organizations, the district team established bus routes that would best serve the families in the most need of mobile literacy. The stops included both neighborhoods and established summer programs. There was a total of nine scheduled stops each week for six weeks. The routes were adjusted as needed during the season, and specifics were shared via print and social media and the district phone call alert system.

The sample for this study consisted of all at-risk students from the three elementary schools in the selected district. Prior to the end of the 2017-2018 school year, the names of the second through fifth grade students from the three elementary schools in the district who were identified as at-risk by the AIMSweb testing data were obtained. The names of the second through fifth grade students who participated in the mobile book lab during the summer of 2018 were acquired from the director of the mobile book lab. Kindergarten students were excluded from this study because reading fluency and comprehension data were not collected by the district. First grade students were also excluded since reading comprehension data were only collected on the students for the spring benchmark period. These lists were then used to separate the students into two groups, those at-risk students who did participate in the mobile book lab program, Mobile Lab group, and those that did not participate, comparison group.

The at-risk students who did not participate in the mobile book lab were grouped by gender and assigned a number. In order to keep the number of female and male participants equal, females and males were assigned corresponding numbers. An electronic random number

selector was used to determine the comparison group. There were 50 female and 50 male participants.

The students who did participate in the mobile book lab were grouped in female and male categories and assigned a number. In order to keep the number of female and male participants equal, females and males were assigned corresponding numbers. The researcher used an electronic random number selector to determine the Mobile Lab group, those that participated in the mobile book lab. This group consisted of the exact number of female and male participants as the comparison group, 50 females and 50 males.

Parental informed consent was obtained from all students who attended the mobile book lab program. Book lab participants were also asked to complete a weekly questionnaire designed to monitor their reading activity and access their oral reading and comprehension scaffolding. The demographic profile of the participating schools are displayed in Table 1.

Table 1.

Demographic Profile for Participants

Schools	*Enrollment*	*At-risk Population*	*Mobile Lab group*	*Comparison group*
School 1	333	70.27%	34	34
School 2	365	86.3%	34	34
School 3	339	37.17%	32	32

Instrumentation

AIMSweb

Achievement Improvement Monitoring System (AIMSweb) is a research-based screening and progress monitoring system that is used to quickly and efficiently assess the reading skills of students (Pearson, 2008). The assessment packages consist of an oral reading fluency section and maze assessment for reading comprehension. This study used the AIMSweb universal screeners, Reading Curriculum-Based Measurement (R-CBM) and Multiple-Choice Cloze Task (MAZE) (Pearson, 2018).

The passages used in these screeners were narrative fiction stories written and tested with students to guarantee that the passages in each grade level are comparable in difficulty. The use of narrative versus expository passages provides educators with the ability to perceive reading skills more clearly when prior knowledge of the curriculum is minimized. This allows teachers to make decisions about general reading outcomes regardless of the differences in the reading curriculum between schools and teachers (Pearson, 2018).

R-CBM

Description. The R-CBM was used to measure the student's reading fluency. This is a timed, fluency test to determine the number of words a student can read in one minute (Pearson, 2018).

Administration. Students were given meaningful, connected, and grade specific passages of text that were written to represent the general curriculum. The students were required to read the passage aloud individually to a test administrator. A printed copy was provided to the students from which they were to read while the test administrator followed along with a digital copy. The students were asked to read as many words as they could in one

minute. As the students read, the test administrator marked any words that the student read incorrectly or neglected to read.

Scoring. At the end of one minute, the number of words read and the number of errors were recorded. A word was considered to be read correctly if it was pronounced correctly in context or when the student self-corrected an incorrectly pronounced word within three seconds. Mispronunciations, substitutions, omissions, struggles, and three-second pauses were marked as errors. Repetitions, differences in dialect and insertions were not identified as correct or incorrect. The number of words read correctly minus the number of errors determined the number of words read correctly. In order to be considered at-risk, the students had to fall below the 25th percentile. Table 2 shows the percentiles for benchmark status. Table 3 shows the national norms for the 25th percentile for each grade level in this study.

Table 2.

AIMSweb Percentiles for R-CBM and MAZE

Benchmark Status	*Composite Score*
Well Above Average	>90th %ile
Above Average	>=75th %ile
Average	>=25th %ile
Below Average	>=10th %ile
Well Below Average	>=0.0 %ile

Table 3.

AIMSweb National Norms Table for 25th Percentile on R-CBM

Grade	*Words Read Correct (Fall)*	*Words Read Correct (Spring)*
2nd	35	82
3rd	59	98
4th	84	112
5th	94	123

MAZE

Description. The MAZE was used to measure students' reading comprehension. MAZE is a multiple-choice cloze task that students complete while reading silently. The first sentence of the 150-400 word passage is left intact. Every seventh word thereafter is replaced with three words inside parenthesis. One of the words is the correct word from the original passage. The other two words are distracters. One of the distracters is a near distracter, a word of the same type (noun, verb, adverb), that does not make sense or maintain meaning. The other distracter is a far distracter that does not make sense. It is not the same type of word, but was selected randomly from the story (Pearson, 2018). MAZE passages have been identified as better predictors of student's future reading performance than the R-CBM for students in grades four and up (Hosp, Hosp & Howell, 2007).

Administration. The MAZE was administered in a whole group classroom setting. A MAZE reading passage was distributed to each student. They were given three minutes in which to read the passage silently. When reading the MAZE passage, the student had to review each

response item and circle the word from the three choices that best retains the meaning of that segment of the passage (Pearson, 2018).

Scoring. The completed tests were collected and scored by test administrators. The total number of items circled up to the last circled word were counted. The student's answers were compared to the correct answers on the scoring template. An answer was considered correct if the student circled the word that matched the correct word on the scoring template. The number of incorrect answers was subtracted from the total number of items attempted (Pearson, 2018). Table 2 shows the percentiles for benchmark status. Table 4 shows the national norms for the 25th percentile for each grade level in this study.

Table 4.

AIMSweb National Norms Table for 25th Percentile on MAZE

Grade	*Responses Correct (Fall)*	*Words Read Correct (Spring)*
2nd	2	10
3rd	8	11
4th	10	15
5th	12	20

Reliability and Validity

The relationship between student performance on standardized measures of achievement and R-CBM data has been proven in numerous studies (Fuchs, Deno, & Mirkin, 1984; Hintze & Silberglitt, 2005; Silberglitt, Burns, Madyun, & Lail, 2006). These conclusions are noteworthy because they imply that the R-CBM serves as a predictor on high stakes tests, thus providing chances for early identification and intervention for at-risk students.

For example, Ardoin and Martens (2004), studied the correlation between a group administered achievement test, MAZE, R-CBM, and reading subtests of the Woodcock-Johnson Tests of Achievement, Third Edition (WJ-III). All four assessments were given to 78 third grade students. Correlations, t-tests to measure differences in correlations, and multiple regressions analyses were performed. The results indicated that all correlations between R-CBM, MAZE, and the WJ-III subtests were statistically significant (r = .972). The R-CBM was related more closely than the MAZE (r = .743) to the WJ-III (r = .740). The predictive power of the R-CBM did not increase significantly with the addition of the MAZE (r = .746). The authors concluded that the R-CBM was a better predictor of reading comprehension and overall reading achievement despite the fact that both curriculum-based measures had a significant correlation with the WJ-III (Ardoin and Martens, 2004).

In 2005, Wiley and Deno evaluated the predictive value of MAZE tasks and R-CBM by giving both assessments to a group of third and fifth-grade students. Their scores were then correlated with the state standards test. The R-CBM and the state assessment showed moderate correlations (R^2 = .52). When the R-CBM and MAZE were combined, the predictive power was increased (R^2 = .67). These results support the use of R-CBM for screening and progress monitoring in reading (Wiley & Deno, 2005).

The use of the MAZE as a universal screener was investigated by Deno, Fuchs, Marston, and Shin in 2001. They examined the relationship between the performance on a reading standardized test and the MAZE. The correlations between the two measures of reading ranged from .61 to .77. Support for the MAZE as a progress monitoring tool grew due to the fact that two years of school-wide data showed that MAZE scores steadily increased with each grade level. The researchers concluded that due to the evidence of validity and effectiveness in

identifying at-risk students, coupled with its group administration format, the MAZE was efficient, effective, and provided strong data as a universal screening measure.

Over longer periods of time, there have been several studies that examined the correlation between R-CBM and standardized reading tests with similar results. McGlinchey and Hixon (2004) replicated Stage and Jacobsen's 2001 study which found significant correlations between the state reading test and R-CBM for fourth grade students. They tracked the performance of a larger sample of students over eight years. The researchers discovered a moderately strong correlation, .67 on average, between performance on the Michigan Educational Assessment Program reading assessment and a single R-CBM probe. Keller, Margulis, Shapiro, and Hintze's (2008) longitudinal study found a moderate to strong correlation (r = .746) between reading achievement test scores and R-CBM data up to two years later.

A strong research base provides supporting evidence that R-CBM (Ardoin & Christ, 2008; Hintze & Silberglitt, 2005) and MAZE (Begeny & Martens, 2006; Graney, Missall, Martinez, & Bergstrom, 2009) are responsive to student growth over time. These conclusions advocate that R-CBM can be given on a continual basis to track student growth. When used for this reason, the student's reading level along with the slope, the rate of growth, is capable of predicting performance on standardized reading assessments (Keller-Margulis et al., 2008). Research on the relationship between R-CBM, slope, and high stakes reading tests by Baker et al. (2008) determined the most suitable predictive model for performance on high stakes reading tests were comprised of R-CBM slope and the previous year's state reading assessment scores. When considered together, these studies strongly support the predictive value and measurement sensitivity of R-CBM.

Questionnaire

Students who attended the mobile book lab were asked to respond to a weekly questionnaire, designed by the researcher, to assess their oral reading and comprehension activity. They were questioned to see if they read the books they selected the previous week and how many times they were read. What, if any, reading strategies they used to assist them with reading comprehension. They were also asked if their reading fluency and comprehension was monitored by a family member.

Data Collection and Procedures

Permission to conduct this study was obtained from the Institutional Review Board (IRB) at Milligan College. Prior to data collection, permission to conduct the study was obtained from the school district and the principals at each of the three elementary schools. Once the mobile book lab began operation in the summer of 2018, parental informed consents were collected from students who attended the mobile book lab at each of the nine stops. Oral reading and comprehension activity questionnaires were also completed weekly by all attendees. These questionnaires were reviewed by the mobile book lab staff to ensure that reading activity was occurring consistently.

May 2018 and September 2018 AIMSweb data were obtained from the three elementary schools for all second through fifth grade at-risk students. The names of the second through fifth grade students who participated in the mobile book lab during the summer of 2018 were acquired from the director of the mobile book lab. These lists were then used to separate the students into two groups, those at-risk students who did participate in the mobile book lab program and those that did not participate. All AIMSweb testing data were collected and stored electronically.

Data Analysis

All data analysis was conducted using the Statistical Package for the Social Sciences (SPSS). The analysis for each research question was as follows:

1. An independent samples *t*-test was used to assess the summer reading regression of reading comprehension for mobile book lab participants and non-participants from spring 2018 to fall 2018.
2. An independent samples *t*-test was used to assess the summer reading regression of reading fluency for mobile book lab participants and non-participants from spring 2018 to fall 2018.
3. In response to question three, a 2 x 2 factorial analysis of variance (ANOVA) was used to determine if there was a significant difference in reading comprehension between at-risk female and male students who participated in the mobile book lab program and at-risk female and male students who did not participate.
4. Question four was analyzed using a 2 x 2 factorial analysis of variance (ANOVA) to see if there was a significant difference on reading fluency between at-risk female and male students who participated in the mobile book lab program and at-risk female and male students who did not participate.

All data were analyzed at the .05 level of significance. Chapter 4 includes the analysis results for each research question.

Summary

This chapter contained the methodology used in this quantitative research study. Following a brief introduction, the research questions, including null hypotheses, and the

population and sample were stated. Furthermore, the instrumentations used in this research study along with the processes for data collection and data analysis were presented.

CHAPTER 4

Data Analysis and Findings

The purpose of this quantitative study was to determine the effects a mobile book lab, where teachers maintain literacy routines for the children and provide parents with ways to support their children's literacy development, had on summer reading regression for at-risk elementary students. In this chapter, data were presented and analyzed to answer four research questions. The data were retrieved from three elementary schools and mobile book lab participants. The study consisted of two groups of at-risk students. The comparison group was comprised of 50 at-risk students who did not participate in the mobile book lab in the selected school district during the summer of 2018. The Mobile Lab group included 50 at-risk students who participated in the mobile book lab in the selected school district in the summer of 2018. This chapter provides the results of data analyses and findings of this study.

Demographic Data

The population for this study consisted of the three elementary schools in the selected district. In the select school district, whites made up 90.8% of the student population; 4.9% are Black or African American; 2.4% are Hispanic or Latin American. The remaining 0.6% were Native American, Alaskan Islander, Native Hawaiian, or Pacific Islander. The male (50.8%) and female (49.5%) genders were nearly evenly divided. Thirty-two percent of the students were economically disadvantaged. English Language Learners accounted for 0.4% of the population. Students with disabilities totaled 16.3% of the student population. Three percent of the students in the select school district qualified as homeless. A small number of students (0.3%) were listed as living in foster care.

The sample was comprised of 68 at-risk students from School 1. Thirty-four students (14 males and 20 females) at School 1 participated in the mobile book lab (Mobile Lab group) and 34 students (14 males and 20 females) did not participate (comparison group). Sixty-eight students were in the sample from School 2. Of these, 34 students (21 males and 13 females) from School 2 attended the mobile book lab (Mobile Lab group) while 34 students (21 males and 13 females) did not attend the mobile book lab (comparison group). School 3 provided 64 students for the sample. School 3 saw 32 students (15 males and 17 females) participate in the mobile book lab (Mobile Lab group), while 32 students (15 males and 17 females) did not participate (comparison group).

Findings

Research Question 1

Research Question 1: Is there a significant difference in reading comprehension between at-risk students who participated in the mobile book lab program and at-risk students who did not participate?

$H_0$1: There is no significant difference in reading comprehension between at-risk students who participated in the mobile book lab program and at-risk students who did not participate.

To determine whether there was a difference in reading comprehension (MAZE scores) between at-risk students who participated in the mobile book lab (Mobile Lab group) and at-risk students who did not participate (comparison group), an independent samples *t*-test was conducted. The results showed there was a significant difference between the means of the two groups (t (173.531) = 5.024, p = .001). Levene's Test for Equality of Variance indicates it is not appropriate to assume equality of variances (F = 7.344, p = .001). The mean for students who attended (Mobile Lab group) the mobile book lab (M = 15.50, sd = 8.385) was greater than the

mean for students who did not attend (comparison group) the mobile book lab (M = 10.42, sd = 5.650). Therefore, the null hypothesis was rejected. Cohen's d (effect size) was calculated to determine the size of the difference. The Cohen's d of .71 supports the findings that there was a significant difference in reading comprehension (MAZE scores) between at-risk students who participated in the mobile book lab program (Mobile Lab group) and at-risk students who did not participate (comparison group). The results are displayed in Table 5.

Table 5.

t-test for Independent Means for MAZE scores

Group	*M*	*SD*	*df*	*t-value*	*Sig. (2-tailed)*	*ES*
Mobile Lab (participants)	15.50	8.385	173.531	5.024	.001	.71
Comparison (non-participants)	10.42	5.650				

Note. P < 0.05

Research Question 2

Research Question 2: Is there a significant difference in reading fluency between at-risk students who participated in the mobile book lab program and at-risk students who did not participate?

$H_0$2: There is no significant difference in reading fluency between at-risk students who participated in the mobile book lab program and at-risk students who did not participate.

To determine whether there was a difference in reading fluency (R-CBM scores) between at-risk students who participated in the mobile book lab (Mobile Lab group) and at-risk students who did not participate (comparison group), an independent samples t-test was conducted. The results showed there was a significant difference between the means of the two groups (t (187.980) = 5.913, p = .001). Levene's Test for Equality of Variance indicates it is not

appropriate to assume equality of variances ($F = 4.389$, $p = .001$). The mean for students who attended (Mobile Lab group) the mobile book lab ($M = 105.56$, $sd = 45.426$) was greater than the mean for students who did not attend (comparison group) the mobile book lab ($M = 71.32$, $sd = 35.908$). Therefore, the null hypothesis was rejected. Cohen's *d* (effect size) was calculated to determine the size of the difference. The Cohen's *d* of .836 supports the findings that there was a significant difference in reading fluency (R-CBM scores) between at-risk students who participated (Mobile Lab group) in the mobile book lab program and at-risk students who did not participate (comparison group). The results are displayed in Table 6.

Table 6.

t-test for Independent Means for R-CBM scores

Group	*M*	*SD*	*df*	*t-value*	*Sig. (2-tailed)*	*ES*
Mobile Lab (participants)	105.56	45.426	187.980	5.913	.001	.836
Comparion (non-participants)	71.32	35.908				

Note. $P < 0.05$

Research Question 3

Research Question 3: Are there significant differences in reading comprehension between at-risk female and male students who participated in the mobile book lab program and at-risk female and male students who did not participate?

$H_0 3$: There are no significant differences in reading comprehension between at-risk female and male students who participated in the mobile book lab program and at-risk female and male students who did not participate.

The two-way analysis of variance (ANOVA) was conducted to investigate differences in reading comprehension (MAZE scores) between at-risk female and male students who

participated (Mobile Lab group) in the mobile book lab program and at-risk female and male students who did not participate (comparison group). The results show there was not a significant main effect for gender [F (1, 196) = .127, p = .772, Eta Squared = .001]. Male and female at-risk students who attended (Mobile Lab group) the book bus (M = 15.50, sd = 8.385) were slightly higher in reading comprehension (MAZE scores) than male and female students who did not (comparison group) attend (M = 10.4, sd = 5.65). However, the mean difference was not significant. The main effect for mobile book lab attendance on reading comprehension (MAZE scores) was significant [F (1, 196) = 25.195, p = .001, Eta Squared = .114]. The interaction between mobile book lab attendance and gender on reading comprehension (MAZE scores) was not significant [F (1, 196) = 1.501, p = .222, Eta Squared = .008]. Therefore, the null hypothesis was partially rejected. The results of the main effect of attendance, and the calculated effect size, indicates that 11% of variance in MAZE scores can be explained by attendance. Gender did not have any effect on MAZE scores. The results for the ANOVA summary are displayed in Table 7.

Table 7.

Two-way ANOVA Summary for Mobile Book Lab attendance and gender on MAZE scores

Source	*SS*	*df*	*MS*	*F*	*p*	*ES*
Attendance	1290.320	1	1290.320	25.195	.001	.114
Gender	6.480	1	6.480	.127	.722	.001
Attendance x Gender	76.880	1	76.880	1.501	.222	.008

Note. F ratios are reported with their degrees of freedom and degrees of freedom for error in parentheses.

Research Question 4

Research Question 4: Are there significant differences on reading fluency between at-risk female and male students who participated in the mobile book lab program and at-risk female and male students who did not participate?

$H_0$4: There are no significant differences on reading fluency between at-risk female and male students who participated in the mobile book lab program and at-risk female and male students who did not participate?

The two-way analysis of variance (ANOVA) was conducted to investigate differences in reading fluency (R-CBM scores) between at-risk female and male students who participated (Mobile Lab group) in the mobile book lab program and at-risk female and male students who did not participate (comparison group). The results show no significant main effect for gender [F (1, 196) = .354, p = .552, Eta Squared = .002]. Male and female at-risk students who attended (Mobile Lab group) the book bus (M = 105.56, sd = 45.426) were slightly higher in reading fluency (R-CBM scores) than male and female students who did not (comparison group) attend (M = 71.32, sd = 35.908). However, the mean difference was not significant. The main effect for mobile book lab attendance on reading fluency (R-CBM scores) was significant [F (1, 196) = 34.695, p = .001, Eta Squared = .150]. The interaction between mobile book lab attendance and gender on reading fluency (R-CBM scores) was not significant [F (1, 196) = .111, p = .739, Eta Squared = .001]. Therefore, the null hypothesis was partially rejected. The results of the main effect of attendance, and the calculated effect size, indicates that 15% of the variance in fluency could be explained by attendance. Being male or female does not contribute to reading fluency scores. The results for the ANOVA summary are displayed in Table 8.

Table 8.

Two-way ANOVA Summary for Mobile Book Lab attendance and gender on R-CBM scores

Source	*SS*	*df*	*MS*	*F*	*p*	*ES*
Attendance	58618.88	1	58618.88	34.695	.001	.150
Gender	598.58	1	598.58	.354	.552	.002
Attendance x Gender	188.18	1	188.18	.111	.739	.001

Note. F ratios are reported with their degrees of freedom and degrees of freedom for error in parentheses.

Summary

Chapter 4 was an analysis of the data related to this research study. In this chapter data from students in grades two through six at three schools in the select school district were analyzed and presented. The data were collected for 200 at-risk students who participated (100) and did not participate (100) in a mobile book lab in the school district selected during the summer of 2018. Four research questions and null hypotheses were addressed. Chapter 5 covers conclusions about this research study, implications for the educational community, and recommendations for future study.

CHAPTER 5

SUMMARY, DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

This chapter contains a summary of the findings, limitations of the study, and conclusions, as well as recommendations for others who may use the results for action or further study on ways to decrease summer reading regression. A review of the literature was conducted on summer reading regression. The review showed that students from low socioeconomic families are more likely to encounter failure in school. Equated with their peers, summer vacation, on average, creates a three-month gap in reading achievement for lower socioeconomic students (Allington et al., 2010).

Although there are many potential causes of summer reading regression, the importance placed on literacy in the home, time devoted to reading with children, and the accessibility and usage of reading materials have been acknowledged as important foundations in students' reading success (Snow et al., 1998). Unfortunately, research indicates that, on average, students spend very little time outside of school reading, about 10 minutes (Anderson et al., 1998). Krashen (2011) stated that by merely increasing the opportunities to read seemed to largely yield improved reading fluency and reading comprehension (Krashen, 2011).

However, studies by Allington and McGill-Franzen (2013), suggest that summer reading regression can be reduced and even curtailed by providing easy access to books for at-risk students that are in their interest and independent reading level. Given steady access to independent reading materials, the academic success for at-risk students may parallel that of their more advantaged peers (Allington & McGill-Franzen, 2013).

Alexander et al. (2007) stated that more than 50% of the disparity in reading comprehension scores in ninth grade reading between at-risk students and advantaged students

was supported by differences in summer regression that accumulated from first to fifth grade. Reading books is a foundation, not merely an indicator, of proficiency in reading (Anderson et al., 1998). Relevant information to this study that was garnered from the review of the literature presented in Chapter 2.

This study examined the problem of access to independent reading materials for at-risk students during the summer months when school is not in session. In order to improve the reading development of all children, having access to independent reading materials is an essential component. Without exposure to rich texts throughout the summer, many students fall behind academically (Cullinan, 2000). Of all the extracurricular activities in which children participate, the time they spend reading is the most accurate forecaster of reading achievement. Students that read more, become better readers (Anderson et al., 1998, p. 294). However, all too often, at-risk readers are offered little or no chance outside of the classroom to improve upon their reading ability (Coats & Taylor-Clark, 2001). Children from low socioeconomic families have a narrow selection of books available to them in their homes and communities (McQuillan, 1998).

In order, to reduce summer reading regression, it is imperative that a variety of books be made available on a recurring basis to at-risk children during the summer months (Blanton, 2015). This study examined the effects that a mobile book lab had on the summer reading regression for at-risk elementary students who participated in the program. The sample for this study consisted of all second through fifth grade at-risk students from the three elementary schools in the selected district. Kindergarten students were excluded from this study because reading fluency and comprehension data were not collected by the district. First grade students

were also excluded since reading comprehension data were only collected on the students for the spring benchmark period.

Students were then put into a comparison group, those that did not participate in the mobile book lab, and a Mobile Lab group, those that participated in the mobile book lab. Each group consisted of 50 males and 50 females. The study used data from reading fluency and comprehension universal screeners for these students.

Summary of Findings

This study found there was a significant difference in summer reading regression between those students who participated in the mobile book lab and those that did not participate. At-risk students who participated in the mobile book lab experienced a lesser amount of summer reading regression in reading comprehension and fluency than those who did not participate. Gender was not a factor in the amount of summer reading regression experienced in reading comprehension and fluency for at-risk students who participated or did not participate in the mobile book lab. The results suggested that participation in the mobile book lab was a factor in the amount of summer reading regression experienced by the two groups.

Discussion of Findings

Regarding research questions 1 and 2, there was a significant difference in reading comprehension and fluency between at-risk students who participated in the mobile book lab program and at-risk students who did not participate. At-risk students who did not participate in the mobile book lab revealed lower R-CBM and MAZE scores in reading comprehension and fluency than those who participated in the mobile book lab.

This supports the findings by Kim and White (2011), students who are at risk for summer reading regression may need help ensuring they read the books they are given and do so in a way

that is likely to develop their decoding skills. Students that participated in the mobile book lab were supported with the same instructional strategies used by teachers during the school year. Reading comprehension strategies were scaffolded by the mobile book lab staff which provided participants with techniques they could use at home when they were reading independently as well as silently. Participants were also shown a simple procedure for reading aloud to their parents. Just like in Kim and White's study (2011), parents were asked to listen as their children told them about a book they had read, listen to them read aloud a short passage from the book, and provide feedback about the smoothness with which they read and the amount of expression they used. The results of this study were consistent with the findings of Kim and White (2011) who found that reading achievement gains for students who received books coupled with fluency and comprehension lessons were significantly greater from spring to fall.

Research questions 3 and 4 that focused on gender indicated that it was not a factor in the amount of summer reading regression experienced in reading comprehension or fluency for at-risk students who participated in the mobile book lab. Similarly, gender also did not influence the amount of summer reading regression experienced in reading comprehension or fluency for at-risk students who did not participate in the mobile book lab. The results suggested that providing books in students' ability level and interests, tends to improve the reading performance of most students (White & Kim, 2008). Positive reading behaviors will follow if books are put in student's hands. This act alone lays a strong foundation for reading during the summer. This does not mean any book, but books that student's want to and are capable of reading (Cahill et al., 2013). There were books that appealed to both genders, all reading abilities, and interest levels of the participants. The mobile book lab staff put a lot of thought into the way they stocked the bus so there were books they felt males and females would enjoy. The staff helped

children select books that were just right for them. When a child asked about a book, the staff did everything possible to locate the book for the child.

Consistent with the findings by Guthrie and Humenick (2004), the mobile book lab provided the opportunity for participants to read books they found interesting, thus enhancing their motivation to read independently. Morrow (2002) indicated that to encourage voluntary reading outside of school, students must be provided with books they are interested in reading and are well matched to their independent reading levels.

Limitations of the Study

The limitations of this study were the preparation of the mobile book lab, patron management, and data collection. The select school system provided a decommissioned bus. However, it was late April 2018 before the transformation into a mobile book lab could begin. This resulted in the first three weeks of the program being operated from a special education bus. Since the books had to be stored in plastic tubs so they could easily be transported daily, it was difficult to properly showcase the selection of books available. It could also have been difficult for students who wanted to attend the mobile book lab to know when the bus arrived in their neighborhood since it looked like a normal bus. Signage was attached to the bus and yard signs were placed in the area, but at first glance, patrons might not have noticed it was the mobile book lab. This could have impacted the participation in this study.

When there was a high volume of patrons, such as when the mobile book lab visited the summer program offered by the district, meaningful conversations about reading or book selection were often lost to crowd management and gathering of data. The mobile book lab in this study was partially funded through grants which required the reporting of certain data. All data were collected via pencil and paper since there were no electronic devices or internet access.

This, coupled with the data being collected for the research study, proved to be challenging at times.

Conclusions

From these findings, the following conclusions were drawn. There was a significant difference in reading comprehension and fluency between at-risk students who participated in the mobile book lab and those that did not. All participants, those who participated in the mobile book lab as well as those who did not participate, still experienced a decline in their reading comprehension and fluency scores during the summer of 2108. However, the students who did not participate in the mobile book lab (comparison group) declined 5% more in their reading fluency and 10% more in their reading comprehension scores from spring 2018 to fall 2018. The results suggest interaction between the staff and the participants played a role in motivating the students to read.

Gender had no effect on the summer reading regression for at-risk male and female students regardless of whether they did or did not participate in the mobile lab. However, participation in the mobile book lab had an influence on reading comprehension and reading fluency for all students. The results suggest that participating in the mobile book lab significantly influenced the at-risk student's summer reading regression.

Recommendations for Practice

The findings and conclusions of this study have identified the following recommendations for the practice of mobile book lab programs:

1. The study showed a significant influence between reading comprehension and fluency scores for students who participated in the mobile book lab. Since attendance was the greatest factor on reading achievement, district leaders and mobile book lab staff need to

discuss ways to improve attendance. More families in the community need to be made aware of what the mobile book lab offers. This could be communicated by attending local community events and increasing their special programming.

2. The mobile book lab in this study ran for only four weeks during the summer of 2018. Stakeholders should investigate the possibility of extending the mobile book lab program to six weeks or more during the summer of 2019 to see if there is an even greater influence on summer reading regression for participants.
3. For the first year of operation, the mobile book lab was stocked entirely from donated, used books. If funds are available in subsequent years, books with high-interest titles, along with books and genres that could fill in gaps in the variety of books available should be purchased.

Recommendations for Further Research

As this study took place during the first year of implementation of the mobile book lab program in one small district in upper east Tennessee, this study should be replicated by other districts with a larger and more diverse population who are beginning mobile book lab programs. By doing so, it will be easier to draw conclusions and generalize the findings to a larger population.

An additional study could be conducted to collect data for students who continue to participate in this mobile book lab over multiple summers to determine if their amount of summer reading regression continues to decline each year of participation. It could be beneficial to see if summer reading regression for these participants ceases after a set number of years participating in the mobile book lab.

A future qualitative study could allow students to provide feedback as to why they participated in the mobile book lab. This will offer insight into what benefits the participants received other than curtailment of their summer reading regression.

References

Alexander, K. L., Etwisle, D. R., & Olson, L. S. (2007). Lasting consequences of the summer learning gap. *American Sociological Review*, *72*(4), 167-180.

Alexander, K., Pitcock, S., & Boulay, M. C. (2016). *The summer slide: What we know and do about summer learning loss.* New York: Teachers College Press.

Allington, R. L. (2006). *What really matters for struggling readers: Designing research-based programs* (2nd ed.). Boston: Allyn & Bacon.

Allington, R.L. (2009). *What really matters in fluency: From research to practice*. New York: Allyn & Bacon.

Allington, R.L. (2014). How reading volume affects both reading fluency and reading achievement. *International Electronic Journal of Elementary Education*, *7*(1), 13-26.

Allington, R. L., & McGill-Franzen, A. M. (2003). The impact of summer loss on the reading achievement gap. *Phi Delta Kappan*, *85*(1), 68–75.

Allington, R. L., & McGill-Franzen, A. (2013). *Summer reading: Closing the rich/poor reading achievement gap*. New York: Teachers College Press.

Allington, R. L., McGill-Franzen, A., Camilli, G., Williams, L., Graff, J., Zeig, J., Zmach, C., & Nowak, R. (2010). Addressing summer reading setback among economically disadvantaged elementary students. *Reading Psychology*, *3*(1), 411-427. doi:10.1080/02702711.2010.505165

Amundsen, C., & Wilson, M. (2012, March 1). Are we asking the right questions? A conceptual review of the educational development literature in higher education. *Review of Educational Research*, *82*(1), 90-126. doi.org/10.3102/0034654312438409

Anderson, R. L., Wilson, P., & Fielding, L. (1988). Growth in reading and how children spend their time outside of school. *Reading Research Quarterly*, *23*, 285-303.

Andrews, T. (2012). What is social constructionism? *Grounded Theory Review*, *11*, 39-46.

Ardoin, S. P., & Martens, B. K. (2004, March). Training children to make accurate self-evaluations: Effects on behavior and the quality of self-ratings. *Journal of Behavioral Education*. *13*(1),1-23. doi.10.1023/0000011257.63085.88

Ardoin, S., & Christ, T. (2008). Evaluating curriculum based measurement slope estimate using data from tri-annual universal screenings. *School Psychology Review*, *37*, 109-125.

Baker, E. L. (2003, June). Multiple measures: Toward tiered systems. *Educational Measurement Issues and Practice*, *22*(2), 4-49. doi.org/10.1111/j.1745-3992.2003.tb00123.x

Baker, L., Gersten, R., & Keating, J. (2000). Why less may be more: A 2-year longitudinal evaluation of a volunteer tutoring program requiring minimal training. *Reading Research Quarterly*, *35*(4), 494-519.

Baker, J., Grant, S., & Morlock, L. (2008). The teacher–student relationship as a developmental context for children with internalizing or externalizing behavior problems. *School Psychology Quarterly*, *23*(1), 3-15.

Begeny, J. C., & Martens, B. K. (2006). Assisting low-performing readers with a group-based reading fluency intervention. *School Psychology Review*, *35*(1), 91-107.

Blanton, M. V. (2015). Keys to reducing summer regression: The reader, routine, and relationship. *Journal of Organizational & Educational Leadership*, *1*(1), 1-20.

Borman, G. D., & D'Agostino, J. V. (1996). Title I and student achievement: A meta-analysis of federal results. *Educational Evaluation and Policy Analysis*, *18*, 309-326.

Cahill, C., Horvath, K., McGill-Franzen, A., & Allington, R. L. (2013). *No more summer-reading loss*. Portsmouth, NH: Heinemann.

Carpenter, D. M., Ramirez, A., & Severn, L. (2006, November). Gap or gaps challenging the singular definition of the achievement gap. *Education and Urban Society*, *39*(1), 113-127. doi:10.1177/0013124506291792

Chin, T., & Phillips, M. (2004). Social reproduction and child-rearing practices: Social class, children's agency, and the summer activity gap. *Sociology of Education*, *77*, 185–210.

Coats, L. T., & Taylor-Clark, P. (2001). Finding a niche for reading: A key to improving underachievers' reading skills. *Reading Improvement*, *38*, 70-73.

Cooper, H., Charlton, K., Valentine, J. C., Muhlenbruck, L., & Borman, G. D. (2000). Making the most of summer school: A meta-analytic and narrative review. *Monographs of the Society for Research in Child Development*, *65*(1), 1-127.

Cooper, H., Nye, B., Charlton, K., Lindsay, J., & Greathouse, S. (1996). The effects of summer vacation on achievement test scores: A narrative and meta-analytic review. *Review of Educational Research*, *66*(3), 227-68.

Cullinan, B. E. (2000). Independent Reading and School Achievement. *Research Journal of the American Association of School Librarians, 3*, 1-24.

Cunningham, A. E., & Stanovich, K. E. (1998). What reading does for the mind. *American Educator*, *22*(1), 8-15.

Daane, M. C., Campbell, J. R., Grigg, W. S., Goodman, M. J., & Oranje, A. (2005). *Fourth-grade students reading aloud: NAEP 2002 special study of oral reading*. Washington, DC: U.S. Department of Education.

Deci, E., & Ryan, R. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum Press.

Deno, S. L., Fuchs, L., Marston, D., & Shin, J. (2001). Using curriculum-based measurements to establish growth standards for students with learning disabilities. *School Psychology Review*, *30*, 507-524.

Dickinson, D., & DeTemple, J. (1998). Putting parents in the picture: Maternal reports of preschoolers' literacy as a predictor of early reading. *Early Childhood Research Quarterly*, *13*, 241-261.

Downey, D. B., von Hippel, P. T., & Broh, B. A. (2004). Are schools the great equalizer? Cognitive inequality during the summer months and the school year. *American Sociological Review*, *69*, 613-635.

Duke, N. K., Pearson, P. D., Strachan, S. L., & Billman, A. K. (2011). Essential elements of fostering and teaching reading comprehension. In S. J. Samuels, & Farstrup, A. E. (Eds.), *What research has to say about reading instruction* (pp. 51-93). Newark, DE: International Reading Association.

Duncan, D., & Murnane, R. (Eds.). (2011). *Wither opportunity? Rising inequality, schools, and children's life chances*. New York: The Russell Sage Foundation.

Entwisle, D. R., Alexander, K. L., & Olson, L. S. (1997). *Children, schools, and inequality*. Boulder, CO: Westview.

Evans, M. D. R., Kelley, J., Sikrora, J., & Treiman, D. J. (2010). Family scholarly culture and educational success: Books and schooling in 27 nations. *Research in Social Stratification and Mobility*, *28*(2), 171-197.

Fryer, R. G., & Levitt, S. D. (2002). *Understanding the black-white test score gap in the first two years of school*. Cambridge, MA: National Bureau of Economic Research.

Fuchs, L., Deno, S., & Mirkin, P. (1984). The effects of frequent curriculum-based measurement and evaluation on pedagogy, student achievement, and student awareness of learning. *American Educational Research Journal, 21*(2), 449-460.

Gambrell, L., Hughes, E. M., Calbert, L., Malloy, J., & Igo, B. (2011). Authentic reading, writing and discussion: An exploratory study of a pen pal project. *The Elementary School Journal*, *112*(2), 234-258.

Gamse, C. B., Jacob, T. R., Horst, M., Boulay, B., & Unlu, F. (2008). *Reading First Impact Study Final Report*, U.S. Department of Education. Retrieved from https://files.eric.ed.gov/fulltext/ED503345.pdf

Garber, C. (2012). American bookmobiles; connections and conflict an interview with Derek Attig. Retrieved from http://ultimatehistoryproject.com/bookmobiles-racial-and-cultural-battlegrounds.html

Governors Books from Birth Foundation. (n.d.). Retrieved from https://www.governorsfoundation.org/

Graney, S. B., Missall, K. N., Martinez, R. S., & Bergstrom, M. (2009) A preliminary investigation of within-year growth patterns in reading and mathematics curriculum-based measures. *Journal of School Psychology, 47*(2), 121-142. doi.10.1016/j.jsp.2008.12.001

Guthrie, J., & Humenick, N. (2004). Motivating students to read: Evidence for classroom practices that increase reading motivation and achievement. In P. McCardle & V.

Chhabra (Eds.), *The voice of evidence in reading research* (pp. 329-342). Baltimore: Brookes.

Hayes, D. P., & Grether, J. (1983). The school year and vacations: When do students learn? *Cornell Journal of Social Relations*, 17(1), 56–71.

Helle, T., Kurtz-Costes, B., & Mahoney, J., (1997). Family influences on school achievement in low-socioeconomic, african-american children. *Journal of Education Psychology*, *89*, 527-537.

Heyns, B. (1978). *Summer learning and the effects of schooling*. New York: Academic Press.

Heyns, B. (1987). Schooling and cognitive development: Is there a season for learning? *Child Development*, *55*, 6-10.

Hintze, J. M., & Silberglitt, B. (2005). A longitudinal examination of the diagnostic accuracy and predictive validity of R-CBM and high-stakes testing. *School Psychology Review*, *34*(3), 372-386.

Hosp, M. K., Hosp, J. L., Howell, K. W. (2007). *The ABCs of CBM: A practical guide to curriculum-based measurement. Practical intervention in the schools series*. New York: Guilford Publications.

Hunter, P. (2001). *Raising children who want to read*. Retrieved from http://www.libraryworks.com/LW_White%20Papers/pdfs/WP_Scholastic_1209.pdf

Keller-Margulis, M. A., Shapiro, E. S., & Hintze, J. M. (2008) Long-term diagnostic accuracy of curriculum-based measures in reading and mathematics. *School Psychology Review, 37*(3), 374-390.

Kim, J. (2004). Summer reading and ethnic achievement gap. *Journal of Education of Students at Risk*, *9*(2), 169-189.

Kim, J. S. (2006, Winter). Effects of a voluntary summer reading intervention on reading achievement: Results from a randomized field trial source. *Educational Evaluation and Policy Analysis*, *28*(4), 335-355.

Kim, J. S., Cooc, N., & Quinn, D. M. (2013). *How teacher-scaffolded summer reading improves different components of reading comprehension: Lessons learned from two experimental studies*. Paper presented at the Society for Research on Educational Effectiveness Conference, Washington, D. C. Abstract retrieved from https://files.eric.ed.gov/fulltext/ED563116.pdf

Kim, J. S., & Guryan, J. (2010). The efficacy of a voluntary summer book reading intervention on low-income latino children from language minority families. *Journal of Educational Psychology*, *102*(1), 20-31.

Kim, J. S., & White, T. G. (2008). Scaffolding voluntary summer reading for children in grades 3 to 5: An experiment study. *Scientific Studies of Reading*, *12*(1), 1-23.

Kim, J. S., & White T. G. (2011, April). Solving the problem of summer reading loss. *The Phi Delta Kappan*, *92*(7), 64-67.

Krashen, S. (2004). *The power of reading: Insights from the research* (2nd ed.). Portsmouth, NH: Heinemann.

Krashen, S. (2011). *Free voluntary reading*. Santa Barbara: Libraries Unlimited.

LaBerge, D., & Samuels, S. J. (1974). Toward a theory of automatic information processing in reading. *Cognitive Psychology*, *6*, 293-323.

Lindsay, J. (2010). *Children's access to print material and education-related outcomes: Finding for a meta-analytic review*. Naperville, IL: Learning Point Associates.

Lindsay, J. (2013). Interventions that increase children's access to print material and improve their reading proficiencies. In R. Allington & A. McGill-Franzen (Eds.). *Summer reading: Closing the rich/poor achievement gap* (pp. 20-38). New York: Teachers

McGlinchey, M. T., & Hixson, M. D. (2004). Using curriculum-based measurement to predict performance on state assessments in reading. *School Psychology Review, 33*(2), 193-203.

McQuillan, J. (1998). *The literacy crisis: False claims, real solutions*. Portsmouth, NH: Heinemann.

Malhoit, G. (2005). *Providing rural students with a high quality education*. Arlington, VA: The Rural School and Community Trust.

Mraz, M., & Rasinski, T. V. (2007, May). Summer Reading Loss. *Reading Teacher*, *60*(8), 784-789.

Morrow, L. M. (2002). Motivating lifelong voluntary readers. In J. Flood, D. Lapp, J.R. Squire, & J.M. Jensen (Eds.), *Handbook of research on teaching the English language arts* (pp. 857-867). New York: Macmillan.

National Center for Education Statistics. (2010). *Fast Facts*. Retrieved from http://nces.ed.gov/fastfacts/display.asp?id=147

National Center for Education Statistics, Statistical Analysis Report. National Education Longitudinal Study of 1988. (1992, August). *Characteristics of At-Risk Students* (NELS:88). Retrieved from https://nces.ed.gov/pubs92/92042.pdf

National Reading Panel. (2001). *Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction*. Retrieved from http://nationalreadingpanel.org

Neuman, S. B., Caperelli, B. J., & Kee, C. (1998). Literacy learning: A family matter. *The Reading Teacher*, *52*, 244-252.

Neuman, S. B., & Celano, D. (2001). Access to print in low-income and middle-income communities. *Reading Research Quarterly*, *36*, 8-26.

Paquette, D., & Ryan, J. (2001). *Bronfenbrenner's Ecological Systems Theory*, pp. 2-12.

Parker, L., & Reid, C. (2017). A case study of elementary school parents as agents for summer reading gain: Fostering a summer leap and holding steady. *School Community Journal*, *27*(1), 307-328.

Pearson (2018). *Aimsweb*. Retrieved from https://www.aimsweb.com/universal-benchmark-screening

Perie, M., Grigg, W., & Donahue, P. (2005). The nation's report card: Reading 2005 (NCES 2006-451). *National Center for Education Statistics*. Washington, DC: U.S. Department of Education.

Purcell-Gates, V., Duke, N., & Martineau, J. (2007). Learning to read and write genre-specific text: Roles of authentic experience and explicit teaching. *Reading Research Quarterly*, *42*(1), 8-45.

Reardon, S. (2011). The widening academic achievement gap between the rich and the poor: new evidence and possible explanations. In G. Duncan and R. Murname (Eds.), W*ither opportunity? Rising inequality, schools and children's life chances* (pp. 91-116). New York: The Russel Sage Foundation.

Rosenshine, B., & Meister, C. (1994). Reciprocal teaching: A review of the research. *Review of Educational Research*, *64*, 181-221.

Shanahan, T. (2004). *The national reading panel report: Practical advice for teachers*. Napierville, IL: Learning Point Associates.

Shany, M. T., & Biemiller, A. (1995). Assisted reading practice: Effects on performance for poor readers in Grades 3 and 4. *Reading Research Quarterly*, *30*(3), 382-395. doi:10.2307/747622

Shin, F. H., & Krashen, S. D., (2008). Teacher and parent scaffolding of voluntary summer reading. *Reading Teacher*, *62*(2), 116-125.

Silberglitt, B., Burns, M. K., Madyun, N. H., & Lail, K. E. (2006). Relationship of reading fluency assessment data with state accountability test scores: A longitudinal comparison of grade levels. *Psychology in the Schools*, *43*(5), 527-535. doi.org/10.1002/pits.20175

Snow, C. E., Burns, S., & Griffin, P. (1998). Preventing reading difficulties in young children. *National Research Council*. Washington, DC: National Academy Press.

Stage, S. A., & Jacobsen, M. D. (2001). Predicting student success on a state-mandated performance-based assessment using oral reading fluency. *School Psychology Review, 30*(3), 407-419.

Stahl, S. A. (2004). What do we know about fluency? Findings of the national reading panel. In P. McCardle & V. Chhabra (Eds.), *The voice of evidence in reading research* (pp. 187-212). Baltimore, MD: Paul H. Brookes Publishing Co. implementation_guide.pdf

White, T., & Kim, J. (2008). Teacher parent scaffolding of voluntary summer reading. *The Reading Teacher*, *62*(2), 116-125.

Wiley, H., & Deno, S. (2005, August). Oral reading and maze measures as predictors of success for english learners on a state standards assessment. *Remedial and Special Education*, 26(4), 207-214. doi:10.1177/07419325050260040301

Wood, D. (1988). A vehicle for outreach. *Wilson Library Bulletin*, *45*(2), 45-46.

Worthy, J., Moorman, M., & Turner, M. (1999). What Johnny likes to read is hard to find in schools. *Reading Research Quarterly*, *34*(1), 12-27.

APPENDIX A

IRB Approval

Date: July 05, 2018

From: The Institutional Review Board (IRB) at Milligan College

Re: Proposal- Effects of a Mobile Book Lab on the Summer

Reading Submission type: Revised Submission

Dear Tammy Markland,

On behalf of the Milligan College Institutional Review Board (IRB), we are writing to inform you that your study *'The Effects of a Mobile Book Lab on the Summer Reading Regression of Elementary At-risk Students at a Select School District in Upper East Tennessee'* has been approved as expedited. This approval also indicates that you have fulfilled the IRB requirements for Milligan College.

All research must be conducted in accordance with this approved submission, meaning that you will follow the research plan you have outlined here, use approved materials, and follow college policies.

Take special note of the following important aspects of your approval:

- Any changes made to your study require approval from the IRB Committee before they can be implemented as part of your study. Contact the IRB Committee at IRB@milligan.edu with your questions and/or proposed modifications.
- If there are any unanticipated problems or complaints from participants during your data collection, you must notify the Milligan College IRB Office within 24 hours of the data collection problem or complaint.

The Milligan College IRB Committee is pleased to congratulate you on the approval of your research proposal. Best wishes as you conduct your research! If you have any questions about your IRB Approval, please contact the IRB Office and copy your faculty advisor if appropriate on the communication.

Regards,
The IRB Committee

APENDIX B

Superintendent Permission to Conduct Study

To:

FROM: Tammy Markland

DATE:

SUBJECT: Director of Schools Permission to Conduct Study

I would like your permission to conduct a research study in the _____ School System as part of my doctoral dissertation at Milligan College. I am researching the effects of a mobile book lab on the summer reading regression of at-risk elementary students.

The purpose of this study is to determine if reading self-selected books over the summer break can improve the reading achievement of at-risk students and reduce their amount of summer regression if the books align with their reading levels and interests, and if teachers and parents provide scaffolding in the form of oral reading practice and comprehension strategies scaffolding.

The study will be conducted during the summer of 2018 as part of the _____. Elementary at-risk students who attend the mobile book lab program will be asked to complete a questionnaire designed to access oral reading and comprehension scaffolding and to monitor the student's reading activity. A randomly selected group of at-risk students who did not participate in the mobile book lab program will be asked to participate in the study as well.

AIMSweb universal screener data will be collected from May 2018 and September 2018 for all participants. These data will be stored electronically. The hard copies of the questionnaires will be stored in a locked filing cabinet. Only the researcher will have access to the data and it will only be used for research purposes. All data will be destroyed once the study is complete. Student names will not be included in the findings of the study. If the study is published or presented to a professional audience, no personally identifying information will be released.

Student participation is strictly voluntary and students may withdraw from the study at any time. Students and parents have the right to refuse to answer any questions asked on the questionnaire. A copy of the informed consent forms and questionnaire items are attached for your information.

One of the possible benefits of this study for your school district is determining the impact the _____ program has on reducing the summer reading regression for at-risk elementary students. This study will also reinforce students reading comprehension skills and provide the parents with scaffolding suggestions, so they can help their children become better readers. Interaction with parents from teachers and community leaders in a relaxed environment will help build closer and more positive relationships with parents.
Please sign and return one copy of this form to:

Tammy Markland

Your signature indicates that you have read and understood the information provided above, that you willingly agree for me to conduct this study in the _____ System, and that you have received a copy of this form.

Respectfully,

Tammy Markland

I hereby consent to my school district's participation in the research described above.

_____

School District

_____

Director of Schools Signature

_____

Director of Schools Print Name

_____

Date

APPENDIX C

Principal Permission to Conduct Study

To:

FROM: Tammy Markland

DATE:

SUBJECT: Principal Permission to Conduct Study

I would like your permission to conduct a research study at _____ School as part of my doctoral dissertation at Milligan College. I am researching the effects of a mobile book lab on the summer reading regression of at-risk students.

The purpose of this study is to determine if reading self-selected books over the summer break can improve the reading achievement of at-risk students and reduce their amount of summer reading regression if the books align with their reading levels and interests, and if teachers and parents provide scaffolding in the form of oral reading practice and comprehension strategies scaffolding.

The study will be conducted during the summer of 2018 as part of the _____. Elementary at-risk students who attend the mobile book lab program will asked to complete a questionnaire designed to access oral reading and comprehension scaffolding and to monitor the student's reading activity. A randomly selected group of at-risk students who did not participate in the mobile book lab program will asked to participate in the study as well.

AIMSweb universal screener data will be collected from May 2018 and September 2018 for all participants. These data will be stored electronically. The hard copies of the questionnaires will be stored in a locked filing cabinet. Only the researcher will have access to the data and it will only be used for research purposes. All data will be destroyed once the study is complete. Student names will not be included in the findings of the study. If the study is published or presented to a professional audience, no personally identifying information will be released.

Student participation is strictly voluntary, and students may withdraw from the study at any time. Students and parents have the right to refuse to answer any questions asked on the questionnaire. A copy of the informed consent forms and questionnaire items are attached for your information.

The possible benefits of this study for your school is determining the impact the _____ program has on reducing summer reading regress for at-risk students. This information can be used to encourage greater participation by your students in the _____ program during future summers.

Please sign and return one copy of this form to:
Tammy Markland

Your signature indicates that you have read and understood the information provided above, that you willingly agree for me to conduct this study at _____ School, and that you have received a copy of this form.

Respectfully,

Tammy Markland

I hereby consent to my school's participation in the research described above.

_____

School

_____

Principal's Signature

_____

Principal's Print Name

_____

Date

APPENDIX D

Parent Informed Consent Letter

Dear parents and/or Guardians,

Your child _____ has been invited to participate in the research study that is designed to determine if reading self-selected books over the summer break can improve their reading achievement and reduce their amount of summer slide, reading loss. This study will be conducted by Tammy Markland, a doctoral student at Milligan College, under the supervision of Dr. Patrick Kariuki.

The study will be conducted during the summer of 2018 as part of the _____. Elementary students who attend the mobile book lab program will asked to complete a questionnaire designed to access oral reading and comprehension scaffolding and to monitor the student's reading activity. A randomly selected group of students who did not participate in the mobile book lab program will asked to participate in the study as well.

In the fall of 2018, AIMSweb universal screener data and STAR testing data from May 2018 and Septmeber 2018 will be collected on all participants from their elementary school. This data will be stored electronically. The hard copies of the questionnaires will be stored in a locked filing cabinet. Only the researcher will have access to the data and it will only be used for research purposes. All data will be destroyed once the study is complete.

Your child's name will not be included in the findings of the study. The findings of this study will be shared with the administration in the _____ System. If the findings of this study are published or presented to a professional audience, no personally identifying information will be released.

The possible benefits from your child's participation is this study is the curtailment of their summer slide in reading.

It is important to understand that your child's participation in this study is completely voluntary and he or she may withdraw from the study at any time. You have the right to refuse your child's participation in the study, or withdraw you child from the study at any time. You and your child have the right to refuse to answer any items on the questionnaire.

Your child will receive no compensation for participating in this study.

If you have any questions regarding the study procedures, please contact Tammy Markland at _____. If you have further questions, you may also contact Dr. Patrick Kariuki at _____.

Please sign and return one copy of this form and keep the other copy for your records.

I understand to my satisfaction the information in the consent form regarding my child's participation in the research project. I have received a copy of this informed consent form, which I have read and undersigned. I hereby consent to my child's participation in the research described above.

The participant is a minor (age _____).

_____ _____
Parent/Guardian Signature Date

Relationship to minor (Check): ____Mother ____Father ____Legal Guardian

APPENDIX E

STUDENT ASSENT FORM

Hello, my name is Tammy Markland and I am doing a research project to learn about the effects a mobile book lab has on summer reading regression. I am inviting all elementary at-risk students to be in the study. I am going to read this form to you. I want you to learn about the project before you decide if you want to be in it.

WHO I AM:
I am a student at Milligan College. I am working on my doctrate degree. You may already know me as 4th grade ELA teacher at _____, but this study is separate from that role.

ABOUT THE PROJECT:
If you agree to be in this project, you will be asked to:

- ____ Answer some questions when you board the mobile book lab
- ____ Spend about two minutes answering the questions
- ____ Answer the same questions each time you board the bus

Here are some sample questions:
____ How many books did you get?
____ Did you finish reading your books?
____ How many times did you read your books?
____ Did you read your books alone or to someone else?
____ Did you use any reading strategies (rereading, asking questions, making predictions, making connections, or summarizing) to improve your understanding as you read?

IT'S YOUR CHOICE:
You don't have to be in this project if you don't want to. If you decide now that you want to join the project, you can still change your mind later. If you want to stop, you can.

Being in this project might make you tired or stressed, just like when your teacher asks you questions about reading. I am hoping this project might help others by discovering the effect a mobile book lab has on summer reading regression for at-risk students in _____.

You will not receive any type of reward or extra credit for participating in this study.

PRIVACY:
Everything you tell me during this project will be kept private. That means that no one else will know your name or what answers you gave. The only time I have to tell someone is if I learn about something that could hurt you or someone else.

ASKING QUESTIONS:
You can ask me any questions you want now. If you think of a question later, you or your parents can reach me at _____. If you or your parents would like to ask my college a question, you may contact the Milligan College Institution Review Board at IRB@milligan.edu.

I will give you a copy of this form.

Please sign your name below if you want to join this project.

Name of Child _____

Child's Signature _____

Date _____

Researcher's Signature _____

APPENDIX F

Oral Reading and Comprehension Scaffolding Questionnaire

1. How many books did you get today?
2. Did you read the books you got last week? ☐ Yes ☐ No, I stopped on page_____.
3. How many times did you read your books? ☐ 1 time ☐ 2 times ☐ 3 or more times
4. What did you do to help you better understand your books?
   - ☐ I reread parts of my books.
   - ☐ I made predictions about my books.
   - ☐ I asked questions as I read my books.
   - ☐ I made connections (text-to-text, text-to-self, text-to-world).
   - ☐ I summarized parts of my books.
5. After you read your books, did you tell someone in your family what the book was about.
   ☐ Yes ☐ No
6. Did you read your book aloud to someone in your family? ☐ No ☐ Yes
   - ☐ Did you read smoothly?
   - ☐ Did you read with expression?