University of Mississippi

eGrove

Electronic Theses and Dissertations

Graduate School

2017

The Effects Of Closed-Captioned Television On The Oral Reading Fluency Of Low Socioeconomic 2nd Grade Students

Kristina Livingston
University of Mississippi

Follow this and additional works at: https://egrove.olemiss.edu/etd

Part of the Education Commons

Recommended Citation

THE EFFECTS OF CLOSED-CAPTIONED TELEVISION ON THE ORAL READING
FLUENCY OF LOW SOCIOECONOMIC 2ND GRADE STUDENTS

A dissertation submitted in partial fulfillment
of the requirements for the degree of
DOCTOR OF EDUCATION

The University of Mississippi

by

KRISTINA LIVINGSTON

May 2017

ABSTRACT

Research into the use of closed-captioning has provided exciting evidence into the possibilities of its usefulness as a literacy tool. Although previous studies have shown the efficacy of closed-captioning as a tool that can assist the deaf and hard-of-hearing, those learning a second language, and hearing students, the existing scholarship lacks important information regarding closed-captioning and its impact on oral reading fluency. Previous scholars have proven that CC can assist all students on word recognition, vocabulary, and reading comprehension; however, there is a dearth of new research focusing on low socioeconomic students from rural communities. This quantitative, quasi-experimental, comparative study explores this missing research by examining the effects that closed-captioning television could have on the oral reading fluency of elementary children living in poverty. 2nd grade students from a Title I school in the Mississippi Delta were assigned to two different groups: the treatment group participated in viewing the *Arthur* video series with captions, while the control group participated in viewing the same videos without captions. Pretests and posttests were given using Reading Curriculum Based Measures from Aimsweb. The results of the ANCOVA showed no statistical differences between the two groups; however, the study did uncover a specific need for further studies on how closed-captioning can impact the literacy of children living in poverty.

DEDICATION

To my parents,
For giving me direction when I needed it most

To my husband,
For making me laugh when I needed to most

To my littles,
For giving me hugs when I needed them most

.

ACKNOWLEDGMENTS

To my unbelievable team of committee members for patiently and lovingly helping me through this entire process. To Dr. Lane Gauthier, who proved to be an amazing motivator and mentor. Thank you for your constant encouragement, support, and willingness to read and reread my many drafts. My dream of completing this in one year would not have been possible without you. To Dr. Deborah Chessin, who served as my trusted advisor for so many years. I appreciate your honesty, guidance, and friendship. To Dr. Hsien-Yuan Hsu, who provided invaluable instruction and direction in the world of quantitative research. Thank you for your patience and assistance. To Dr. Susan McClelland, who stepped in to save the day on more than one occasion. Thank you for your amazing guidance in all things. To Dr. Jerilou Moore, who first encouraged me to seek this degree. Thank you for your vision and support. You are truly the reason I began this journey.

To my mom, who was my first teacher in life. Thank you for the hundreds of hours of baby-sitting, the countless loads of clean laundry, and the unlimited supply of love and support. There is no way I would have completed this journey without you.

To my dad, who always said he wanted a doctor in the family. Thank you for not only teaching me, but for showing me, the importance of gaining a good education and developing a strong work ethic.

To my sister, who was my first student growing up, even when she didn't want to be. Thanks for being the perfect guinea pig.

To my husband, who has been the most patient person on the planet. Thank you for being an amazing supporter and an incredible father. Can we go on vacation now?

To my littles, who teach me new things every day. Thank you for your unconditional love and infinite supply of cuddles. My greatest joy is being your mom.

To Ms. Hayes, who so graciously allowed me into her school. Thank you for your willingness to support me and my research and for reminding me why education is so much fun.

To Ms. Decostanza and Ms. Edwards, who are my favorite 2nd grade teachers in the world. Thank you for allowing me into your class and for making my research a priority for you as well. You inspire me to be a better educator.

To the students, who excitedly participated in this study. Thank you for helping me with my homework. I promise, the pizza party is coming!

To Becky Floyd, who was one of my first mentors when I became an educator. Thank you for your guidance and instruction when I first started teaching struggling readers and for your help with this very study.

To Gay Darnell, who was my own 2nd grade teacher. Thank you for showing me a what it means to have a teacher's heart.

To Dr. Joel Amidon, who reminded me that teaching with agape is the only way to change the world. Thank you for your guidance.

To Elizabeth Jamison, who provided amazing support to me as a writer. Thank you for the countless emails, suggestions, and feedback.

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER I

INTRODUCTION

Of all the civil rights for which the world has struggled and fought for 5,000 years,
the right to learn is undoubtedly the most fundamental....
--W.E.B. Du Bois, "The Freedom to Learn"

Learning how to read is not only essential for success within the classroom, but is also a means for survival in this ever-changing world; yet, according to the National Center for Education Statistics (NCES, 2003), 14% of Americans (ages 16 years and older) are considered illiterate, or unable to read or write. This means that approximately 30 million adults in the United States are unable to read or write at even the most basic level. Another 29% of adults contain only rudimentary reading skills and still lack the fluency, accuracy, and comprehension needed to understand newspapers, manuals, or health guidelines. Of these adults in the lowest literacy bracket, 43% live in poverty. While these statistics may seem alarming, the true travesty may be that students currently enrolled in this nation's public school system are at risk for continuing this trend.

While this information is disheartening, it cannot come as a surprise. According to the National Assessment of Educational Progress (NAEP, 2015), only 36% of 4th graders and 34% of 8th graders are found to be proficient readers, or readers with the ability to "integrate and interpret text as well as draw conclusions and make evaluations at the fourth-grade level" and

"summarize main ideas and themes, make and support inferences, connect parts of a text, and analyze text features" at grade eight. For students eligible for the National School Lunch Program for free or reduced lunches, the statistics are even more alarming, with only 21% of 4th graders and 20% of 8th graders in the proficient and advanced categories. This leaves almost 80% of students within the lowest socioeconomic bracket with the inability to read proficiently. In fact, 44% of 4th graders and 36% of 8th graders within the lowest socioeconomic status (SES) are unable to even achieve a basic score in reading on the national exam (NCES, 2015).

Research has continually shown that SES predicts academic achievement (Hess and Holloway, 1984; White, 1982; Pungello et al., 1996, American Psychological Association, 2016) and that students from the lowest income bracket often have the poorest academic success (Morgan, Farkas, Hillemeir, & Maczuga, 2009). Low SES children often have access to fewer educational resources such as books or computers (Orr, 2003; Aikens & Barbarin, 2008). They also lack adequate exposure to print. 62% of parents from the highest SES read to their children daily while only 36% of parents from the lowest SES read to their children each day (Coley, 2002). In fact, children who come from a home that is considered print-rich, containing books, magazines, newspapers, etc., are found to have the equivalent of three years more education than children who come from a print-deficient environment (Evans, Kelley, Sikora, & Treiman, 2010). These children, who spend more time immersed in print, both alone and with their parents/guardians, come to school with richer vocabularies and better comprehension skills, both of which are strong indicators for school readiness (Hart & Risley, 2003; Mol & Bus, 2011). In addition, schools in communities with high populations of low SES households are often under-resourced in terms of both quality educators and materials (Snow, Burns, & Griffin, 1998; Aikens & Barbarin, 2008; Muijs, Harris, Chapman, Stoll, & Russ, 2009) and are found to

continually "miss the mark" on state tests and academic achievement. Even though many low SES children could have the opportunity to grow and blossom within the school system, the very schools they attend contribute to the problem.

This lack of proficiency in reading is not only an issue within the world of academia, but it also has major implications for the overall well-being of these low SES students. Studies have shown students from poor families are more likely to suffer from a number of health and behavioral issues (Sweet, 2004 Morgan, Farkas, Hillemeier, & Maczuga,2009; S. Rumberger, 2011). Low SES students are also five times more likely to drop-out of school (Chapman, Lair, Ifill, & KewalRamai,2011), engage in crime, rely on public assistance, and are less likely to find a job with a living wage (Belfied & Levin, 2007). Currently, 20% of all school-aged children live in poor families (Snyder & Dillow, 2012). This means that approximately ten million children are likely struggling to be successful students and will continue to struggle outside of the walls of the classroom.

The question remains, what can be done to assist those living in poverty to become more proficient readers? While children from the lowest SES bracket have limited access to educational resources (Hoff-Ginsberg & Tardif, 1995), approximately 98.7% of low income homes within the United States have a working television (U.S. Department of Energy, 2005). Even with the rise of technological gadgets such as cell-phones and Ipads, television still proves to be the medium that children, particularly those in the lowest income bracket, use most frequently. Children between the ages of 0-8 years old spend an average of two hours a day in front of a television screen (Common Sense Media, 2014) with those in the lowest SES bracket spending more time with television than their peers (Tandon et. al, 2012; Common Sense Media,

2015). Could this medium become the resource to help reduce illiteracy in those who desperately need additional support? This study seeks to answer that very question.

Although research has been available for years addressing the importance of reading materials in the home, low socioeconomic families still spend much more time watching television than they do reading print. This lack of engagement with text in the home often negatively impacts children's ability to read at the same rate of their peers in other socioeconomic brackets. All areas of literacy are affected, particularly oral reading fluency, when children are not exposed to print. Oral reading fluency (ORF) is the ability to read a text quickly and accurately and with expression (Rasinksi, 2006). It is the bridge between decoding, the ability to convert a word from print to speech, and comprehension, the process of extracting and constructing meaning through interaction and involvement with print (Pikulski & Chard, 2003). Fluent readers automatically recognize words and groups of words as they read. They are also able to make their reading sound effortless and expressive. Students who read fluently are able to concentrate their attention on making connections to the ideas in a text and between these ideas and their own background knowledge. Less fluent readers must direct their attention primarily on decoding individual words; therefore, they have little attention left for comprehending the text (National Reading Panel, 2000). Without strong oral reading fluency skills, students often have a difficult time developing their vocabulary, and without a strong vocabulary, students are unable to comprehend text, which is ultimately the goal of reading.

Because low SES children spend more time in front of the television than with print, it is important to discover ways that television can be used as a teaching tool. One resource that may make this possible was developed over forty years ago in the form of closed-captioning (CC). The invention of CC, or same-language subtitling, not only began a total transformation for how

4

the deaf and hard-of-hearing received information, but it opened up a world of possibilities for how learning could occur through television. The purchase of a decoder was required to access this resource in the early years of the invention, but the Telecommunications Act of 1996, required all televisions to have the decoders embedded into their system, which now makes this free resource available to all who own a television (National Captioning Institute, NCI).

The decoder allows printed words to accompany spoken words in real-time with just the push of a button. Closed-captioned television could very well be the instructional tool needed to help low SES children gain more exposure to print and begin bridging the learning gap that has been set between their income bracket and those from higher income levels. When students watch interesting, engaging, relevant, and age-appropriate videos with the CC on, they are able to see the words, hear them being said with appropriate fluency, and make meaningful connections between the words and the visuals on screen. This, in turn, could assist students in the progression and mastery of reading through increasing their word identification, oral reading fluency, and vocabulary skills. This study will focus on the impacts CC may have on oral reading fluency.

Statement of the Problem

Children from low SES families are 1.3 times more likely than children from other SES categories to experience reading difficulties at some point in their educational career (Brooks-Gunn & Duncan, 1997). Although there are a myriad of variables involved that lead to this problem, there are two that will be emphasized within this study. First, low SES children have access to a limited literacy-enhancing home environment both in the form of oral language exposure and with their access to print. Secondly, children from low SES families spend excessive time watching television.

Purpose of the Study

The purpose of this quasi-experimental, quantitative study is to determine the treatment effect of closed-captioned television on the oral reading fluency rates of low socioeconomic 2nd grade students living in the Mississippi delta. Choosing 2nd grade students seemed most appropriate for this research for several reasons. Jensema and McCann (1995) conducted a study of presentation speed of television programs with CC and found that most children's programs ranged from 120-130 words per minute. According to Hasbrouck and Tindal (2005), the average second grader should be able to read at least 89 correct words per minute (CWPM) by the end of the year with students in the 75th percentile reading at least 117 CWPM. Utilizing the closed-captioning television as a type of read-aloud just above the average student's reading level should provide a great scaffolding tool without making the students reach their frustration level with the captioning speeds. In addition, educators have often claimed that students in grades K-2 are learning to read while students in grades 3-5 are reading to learn. Conducting my own observations of classroom teachers across these different grade levels indicates this is a reality. Often times, teachers in grades 1-3 spend much of their time focusing on phonemic awareness, phonics, and fluency, while teachers in grades 4 and up spend much more of their instructional time in vocabulary and comprehension instruction. (Montgomery, Ilk, & Moats, 2013). Even though there are fluency standards found after 2nd grade, many teachers in upper elementary classes fail to understand the importance of oral reading fluency or how to appropriately teach these components to struggling students. In 2nd grade students must not only continue to master increasingly difficult phonetic skills but also become proficient in reading fluently in order to give them a better chance at bridging the gap between basic skills and more complex texts in later grades.

Research Question

To what extent does closed-captioning affect the oral reading fluency, including speed and accuracy, of low SES 2nd grade students controlling for their pretest performance?

Hypothesis

The hypothesis is that 2nd grade students who watch the *Arthur* episodes with the closed-captioning on (the treatment group) will outperform the 2nd grade students who simply watch the television show with no captions (the control group) in terms of oral reading fluency. In other words, the children, who are exposed to both television and print at the same time, will show significant improvement in their oral reading fluency when compared to those who were simply exposed to the television program.

Theoretical Framework

There are two primary theories that support the idea that captioning could be used as a tool to improve literacy. These will be discussed in more detail in Chapter 2.

The Dual Coding Theory.

The *dual coding theory* states that when supporting information is provided in two different ways, such as through audio and visual inputs, comprehension of the material increases (Linebarger, Kosanic, Greenwood & Doku, 2004). This cognitive theory focuses on both verbal and nonverbal memory processes of the brain and assumes that every mental representation retains qualities, linguistic or nonlinguistic, of the original experience in which it arose (Unrau & Alvermann, 2004, p.66).

Traveling Lens Theory.

An additional theory to consider in relation to closed-captioning is the *traveling lens theory*, based on Vygotsky's zone of proximal development which is "the distance between the actual developmental level as determined by independent problem solving and the level of

potential development as determined through problem solving under adult guidance, or in collaboration with more capable peers" (Vygotsky, 1978, p.86). The *traveling lens theory* finds that stimuli must fall within a certain range in terms of both complexity and interest levels (Huston and Wright, 1982). The information must be accessible yet compelling enough to hold the child's interest. This theory also suggests that once children develop skills for comprehending information via one medium (e.g. television), they will likely be able to comprehend similar information through other forms of medium (e.g. books; Neuman, 1995).

Context of the Study and Overview of Methods

  Design.

  A comparative quasi-experimental quantitative design was used to address the research questions in this study (Keppel, 1991). This study took place in two different 2nd grade classes at a literacy support, Title I school found in the Mississippi delta. (In this case, a literacy support school indicates a school that is receiving assistance from a state-appointed literacy coach due to continually low test scores in the area of literacy.) In the treatment group, students watched 12-15 minute episodes of the age-appropriate television program, *Arthur*, four days a week with the CC option on. The control group watched the same programming without the CC option on. Both groups participated in these viewings for an 8-week period during their afternoon silent-reading time. A pretest-posttest design compared the students' initial fluency and accuracy rate with their final fluency and accuracy scores. Chapter 3 will provide more detailed information regarding this design.

Sample.

In order to ensure the key demographic (low SES) for this study was addressed, a Title I school from the Mississippi delta was chosen. 100% of the students at this particular school receive free and reduced lunch based on the information provided in Tables 1 and 2.

Table 1

Income Eligibility Guidelines: Scale for Free Meals

Household Size	Annually	Monthly	Twice per Month	Every 2 Weeks	Weekly
1	$15,444	$1,287	$644	$594	$297
2	$20,826	$1,736	$ 868	$801	$401
3	$26,208	$2,184	$1,092	$1,008	$504
4	$31,590	$2,633	$1,317	$1,215	$608
5	$36,972	$3,081	$1,541	$1,422	$711
6	$42,354	$3,530	$1,765	$1,629	$815
7	$47,749	$3,980	$1,990	$1,837	$919
8	$53,157	$4,430	$ 2,215	$2,045	$1,023

Note: From Mississippi Department of Education (2016).

Table 2

Income Eligibility Guidelines: Scale for Reduced Meals

Household Size	Annually	Monthly	Twice per Month	Every 2 Weeks	Weekly
1	$21,978	$1,832	$916	$846	$423
2	$29,637	$2,470	$1,235	$1,140	$570
3	$37,296	$3,108	$1,554	$1,435	$718
4	$44,955	$3,747	$1,874	$1,730	$865
5	$52,614	$4,385	$2,193	$2,024	$1,012
6	$60,273	$5,023	$2,512	$2,319	$1,160
7	$67,951	$5,663	$2,832	$2,614	$1,307
8	$75,647	$6,304	$3,152	$2,910	$1,455

Note: From Mississippi Department of Education (2016).

This particular school contained two classes for each grade. Data was collected from 37 2nd grade students (ages seven-nine). Students from one 2nd grade class (n=14) were provided with the *Arthur* video series and exposed to closed-captioning during each episode (treatment condition). Students from the other 2nd grade class (n=16) were exposed to the *Arthur* video

series with no closed-captioning (control condition). All participants in both the control and treatment groups were African American. One student from the control group qualified for special education services through speech therapy. The average age of participants in the treatment group was 8 years and the average age for the control group was 7 years 6 months. Participants were chosen through convenience sampling, thus limiting the generalizability of the study.

Variables.

The independent variable in this study was the condition to which each group of students was assigned. Both groups participated in viewing episodes of *Arthur and Friends*, a popular children's show created by Public Broadcasting Services (PBS) and based on books written by Marc Brown. Each episode, ranging from 12-15 minutes, was shown to both the treatment and control groups over the span of eight weeks with different episodes being viewed four days each week. The treatment group was allowed to view the videos with both the sound and closed-captioning on. The control group simply viewed the videos with the sound on. Chapter 3 contains additional details on these conditions.

The dependent variable was the Aimsweb Reading Curriculum Based Measure (RCBM) scores that provided both a calculation for rate (in correct words per minute) and accuracy (through a percentage) to measure the oral reading fluency of the students. The pretest was given in November, 2016 and the posttest was given in February, 2017 after eight full weeks of video viewings. These assessments were administered by both the researcher and a trained literacy specialist to ensure interrater reliability. Parents gave permission to the researcher to assess and gather relevant information from the participating students.

Instrument.

The Curriculum Based Measure (CBM) is the most common assessment for oral reading fluency (ORF). This standardized assessment measures both the rate and accuracy of a reader during a one-minute timed reading of an unfamiliar grade-level passage. Both the student and the assessor have a copy of the passage. As the student reads aloud, the teacher listens for errors and marks them on her copy. At the end of one minute, a final score for both rate and accuracy are calculated. Hosp, Hosp, & Howell (2007) explain the benefits of CBM testing:

> ORF CBM provides a reliable and valid way to identify students who are at risk for reading failure, identify which students are not making adequate progress given the instruction they are receiving, identify students' instructional level, and identify which students need additional diagnostic evaluation (p. 70).

For this particular study, the CBMs were provided by Aimsweb. Aimsweb is an assessment program designed to assist schools with conducting universal screening, progress monitoring, and data management in the areas of reading and math. This program is a well-known system used in schools across the nation. The data management system allows for students' assessment scores to be norm-referenced or criterion-referenced to provide valuable data to administrators and teachers. The Reading Curriculum Based Measures (RCBMs) include grade-appropriate passages at approximately 250 words for grade 2 and the appropropriate number of syllables and sentences based on the Fry readability formula, a well-known quantitative method for analyzing text level (Fry, 1968). These passages were both field tested and evaluated using various readability indicators (Lexile, Flesch-Kincade, Powers, Spache, and SMOG). The RCBMs provided information regarding both the rate of speed, measured in words read correctly in one minute and accuracy.

Procedures

2nd grade participants were recruited from a rural Title I school. Parents from both the control and treatment groups were asked to sign a permission form for participation in the study and for a release of basic information regarding the students' birthdates and qualification for special services. Each student was administered three Aimsweb Reading Curriculum Based Measures (RCBMs) prior to the experiment. These each include a 2nd grade reading passage in which the students were allowed to read orally for one minute. Over the course of the next eight weeks, each group of students watched episodes of the PBS show, *Arthur,* lasting from 12-15 minutes each. One group (the control) simply watched the videos as they normally would. The other group (the treatment) watched the videos with both the sound and closed-captioning on. Both classroom teachers were trained on the appropriate procedures and specific conditions (seating arrangements, lighting, use of CC if applicable, documenting absences and videos watched on a checklist). In addition, the school's technology coordinator was used as a point of contact if any issues arose when viewing videos or attempting to use closed-captioning. This took place over a time period of 8 weeks, which is an appropriate length of time to attempt an intervention according the Tier II guidelines found in the Response to Intervention (RtI) and Multi-Tiered System of Support (MTSS) manuals. At the end of the eight weeks, each student was again given three fluency passages to obtain a posttest score from the median. An Analysis of Covariance (ANCOVA) was used to compare the treatment and control groups in terms of fluency and accuracy.

Significance of the Study

This study is highly significant in both the general education setting as well as within the real world. While studies have shown that closed-captioning can benefit the deaf and hard-of-

hearing (Koskinen, Wilson, & Jensema, 1986; Lewis & Jackson; Ward, Wang, & Loeterman, 2007), those learning a second language (Neuman & Koskinen, 1992; Lommel, Laenen, & d'Ydewalle, 2006) as well as be a useful literary tool for hearing students (Koskinen et al, 1997; Linebarger, 2001; Linebarger, Piotrowski, Greenwood, 2010; Strassman, MacDonald, & Wanko, 2010; Trelease, 2013), there have been limited and inconclusive studies to show if ORF can be increased in low SES children by simply allowing them to watch television with both the sound and closed-captioning on. This study has the potential to not only unlock a door, but tear down a wall that separates the haves and have-nots in terms of literacy. Practitioners, administrators, policymakers, parents, and even the entertainment industry can find ways to utilize closed-captioning to help create better readers in practically every American home.

Limitations and Delimitations

Limitations.

There are several limitations that must be considered regarding this study. The sample size was relatively small, with only 30 total participants, making the findings hard to generalize. Because 100% of the students did qualify for free and reduced lunch and fall into the lower socioeconomic bracket, these findings may provide important contributions to a larger body of knowledge dealing with the use of closed-captioning to assist struggling students from the lowest income bracket. Regression to the mean was also a possible issue within this study, as some students who scored well above the national average and showed proficiency in ORF on the pretest showed little to no growth on the posttest. This, in conjunction with the small sample size, could have statistical impacts on the outcomes. The utilization of only the RCBM (rate and accuracy) is also a limitation as it does not account for the other four components of reading: phonemic awareness, phonics, vocabulary, or comprehension or assess the expression of the

student, which is a subcomponent of fluency. In this study, students spent just 12-15 minutes in front of the screen each day. This limited exposure to closed-captioning may have hindered the results. The last noted possible limitation is selection. While classes at this particular school site were not purposely ability grouped, students were similarly grouped based on their placement from the previous year. For instance, class 2A included, for the most part, the same students as 1A did the year before. Depending on the strength of their previous 1st grade teacher, one class may have come to 2nd grade better prepared than the other.

Delimitations.

There were also specific delimitations involved with this study. First, this study focused only on quantitative data and did not take into account any qualitative information such as students' interest in shows or level of enjoyment watching videos instead of reading text. The researcher felt the use of a PBS show that connected to children's literature would be most appropriate in the school setting. Qualitative information could provide a clearer direction for research moving forward.

Sampling could be considered another issue. While the researcher had access to a variety of Title I schools, she chose to focus solely on a school and faculty that she knew. This helped ensure that the research would likely be conducted as prescribed. Other grades in this school were intentionally not chosen to participate, as students and teachers in grades 3 and 4 were under constant pressure to perform well on the state test and were unlikely to have the time to devote to this project. Grades K and 1 were also excluded due to the lack of fluency and decoding skills students would need to be able to read the captions.

Operational Definitions

For the purpose of this study, the following definitions are used:

Closed-Captioning (CC) is the process of providing text that matches the audio of a given television program, movie, or other media outlet. It was designed to assist the deaf and hard-of-hearing in finding enjoyment and understanding of the media world (NCI).

Reading Curriculum Based Measure (RCBM) is defined by Aimsweb (2012) as "a brief, individually administered, standardized test of oral reading for grades 1 (winter) through 12" (p.4).

Oral reading fluency (ORF) is defined by the National Reading Panel (2000) as "the ability to read text quickly, accurately, and with proper expression" (p.3-5).

Title I refers to schools that receive additional federal funding due a high percentage enrolled students being from a low-income family.

Correct Words Per Minute (CWPM) is a measurement gained through giving an RCBM. It involves subtracting the total number of errors from the total number of words read.

Response to Intervention (RTI) and the Multi-Tiered System of Supports (MTSS)*:* The Response to Intervention program, now being referred to as the Multi-Tiered System of Supports, refers to the Three Tier Instructional Model adopted by State Board of Education. Tier I involves quality classroom instruction, Tier II calls for focused supplemental instruction at least 8 weeks and Tier III calls for intensive interventions for over 16 weeks (Mississippi Department of Education, 2012).

National School Lunch Program (NSLP)*:* This program assists families and schools in providing meals to students who meet specific criteria in terms of income. Children from families with incomes at or below 130% of the poverty level qualify for free meals. Those with

incomes between 130% and 185% of the poverty level are eligible for reduced-price meals.

(United States Department of Agriculture Food and Nutrition Service, 2013).

Socioeconomic status (SES) is measured as a combination of education, income and occupation

(APA, 2016).

Summary

98% of low SES American households own at least one television (U.S. Department of

Energy, 2005), finding ways to use it as an instructional tool could make a world of difference

for those who struggle to gain proficiency in reading, particularly those considered to be low

SES. This study seeks to determine if closed-captioning can be an effective tool in helping to not

only bridge the gap from decoding to comprehension through increased oral reading fluency, but

also to bridge the literacy gap between the haves and have-nots.

CHAPTER II
REVIEW OF THE LITERATURE

Introduction

This review of literature provides a closer inspection of how socioeconomic status is defined, viewed, and how it impacts the lives of students. It explores the most current research investigating how students learn to read, and subsequently, how they develop oral reading fluency. This literature review also examines the effectiveness of printed words on television, either in the form of closed-captions or subtitles, and focuses on the previous research conducted to show the effects that CC has had on the reading achievement of the hearing impaired, second-language learners, and elementary students without an auditory disability.

Socioeconomic Status Defined

It is difficult to discuss one's socioeconomic status (SES) in simplistic terms, as it has repeatedly been defined by different variables in a variety of studies over the past nine decades of research. The National Assessment of Educational Progress (NAEP) suggested a specific definition to SES as:

> SES can be defined broadly as one's access to financial, social, cultural, and human capital resources. Traditionally a student's SES has included, as components, parental educational attainment, parental occupational status, and household or family income, with appropriate adjustment for household or family composition. An expanded SES

measure could include measures of additional household, neighborhood, and school resources (Cowan et. al, 2012, p. 14).

While financial, social, cultural, and human capital resources all play a role in a child's social and economic status, the first three components (family income, parents' occupation, and parents' education) will be used in the definition of SES for this study, with a heavy emphasis placed upon family income, a measure that is readily available and reported through a percentage of Title I students or students qualifying for the National School Lunch Program (NSLP).

While pinpointing the specific components of SES has been challenging, researchers agree that a child's social and economic status heavily affects his/her academic ability. Living in a low SES environment often correlates with negative health, safety, and developmental issues, each of which act as a risk factor in reading achievement (Snow, Burns, and Griffin, 1998). While a child's SES has been shown to predict cognitive abilities (Hess and Holloway, 1984; White, 1982, Pungello et al., 1996), the correlation between SES and academic achievement is even stronger when a child, within the lowest SES bracket, attends a school with a high percentage of low SES students. This could be due to a number of factors external from the home (i.e. lack of school resources, uncertified staff, continual teacher turnover) (Lyons, 2001).

Reading is Fundamental

Reading, the fundamental component of education, has been consistently linked to an individual's overall achievement and success over his or her lifetime. Because over half of all school-aged children in the United States read below their grade level, a national emergency has been declared within the area of education (Huang, Nelson, & Nelson, 2008). With children coming from the poorest homes at the greatest risk for illiteracy, there is little doubt that additional steps must be taken to bridge the gap between the haves and have-nots.

The Reading Brain.

While learning to speak comes naturally for all children who are not neurologically or hearing impaired, acquiring reading and writing skills is a much more difficult task that does not occur by chance within the human brain (Moats & Tolman, 2009). Reading is the product of two different subskills: *printed word recognition and language comprehension* (Moats & Tolman, 2009). When readers can accurately and fluently recognize words, they can make space for other cognitive regions within the brain that assist with comprehension.

Moats and Tolman (2009) took a closer look at the complex workings of the brain, as it pertains to the act of reading. Originally proposed by Seidenberg and McClelland (1989), and later verified in additional brain studies (Berninger & Richards, 2002; Eden & Moats, 2002; Shaywitz, 2003), students use a four-part processing system during reading. As *Figure 1* shows, the phonological processor, located in the back of the frontal lobe, is responsible for language input and output, speech-sound awareness, and prosody. This processor is directly linked to phonemic awareness, one of the five essential components of reading. The orthographic processor, found in the occipital lobe, handles storage of print, including letters and letter patterns as well as punctuation marks and spaces. The angular gyrus connects these two processors and allows for effective sound-symbol associations to be identified (phonics). These three working together allow for a reader to be able to accurately decode words; however, the ultimate goal of reading is comprehension which is controlled by the temporal areas of the brain. These areas help the reader to not only understand the word, but to also recognize its context. It is imperative that the processors work fluently on their own and as a team in order for true comprehension to develop. Students cannot comprehend a text if they are unable to read it with accuracy and fluency.

Figure 1: Areas of the Brain Involved in Reading

| Speech-sound awareness (phonological processor) | Sound-symbol associations (angular gyrus) |
| Language comprehension (context and meaning processors) | Letter and letter-pattern recognition; storage of printed word images (orthographic processor) |
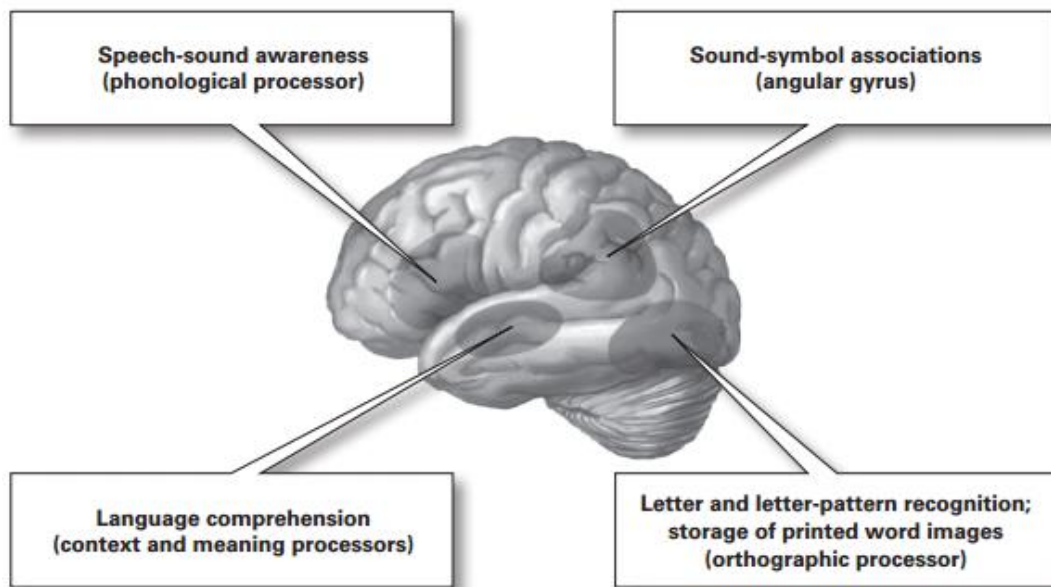
Note: From Moats & Tolman (2009).

Oral Reading Fluency

According to the National Reading Panel Report (2000), there are five components of reading: phonemic awareness, phonics, fluency, vocabulary, and comprehension. Oral reading fluency (ORF) will be the primary focus of this study. Hudson, Mercer, and Lane (2000), defined oral reading fluency as having three major elements: accuracy, speed, and expression. Oral reading fluency is accurate reading of text at a conversational rate with appropriate expression. Each significant element has a direct connection to reading comprehension. Without accuracy, a student will likely misinterpret the text; if the text is read at a rate that is either too slow or too fast, the student will likely be unable to make sense of what they are reading; and finally, poor expression often leads to confusion about the text's true message (Honig, Diamond, & Gutlohn, 2013). Because of this, all three elements must be mastered for a reader to be

considered fluent. Once readers have mastered fluency, their attention can then be placed on comprehension of the text.

Rasinski (2004) defines fluency as the bridge between the two major components of reading-decoding and comprehension. At one end of the bridge, fluency connects to accuracy and automaticity in decoding. At the other end, fluency connects to comprehension through prosody, or expressive interpretation. While fluency instruction tends to be overlooked and undervalued by many educators, studies have shown its correlation to overall reading comprehension and a lack of reading fluency predicts future reading problems (Stanovich, 1991). In 2005, Mehta, Foorman, Branum-Martin, & Taylor conducted a study involving 127 urban classrooms and over 1,300 children, and examined the interconnectedness of word-reading, spelling, reading comprehension, and general language skills. The results of this study not only found a close relationship between a child's literacy and language levels, but also found that word-reading accuracy and oral reading fluency were essential factors in relation to comprehension.

Reading Curriculum Based Measures.

To accurately assess ORF, the assessor must collect data regarding accuracy, rate, and prosody as the reader reads aloud. These assessments must be both valid and reliable. Oral reading fluency can be quantitatively measured by looking at both rate and accuracy. One common assessment, known as a Curriculum Based Measure (CBM), has been continually used to assess ORF. Teachers find the information from CBMs helpful in determining which students are at risk of failing reading and which students may need additional evaluation (Hosp, Hosp, & Howell, 2007). There is also a close relationship between SES, race, and ORF CBM scores and the overall performance on state tests, a key focus for many stakeholders today. The combination

21

of these three factors account for approximately 40% of the variation within the state test scores (McGlinchey and Hixon, 2004).

In order to administer an ORF CBM, the teacher (or assessor) listens to a student as he or she reads a grade-level passage for one minute. The teacher closely monitors the reading and marks any errors the student makes. Once the student has finished reading, the teacher subtracts the number of words read correctly from the number of words attempted.   This provides the teacher with the student's words read correct per minute (WCPM) (Honig, Diamond, & Gutlohn, 2013). A teacher can then identify if the student is at risk for reading failure by comparing the student's WCPM score to a set of national norms, similar to Hasbrouck and Tindal's (2005) in Table 3. While this data may provide important information about the student's overall ability to read, it does not provide a specific reason as to why a student may be failing to meet the expected fluency rate. Additional diagnostic assessments are needed to truly determine the underlying issues for struggling readers.

Table 3

2nd Grade Oral Reading Fluency Norms

Season	Fall	Winter	Spring
Mean	55.49	72.85	89.28
Standard Deviation	37	40.62	41.95
90th Percentile	106	125	142
80th Percentile	86	107	124
75th Percentile	79	100	117
60th Percentile	62	84	100
50th Percentile	51	72	89
40th Percentile	41	61	79
30th Percentile	30	49	68
20th Percentile	20	33	54
10th Percentile	11	18	31

Note: From Hasbrouck and Tindal (2005).

Aimsweb.

Aimsweb, an online data system for universal screening and progress monitoring, has an array of assessments to test both literacy and math skills from grades K-12. One of these assessment sets, the Reading Curriculum Based Measure (RCBM), is widely used around the country to test the oral reading fluency of students. These RCBMs consist of grade-level reading passages with a specific, and grade appropriate number of words, syllables, and symbols as dictated by the Fry readability formula (Aimsweb Technical Manual, 2012). The reading passages were written by trained educators and field tested and evaluated in terms of difficulty and alternate-form reliability. Multiple readability indicators, such as Lexile, Flesch, Powers, etc. were used to determine the correlation between the indicators and the RCBM passage grade.

Six of these passages were chosen for this study, which will be discussed in further detail in Chapter 3.

Assisted Reading

It is important to not only consider how oral reading fluency is both defined and assessed, but to also consider the most recent research regarding fluency instruction. Repeated readings (Kuhn, 2004), assisted readings/read-alouds (Kuhn & Stahl, 2003; Osborn & Lehr, 2003; Reis, McCoach, Coyne, Schreiber, Eckert & Gubbins 2007), choral readings (Rasinski, 1990), and echo readings (Robertson & Davis, 2002) are just a few common methodss for addressing oral reading fluency in the classroom. The focus of this section will be on assisted readings, as this strategy closely aligns with the study at hand. Assisted reading is simply a strategy that focuses on providing a model-read of a chosen text (Osborn & Lehr, 2003). This model reading may be done by a teacher (Armbruster, Lehr, & Osborn, 2001), peer (Fuchs, Fuchs, Mathes, & Simmons, 2007; Koskinen & Blum, 1986), or audio-assisted technology (Shany & Biemiller, 1995). Assisted reading provides students with an example of how to read words accurately, at a conversational rate, with appropriate prosody. Watching television with the CC on could be considered an additional assisted-reading strategy as viewers are exposed to both the printed and spoken word as it glides across the screen.

Dual Coding Theory.

The *dual coding theory* can be used to connect the strategy of assisted reading to its usefulness within closed-captioning. According to the *dual coding theory*, when information is provided in two different ways (i.e., via audio and visuals), comprehension of the material increases (Linebarger, Kosanic, Greenwood & Doku, 2004; Sadoski and Paivio, 2004). The theory emphasizes that every mental representation holds important qualities, whether it be

linguistic or nonlinguistic. Two different processing systems are used for language and imagery and, when used in combination, provide a better method for understanding than one single processing system can on its own (Alvermann, Unrau, Ruddell, 2013).

Traveling Lens Theory.

The *traveling lens theory*, closely related to Vygotsky's zone of proximal development, creates a model for attention and interest as it relates to the familiarity or complexity of a stimuli. This model states that stimuli must be moderately unfamiliar, of some complexity, partially consistent and ordered, and recognizable for one's interest and attention to be fully aroused (Linebarger, Kosanic, Greenwood, & Doku, 2004; Pearl, 1982). In this case, a television program must somewhat challenge the student with new ideas and interesting story lines; however, the information must not be too complex or disordered. True cognitive understanding of the stimuli (video) takes place when children are neither in the zone of boredom nor incomprehensibility, but instead, are in a moderate area that arouses interest and attention. This model is important for this study as it guides the choice for appropriate television material as it relates to text.

Television Today

Despite recommendations that children under the age of two watch no television whatsoever and that children older than two limit their television watching to under two hours a day, the average child between the ages of 8 and 18 spends at least seven hours a day on some form of entertainment media (American Academy of Pediatrics, 2016). At least four of these hours is typically devoted to television watching (Rideout, Foehr, & Roberts, 2010). Children from low income families have been shown to spend increased time in front of a television (Sisson & Boyles, 2012; Wethington, Pan, & Sherry, 2007). Although research published by the

AAP (2016) continues to point to the negative correlations of excessive television watching (obesity, short attention spans, lack of physical activity), parents still continue to allow various forms of media to be integrated heavily into the lives of their children.

While a large body of research suggests that television has a negative impact on children, other studies demonstrate that watching television can be educationally beneficial (Linebarger, Piotrowski, & Greenwood, 2010). The key seems to be on the content to which the children are exposed (Zimmerman and Christakis, 2007). According to Kirkorian, Wartella, and Anderson (2008), "Educational television programs, those designed around a curriculum with a specific goal to communicate academic or social skills, teach their intended lessons" (p.44). Research on *Blue's Clues,* a popular children's program, found that toddlers exposed to the show on a regular basis developed better problem-solving skills than those who were not (Bryant et. al, 1999). So, while non-educational and/or more violent television shows negatively impact children's attention spans, age-appropriate, educational shows can help children learn persistence, the importance of obeying rules, and patience (Friedrich & Stein, 1973).

There appears to be no straightforward correlation between television watching and academic success; as there are often a variety of outside variables (gender, SES, parent's educational background) that have an impact on the results (Tandon et al, 2012). However, researchers have found that allowing children to watch television in moderation (one to two hours a day) can have positive impacts on the overall success of the child in school while excessive television watching shows a decrease in academic achievement (Kirkorian, Wartella, & Anderson, 2008). Preschool children who have been exposed to *Sesame Street* have shown higher levels of school readiness than children with no exposure to the program (Ball & Bogatz, 1972; Zill, 2001). Another longitudinal study found that children who viewed educational

programing at the age of five had higher grades in high school English, math, and science (Anderson, Huston, Linebarger, & Wright, 2001). In addition, children from low SES homes who are exposed to educational programing via television demonstrated higher achievement in schools (Comstock & Paik, 1991). Content appears to be the key to unlocking the potential that television can have on this subgroup.

Closed Captioning

In addition to the positive implications age-appropriate, educational content has on the academic achievement of children, there is another television tool that must be considered as a way to build literacy skills. Closed-Captioning (CC), also known as same-language subtitles, was first introduced in the early 1970s with the invention of decoders. These devices made it possible for the hearing-impaired to enjoy television along with their hearing friends and family. Decoders also became very popular for those attempting to acquire a second language. By the later 1980s, with the help of the National Captioning Institute (NCI), every television 13 inches or larger was required to have a built-in decoder. NCI referred to this breakthrough by saying they provided "words worth watching." When people watch captioned program with the sound off or when they are unable to hear the sound, assistance is provided via the text that glides across the screen and matches the audio. The video provides a portion of the narrative so that "the reader" can switch his or her gaze from text to picture and back again. Accessing this tool is as easy as the push of a button.

Eye Tracking.

It is important to determine if children, when viewing television with closed-captioning, will pay attention to the text presented to them. According to d'Ydewalle et al. (1991) the reading of on-screen captions is automatic, even in children. If same-language subtitles are

present, they will be read and simultaneously processed with the audio. Viewers tend to subconsciously take in both the auditory and textual information. Jensema (2000) found similar results when CC was used with deaf and hard-of-hearing adults. Eye-tracking research has also shown that, in regards to shared storybook reading time, illustrations attract more visual attention than print (Evans & Saint-Aubin, 2005), but the amount of time that children spend looking at the text increases from kindergarten to fourth grade and is greatest when the difficulty level of the text is within children's reading proficiency (Roy-Charland, Saint-Aubin, & Evans, 2007). The same can be considered for reading closed-captioning.

Research Results on Closed-Captioning as a Literacy Tool.

Since the invention of CC, over 100 empirical studies have been conducted to illustrate the benefits of CC as a teaching tool (Gernsbacher, 2015). Researchers have found that using captions can be useful in instructing the hearing impaired (Koskinen, Wilson, Jensema, 1986; Lewis & Jackson, 2001), assisting in second-language acquisition (Lommel, Laenen, & d'Ydewalle, 2006; Neuman & Koskinen, 1992), decreasing illiteracy in developing countries (Kothari, Pandey, & Chudgar, 2004), and improving literacy skills in children (Koskinen et. al, 1997; Linebarger, Piotrowski, & Greenwood, 2010; Trelease, 2013). This chapter seeks to explore this research more in-depth.

Closed Captioning for Students who are Deaf and Hard-of-Hearing.

While the creation of CC introduced a new world of information and entertainment for the deaf and hard-of-hearing community, little was known in the beginning about its potential to teach reading. Since reading is one of the main ways for the hearing impaired to obtain information, and because, previous research had shown that by the age of 17, deaf youth could still read only at a third-grade level, the development of this tool led researchers to actively seek

ways that it could improve the literacy skills of the hearing impaired (Trybus and Karchmer, 1977).

Nugent (1983) led a study involving over 30 hearing impaired children and 100 hearing children between the ages of 9-14. Each student was randomly assigned to one of four conditions: video with audio but no captioning, video with audio and captioning, reading the captions only on screen, or reading the script in traditional print. While the hearing children outperformed the hearing-impaired children in reading comprehension in all four groups, there was still substantial evidence to show that deaf children exposed to video with audio and captions outperformed the other groups, followed by captions only, video and audio, and lastly print only. The results fell in the same order for the hearing children showing that captions are as beneficial to hearing children as they are non-hearing children.

Koskinen, Wilson, & Jensema (1986) led a study that incorporated CC television into the reading program of a group of forty-one severely or profoundly deaf students ranging from 13-15 years of age. The reading levels of these students ranged from first to third grade. The eight teachers assisting with this study were instructed to incorporate 30 minutes of captioned television into their reading lessons over a series of ten lessons. They found that the use of CC increased sight word recognition, comprehension of the material, and student motivation.

A more recent study conducted by Ward, Wang, Paul, and Loeterman (2007) focused on the effects of near-verbatim captioning versus edited captioning on the comprehension of fifteen hearing impaired children between the ages of seven and eleven. Because many deaf and hard-of-hearing children often have literacy skills below that of their peers (Murphy-Berman & Jorgensen, 1980), accommodations have been considered as to how to make CC easier to read. As the average captioning speeds are approximately 141 words per minute, young hearing

29

impaired readers often struggle to keep up. In addition, the vocabulary and syntax of verbatim captions are often too complex for them to understand. These researchers wanted to determine if editing the captions with fewer and more simple words, would increase the comprehension of the viewer. For this study, the children's television show *Arthur* was used due to its ability to offer two streams of closed captioning options for viewers. A pretest determined that the reading levels of these participants fell between 1.5 to 3.7 for word knowledge and 1.0 to 4.8 for reading comprehension. Each student was presented with six episodes, three with edited captions and three with near-verbatim captions and then answered 12 questions about the video afterwards. While there was no statistically significant difference found between the two treatments, students did report a preference for edited captions as it provided them with enough time to take in the visuals and captions fully.

Closed Captioning for Second-Language Acquisition

The National Captioning Institute (1989) found that half of the decoders sold were to those from immigrant families, seeking to learn English. Second language learners realized, even before researchers, that captioning could be an invaluable tool in learning a new language. Multiple studies have now shown the specific benefits captioning has on second language (L2) learners in regards to both vocabulary and comprehension skills. (Huang & Eskey, 1999; Neuman & Koskinen, 1992; Perez, Van Den Noorgate, & Desmet, 2013; Vanderplank, 1990).

Many of the aforementioned studies have focused on the vocabulary acquisition of bilingual students using CC. Neuman and Koskinen (1992) conducted a study with 129 bilingual middle school children. These students were randomly assigned to one of four groups: viewing captioned television, viewing television without captioning, reading along and listening to text, and reading a textbook for information only (control). Students exposed to closed-captioning

outperformed their peers in both word knowledge and basic recall. Similar studies concluded with the same results, CC video promoted vocabulary learning (Danan, 1992; Sydorenko, 2010). CC provided these learners with a "target language learning environment" (Bird and Williams, 2002, p. 509) that helped better foster vocabulary acquisition.

A study conducted in 1999 by Huang and Eskey from the University of Southern California looked at the effects of CC on the vocabulary and phrase acquisition and general listening comprehension of thirty EL college students. Participants were randomly assigned into one of two treatment groups: television without CC and television with CC. Each group watched the same episodes of *Family Album, USA*, twice and then took a listening test. These researchers found that those students exposed to the CC outperformed their peers in terms of listening comprehension. Additional scholars discovered similar findings (Baltova, 1999; Guichon & McLornan, 2008). Even reversed subtitling, where the spoken word is the viewer's first language and the CC are offered in the viewer's second language, has shown to promote comprehension skills (d'Ydewalle & Pavakanun, 1997).

Studies have also been conducted to determine if grammar acquisition can be obtained through watching films with captions. Van Lommel, Laenen, and d'Ydewalle (2006) found that unlike vocabulary, grammar appeared to be too difficult to acquire from simply watching videos with closed-captioning. While multiple facets of reading and writing appeared to have been studied for bilingual children watching closed-captioning, there seems to be little to no research on its impact on ORF for this subgroup. There also appears to be a gap in the research on how CC may impact younger students learning a second language.

31

Closed Captioning for a Country.

India, a country infamous for containing over 296 million illiterates-or people over the age of seven who are unable to read even the headlines of a newspaper-desperately needed a solution to their illiteracy epidemic. Without constant support to improve their reading skills, almost 300 million people were unlikely to ever achieve functional literacy. Brij Kothari and his team of researchers from Planet Read realized that the solution could be right at the fingertips of almost every resident. While televisions in this country do not currently have the option for CC, some specific programs provide open subtitling (captions that automatically appear with the programming for all to see). Same-language subtitling (SLS) was added to weekly 30-minute Bollywood music videos. After thousands of adults were assessed, those who frequently watched the captioned music videos were found to have more improved literacy rates than those who seldom or never viewed the programs (Kothari & Bandyopadhyay, 2014).

Closed-Captioning for Hearing Children.

 A great many studies have been done to show how CC can benefit hearing children learning to read. The use of CC not only provides children with additional print exposure, but it has also been shown that students prefer to read captions over print (Holmes, Russell, & Movitz, 2007; Koskinen et al., 1993; Rickelman et al., 1991). Television shows such as *Between the Lions* have even begun to utilize on-screen print intentionally which has led to improved literacy skills in students from preschool through third grade (Linebarger et al., 2004).

Linebarger (2001) felt that captioned television could help alleviate many of the obstacles children face when learning to read (e.g., understanding and using the alphabetic principle, transferring comprehension skills of spoken language to written language, and absence of motivation). Conducting a study with 76 children between 2nd and 3rd grade from a Title 1 school

in Texas, Linebarger analyzed the effects CC had on word recognition, reading fluency, and motivation. Children were randomly assigned to one of four conditions: captions with verbal narration, no captions with verbal narration, captions with no verbal narration, and no captions with no verbal narration. Assessments were designed around the words and material viewed from the children's television program, Pinwheel. Linebarger found that children who watched video clips with captions recognized more target words than did those children who watched video clips without captions. The pictures, sound, and captions helped children establish a connection between the spoken word and the printed word by putting words in a familiar context using a familiar medium (p.294). Comprehension of the material for those exposed to captions also increased, particularly those in the group with captions + narration. No statistical differences were seen in oral reading fluency, likely because students were only exposed to videos for a few minutes a day over a nine-day period. The researcher suggested longer viewings for possible effects on this component of reading.

An additional comprehensive study into the use of captions as a literacy tool discovered how CC could increase knowledge of high-frequency words, phonics, and comprehension. Seventy 2nd and 3rd grade students attending an urban Title 1 school in the Midwest participated in this study. 82% of the children participating were from low socioeconomic families and 44% were considered English Learners (EL). Students were assigned to one of two conditioned groups (with or without captions) in small groups of two or three students. Over a six-week period, the students were presented with six different educational videos shown during 30-minute after-school sessions, at the rate of one per week. The researchers looked at a range of literacy skills: word recognition of both target words and high-frequency words, phonics, oral reading fluency, and comprehension. These skills were measured through video-specific tasks as

well as normative assessments provided by the *Dynamic Indicators of Basic Early Literacy*

Skills. While the group receiving the treatment of closed-captioning seemed to outperform the

control group in almost every area, their oral reading fluency measures were not statistically

different. The researchers suggested this was due to the varied educational videos from different

programs. In addition, having almost half of the participants as English learners and only

showing six videos could have had a great impact on that area as well.

The use of CC has shown to help build word recognition skills (Koskinen et al., 1997;

Linebarger, 2001; Linebarger, Piotrowksi, & Greenwood, 2010;), vocabulary (Koskinen et al.,

1986), and comprehension in hearing children (Griffin & Dumestre, 1993). Embedding CC

videos into literacy lesson plans has even helped hearing- students with reading disabilities

(Koskinen, Wilson, Gambrell, & Neuman, 1993). Currently, more studies need to be done to

determine the effects that closed-captioning has on ORF, particularly in low SES children from a

rural area. This study seeks to focus on that particular need.

Captioning Speeds.

One additional aspect to be considered concerning the use of CC is the speed in which the

captions appear on screen. The Office of Special Education and Rehabilitation Services (Meyer

& Lee 1995) found that closed-captioned prompt rates can have a great influence on reading

outcomes in regards to comprehension. In a study focusing on Chapter 1 (Title I) and mildly-

disabled students from grades 4-6, participants were provided information in one of three ways: a

video with average-paced captioning, a video with slow-paced captioning, or the same

information via printed text. Students benefited most from the slow-paced closed captioning,

and average-paced captioning yielded better results than printed text. Unfortunately, very few

programs offer slow-placed closed captioning. Researchers felt that students were more engaged

with closed-captioned video because of the constant movement, and that slow-paced captioning allowed students more time to process the vocabulary and truly understand the material that was being presented to them. The average captioning speed found in typical television programs is 141 words per minute with educational television programming at 124 words per minute (Jensema, McCann, & Ramsey. 1996). While children at this age typically read between 60-80 words per minute reading rate of children this age (Neuman, 1995), some may find it difficult to track each word.

Summary

While multiple studies have been conducted to show the effectiveness of CC as a literacy tool, there seems to be a gap between the research and practice. Few educators and parents seem to realize the potential this free resource has on improving the literacy skills of their students and children. Even though technology is advancing at a rapid rate, this resource is available to all who have a television and thus, further study is needed to see how ORF can be improved with a variety of children's programs, different captioning speeds, and with SES children from a rural area.

CHAPTER III

METHODOLOGY

Introduction

Low SES children have been shown to have fewer encounters with print (Neuman & Dickinson, 2006) and spend more time in front of a television (Common Sense Media, 2015; Tandon et. al, 2012) than children in other SES brackets. Allowing these children to view the printed word on screen, along with hearing the spoken words, may enhance their word identification skills, thus increasing both their accuracy and reading rates on text. Utilizing closed-captioning television for low socioeconomic 2nd grade students may increase the oral reading fluency of those students. While this study focuses on television-watching in the controlled environment of a classroom, the findings could have very real implications for those who use the same strategy in the home.

Methods

Research Design.

A two group quasi-experimental design, where participants were chosen out of convenience and given a pretest and posttest (Creswell, 2014), was used to determine the effectiveness of closed-captioning on the oral reading fluency of low SES students in the 2nd grade. Two classrooms from a Title I school in the delta region of the southeastern United States were chosen to participate. Both classrooms consisted solely of low socioeconomic, African

American, seven, eight and nine-year-olds. The control group participated in watching 12-15 minute episodes from Seasons 10 and 11 from *Arthur* four times a week for eight weeks, while the treatment group participated in the same activity with the closed-captions on. This timeframe is significant as it follows the Response to Intervention (RTI) model in terms of Tier 2 support of 8-15 weeks (Abbott et al., 2008). Oral reading fluency was measured in terms of reading rate and accuracy using RCBMs from the Aimsweb assessment system for both the pretest and posttest.

Aimsweb is an assessment tool designed to assist schools with conducting universal screening, progress monitoring, and data management in the areas of reading and math. This program is a well-known system used in schools across the nation. The data management system allows for student data to be norm-referenced or criterion-referenced to provide valuable information to administrators and teachers. Reading Curriculum Based Measures (RCBMs), like the ones used within the Aimsweb program to assess ORF, have been shown to be both valid (Good & Jefferson, 1998) and reliable (Aimsweb Technical Manual, 2012). This particular assessment allows administrators to not only assess words read correct per minute (WCPM) but also determine the accuracy with which a student reads. Hasbrouck & Tindal (2006) found that WCPM has been shown, in both theoretical and empirical research, to serve as an accurate and powerful indicator of overall reading competence, especially in its strong correlation with comprehension (p. 636).

The *Arthur* series was chosen for several reasons. Research has shown that students prefer reading books that tie into a television program (Hamilton, 1976). The *Arthur* series was first introduced as a collection of books by Marc Brown. Neuman (1995) found a clear association between text and television, in that interest in one medium (television) could create an interest in the same topic shown via different medium (text). Macbeth (1996) concluded that

television and text could complete each other rather than compete against each other. In addition, *Arthur* has been used previously in research conducted by Linebarger, Piotrowski, and Greenwood (2010) and is geared towards elementary school children.

Treatment Condition.

Students in the treatment group were presented with grade-appropriate *Arthur* videos from *PBS Kids* four times a week. Each student viewed the show on a Promethean board from either a designated chair or carpet space immediately in front of the screen. This ensured that all students had a clear view of the video. The *Arthur* videos were shown each afternoon during *Accelerated Reading,* or silent reading, time which began at 2:10 each afternoon. Each video lasted between 12-15 minutes and was shown with both the sound and closed-captioning on. The lead researcher created a detailed checklist for the teacher to use each day. The checklist allowed the teacher to check afternoon attendance and to record if the specific conditions were being met (closed-captioning on, appropriate video playing, students in the correct seats). Students were instructed to watch the video closely, but no mention of the closed-captioning was given. The teacher was also informed that no additional instruction regarding the show's content could be given.

Control Condition.

Students in the control group were also presented with grade-appropriate *Arthur* videos four times a week. Each video lasted between 12-15 minutes and was shown with the sound on but the closed-captions off. The videos were shown on the class's Promethean Board and each student had an assigned seat either in a chair or on the carpet directly in front of the screen. The teacher in this group monitored students throughout the viewing to ensure they were paying attention to the content. The teacher also referred to a daily checklist to make sure the correct

video was being shown for that date. Again, students were simply asked to pay close attention to the show, but no additional instruction was given. Both control and treatment groups watched the same videos.

Participants.

The participants in this study were low socioeconomic 2nd grade students, ranging from seven to nine-years-old, from a Title I Literacy Support School in the Mississippi delta. Each student who participated was African American and considered to be low SES (qualifying for free school lunches). Parents provided consent through a parental consent form. Students who did not receive consent continued to use *Accelerated Reading* time as originally scheduled.

Instrumentation.

Reading Curriculum Based Measures (RCBMs) were obtained from the Aimsweb data system. These RCBMs consist of grade-level reading passages with a specific, and grade appropriate number of words, syllables, and symbols as dictated by the Fry readability formula (Fry, 1968; Aimsweb Technical Manual, 2012). These passages were written by trained educators and field tested and evaluated in terms of difficulty and alternate-form reliability, the agreement between scores on alternate forms (probes) administered relatively close together in time (Aimsweb Technical Manual, p.1) Multiple readability indicators, such as Lexile, Flesch, and Powers were used to determine the correlation between the indicators and the RCBM passage grade. The Aimsweb Technical Manual produced a table that presented important information about each of the 50 passages for grade 2. This information included the mean (the average words-correct-per-minute score for the field tested 2nd graders), the standard deviation, and the Lexile measure. Passages chosen for both the pretest and posttest assessment data were highly similar in all three aspects as shown in Table 4.

Table 4

Average Measures of RCBM Probes

	Pretest			Posttest	
Probe	Mean	Lexile	Probe	Mean	Lexile
1	89.6	420	14	89.6	300
10	91.7	529	24	91.5	450
29	90.3	260	23	90.5	460
Average	90.5	403		90.5	403.3

Note: From Aimsweb Technical.

The probes provided for the pretest showed an average mean of 90.5 words read correctly (WRC). The posttest average, with probes 14, 24, and 23 also had an average of 90.5 WRC. These means were determined by the 2nd grade students who participated in the field testing of these passages in 2001. The mean for pretest Lexile Measure, determined by measuring the complexity of the text by examining sentence length and word frequency (Metametrics, 2017), indicated that the average passage measure was 403, which is approximately at a 2.2 grade level. The mean for the posttest Lexile Measure was 403.3, only slightly above the pretest average.

Research Procedures.

The following list contains the chronological procedures the researcher used during this study:

1. An email was sent to the superintendent and curriculum-coordinator within the district requesting permission to contact the principal of their local Title I elementary school.

2. Once permission was granted, the principal of the school was contacted and a meeting was set up with her to discuss protocol and dates the research would be conducted.

3. Once principal approval was given, a meeting was established between the researcher and the two second grade teachers.

4. Once the official research window opened, all participating second grade students were given three Reading Curriculum Based Measure (RCBM) assessments from Aimsweb. Two trained assessors administered each test in order to meet the requirement of interrater reliability. The accuracy and fluency rate were calculated to determine the pretest score for each participant.

5. The two second-grade teachers followed a detailed pre-created schedule for showing students videos from the *Arthur* series during their designated *Accelerated Reading* time. No further discussions or instruction was given on the videos

6. At the end of the eight-week period, the two trained assessors administered three RCBM assessments from Aimsweb. Fluency and accuracy were again calculated to determine the posttest score for each participant.

Data Analysis.

Descriptive statistics was first used in computing the students' Aimsweb scores for means and standard deviations. Then, Analysis of Covariance (ANCOVA) was used to determine if there was a significant difference between the participants' fluency and accuracy pretest and posttest scores on the RCBMs. The hypothesis was that there would be a statistically significant main effect for the treatment condition compared to the control condition.

Summary

This quasi-experimental study compared the Aimsweb RCBM scores of two groups of 2nd grade students from a Title I school in Mississippi. The researcher sought to determine if closed-captioned television could impact the oral reading fluency of low socioeconomic students. The findings of this study are important because it contributes to an already existing body of knowledge regarding the use of closed-captioning television as a literacy tool. Chapter 4 will provide detail into these results.

CHAPTER IV

FINDINGS

Introduction

  The purpose of this study was to discover if the use of closed-captioning could impact the oral reading fluency of low socioeconomic 2nd grade students. Thirty students from a Title I, critical needs school in Mississippi participated in this study over a period of eight weeks. The following research question was used as a guide:

  To what extent does closed-captioning affect the oral reading fluency, including speed and accuracy, of low SES 2nd grade students controlling for their pretest performance?

  This chapter provides the results of the data collected by providing pretests and posttests to each participant using Aimsweb RCBMs. These quantitative results will depict information regarding both the reading rate and accuracy of each participant. Interrater reliability will also be addressed.

Rationale for Removing Participant Data

  At the start of this study, 35 students were provided with parent permission to participate. By the end of eight weeks, three students from the control group had transferred to a different school and were no longer available for testing. One student from the control group and one from the treatment group were also unavailable during the scheduled dates for the posttests due to health issues. Because of this, their pretest data was removed from the study. This left 30

students as final participants. The groups were randomly assigned a condition with 16

participants in the control group and 14 participants in the treatment group.

Demographics

Of the students that participated in this study, 18 were male (60%) and 12 were female

(40%). 42.9% ($n = 6$) of the treatment group were female and 57.1% ($n = 8$) were male. In the

control group, 37.5% of the participants ($n = 6$) were female and 62.5% ($n = 10$) were male. In

regards to ages, 50% ($n = 15$) of the students in the sample were seven years old, 43.3% ($n = 13$)

were eight years old, and 6.7% ($n = 2$) were nine years old. The average age of the treatment

group was eight years old with 42.9 % ($n = 6$) at age seven, 42.9% ($n = 6$) at age eight, and

14.2.% ($n = 2$) at age nine. The average age of the control group was seven years six months

with 68.8% ($n = 11$) being seven years old and 31.3% ($n = 5$) being eight years old. All students

in this sample were African American and determined to be from the lowest socioeconomic

bracket due to their free lunch status at school. Table 5 displays these demographics.

Table 5

Demographics of the Sample

Characteristic	N	%
Gender		
Male	18	60
Female	12	40
Age		
7	15	50
8	13	43.3
9	2	6.7
Ethnicity		
African American	30	100
Lunch Status		
Free or Reduced Lunch	30	100

Results

Aimsweb RCBMs Scores.

During this study, the oral reading fluency of each participant was measured for rate and accuracy. Students were provided with three passages during their pretest and posttest. The median of each test was used to determine the average words read correct per minute for each child. Table 6 details the descriptive information regarding the growth or regression of each participant in the treatment group over the eight-week period. Table 7 shows the same descriptive information for the control group.

Table 6

Treatment Group RCMB Scores: Rate

Student	Pretest	Posttest	+Growth / -Regression
#1	74	79	+5
#2	81	75	-6
#5	82	70	-12
#7	59	60	+1
#9	42	35	-7
#10	72	68	-4
#11	75	75	0
#12	88	104	+16
#13	78	74	-4
#14	101	110	+9
#15	97	86	-11
#17	64	83	+19
#18	61	77	+16
#19	57	66	+9

Table 7

Control Group RCBM Scores: Rate

Student	Pretest	Posttest	+Growth /-Regression
#20	64	66	+2
#21	75	85	+10
#22	41	28	-13
#23	60	59	-1
#24	101	100	-1
#25	90	93	+3
#26	24	21	-3
#27	46	38	-8

Table 7 cont.

Student	Pretest	Posttest	+Growth / -Regression
#28	101	113	+12
#29	33	27	-6
#30	93	117	+24
#31	69	56	-13
#32	46	68	+22
#33	19	13	-6
#34	76	76	0
#36	63	69	+6

This data indicates that 50% ($n = 7$) of the children from the treatment group made gains on their Aimsweb RCBM scores, while 42.9% ($n = 6$) showed declining scores. 7.1% ($n = 1$) received the same scores for both tests. 43.8% ($n = 7$) from the control group showed growth on their scores while 50% ($n = 8$) decreased. 6% ($n = 1$) remained constant. On average, the students from the treatment group only gained 2.2 words over the period of eight weeks. The treatment group averaged a gain of 1.8 words. These results are surprising as Fuchs et al. (2006) determined that students in 2nd grade should gain an average of 1.5 to 2 words each week, with or without an intervention. Only 21.4% ($n = 3$) of the treatment group and 25% ($n = 4$) of the control group made these adequate gains.

Participants' accuracy scores were also recorded after their pretest and posttest. The median scores and errors for each assessment were used in the calculation (total number of words read-errors x 100) of accuracy. Table 8 displays the descriptive information regarding the growth or regression of each participant in the treatment group. Table 9 shows the same descriptive information for the control group.

Table 8

Treatment Group RCBM Accuracy Scores

Student	Pretest	Posttest	+Growth /-Regression
#1	100%	100%	0
#2	98.7%	98.6%	-.1
#5	100%	98.6%	-1.4
#7	90.8%	91.0%	+.2
#9	87.5%	81.4%	-6.1
#10	98.6%	98.6%	0
#11	92.6%	92.6%	0
#12	96.7%	95.4%	-1.3
#13	95.1%	92.5%	-2.6
#14	99.0%	99.1%	+.1
#15	99.0%	98.9%	-.1
#17	94.1%	93.3%	-.8
#18	95.3%	97.5%	+2.2
#19	90.5%	93.0%	+2.5

Table 9

Control Group RCBM Accuracy Scores

Student	Pretest	Posttest	+Growth / -Regression
#20	98.5%	97.1%	-1.4
#21	94.9%	97.7%	+2.8
#22	85.4%	82.4%	-3
#23	95.2%	92.2%	-3
#24	97.1%	98.0%	+.9
#25	96.8%	97.0%	+.2
#26	69.4%	61.8%	-7.6
#27	91.8%	86.4%	-5.4
#28	99.0%	98.3%	-.7
#29	80.5%	79.4%	-1.1
#30	97.9%	97.5%	-.4
#31	90.8%	93.3%	+2.5
#32	90.2%	91.9%	+1.7
#33	63.3%	54.2%	-9.1
#34	98.7%	98.7%	0
#36	91.3%	94.5%	+3.2

This data indicates that only 28.6% ($n = 4$) of the children from the treatment group made gains on their accuracy scores, while 50% ($n = 7$) showed declining scores. 21.4% ($n = 3$) received the same accuracy scores for both tests. 37.5% ($n = 6$) from the control group showed growth on their accuracy scores while 56.3% ($n = 9$) decreased. 6.3% ($n = 1$) remained the same in regards to accuracy.

In addition, Tables 10 and 11 provide further descriptive details while comparing the control group and the treatment group and their performances on the RCBM. In both cases, the treatment group outperformed the control group on both pretests and posttests. Both groups made

slight gains in overall reading rates, but slightly declined in accuracy. Figures 2 and 3 display

this data as well.

Table 10

Comparison of RCBM Scores for Rate

		Pretest		Posttest	
Condition	*n*	*M*	*SD*	*M*	*SD*
Treatment	14	73.64	16.16	75.86	18.06
Control	16	62.56	26.19	64.31	32.51
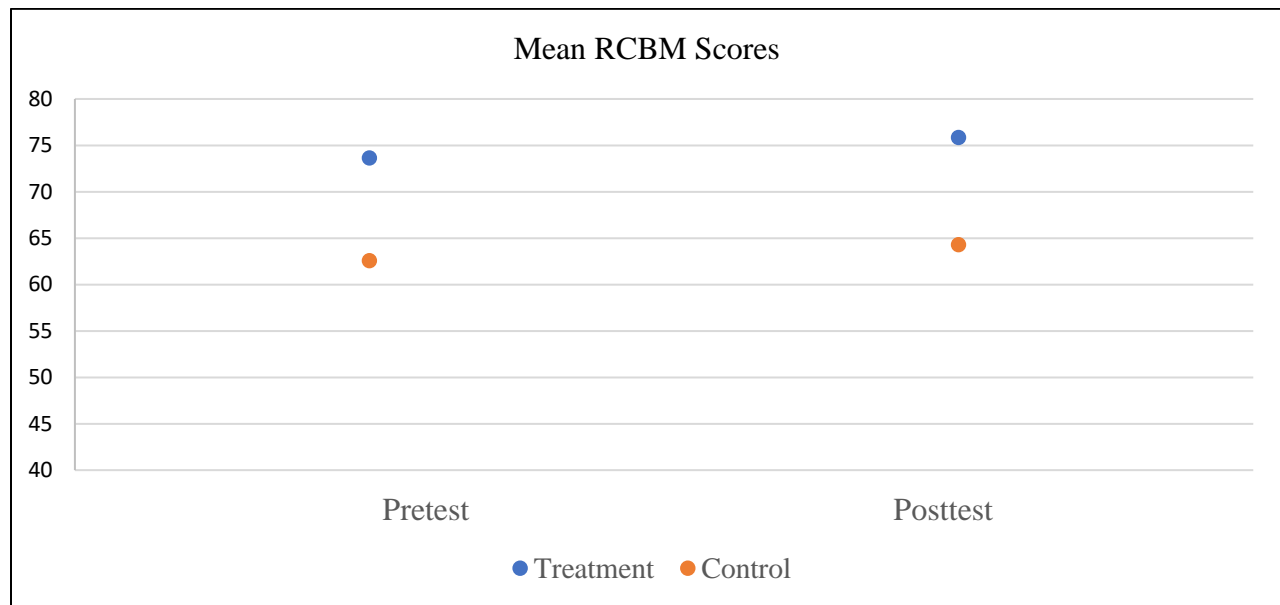
Figure 2: Mean RCBM Scores for Rate

Table 11:

Comparison of RCBM Scores for Accuracy

Condition	n	Pretest		Posttest	
		M	SD	M	SD
Treatment	14	95.56	4.00	95.04	4.98
Control	16	90.05	10.62	88.78	13.41
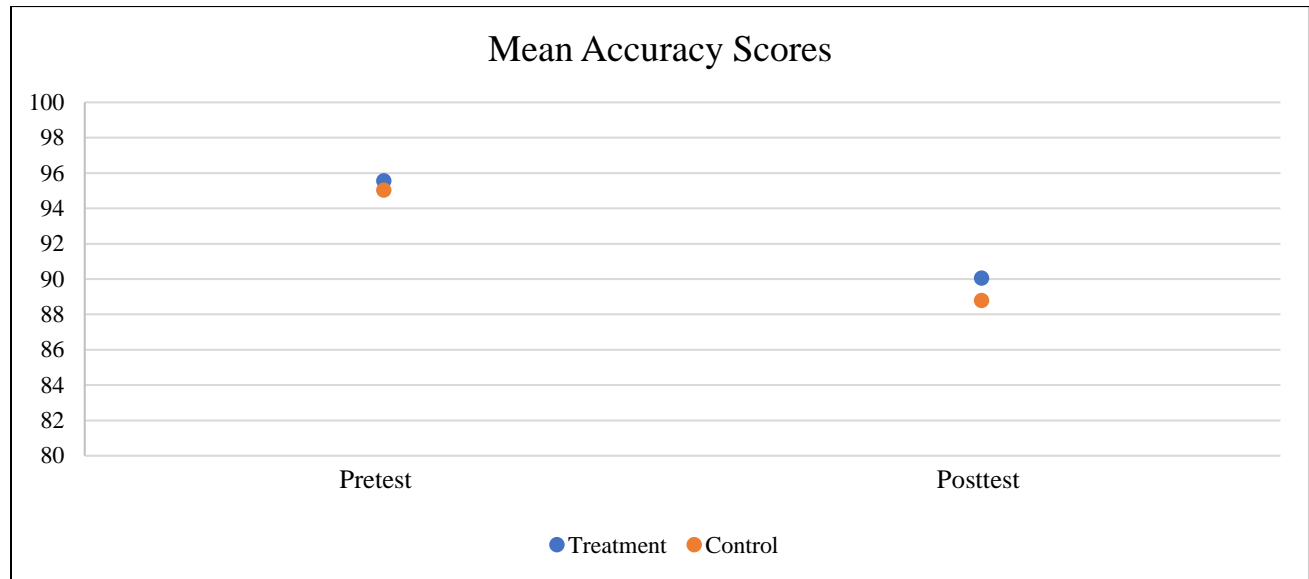
Figure 3: Mean RCBM Scores of Accuracy

Both the reading rates and accuracy of each group were compared by using an analyses of covariance (ANCOVA), with the group serving as the independent variable, the posttest serving as the dependent variable, and the pretest acting as the covariate. This ensured that growth could be measured for each group from the beginning of the study to the end. The hypothesis was that there would be a statistically significant main effect for the posttest mean compared to the pretest mean within the treatment condition when compared to the control condition for oral reading fluency. An ANCOVA revealed no significant difference between the two groups for rate, $F(1,27) = .046$, $p = .83$, partial eta squared value of .00, or for accuracy

$F(1, 27) = .322$, $p = .58$, partial eta squared value of .01. Tables 12 and 13 display these results in more detail.

Table 12

Tests of Between-Subjects Effects: Rate

Source	ss	df	Mean Square	F	Sig.	ES
Corrected Model	18121.737[a]	2	9060.869	82.356	.000	.859
Intercept	99.959	1	99.959	.909	.349	.033
Pretest	17126.589	1	17126.589	155.667	.000	.852
Group	5.066	1	5.066	.046	.832	.002
Error	2970.563	27	110.021			
Total	166835.000	30				
Corrected Total	21092.300	29				

Note: a. R Squared = .859 (Adjusted R Squared = .859)

Table 13

Tests of Between-Subjects Effects: Accuracy

Source	ss	df	Mean Square	F	Sig.	ES
Corrected Model	3164.515[a]	2	1582.258	285.999	.000	.955
Intercept	107.591	1	107.591	19.447	.000	.419
Pretest Accuracy	2871.848	1	2871.848	519.097	.000	.951
Group	1.780	1	1.780	.322	.575	.012
Error	149.375	27	5.532			
Total	255562.250	30				
Corrected Total	3313.890	29				

Note: a. R Squared = .955 (Adjusted R Squared = .952)

Interrater Reliability

Two trained raters were responsible for administering the pretest and posttest assessments. Rater 1 provided the directions each time. As students read aloud from three different 2nd grade RCBM passages, each rater listened carefully and marked any errors made by the reader. The raters then completed a sheet with the results of each reading, determined the

52

median for words read correct and errors (per the RCBM instructions), and calculated the accuracy of the reader based on that median. For each test and measure, both raters were found in agreement throughout with intraclass correlations ranging from .969-.999. Table 14 details the comparison of each raters' scores in regards to rate and how they correlated. Tables 15 provides information regarding each raters' score in regards to accuracy and how they were calculated for both the pretests and the posttests.

Table 14

Comparison of Rater 1 and Rater 2

	Pretest Rate	Posttest Rate	Pretest Accuracy	Posttest Accuracy
Rater 1	67.73 (22.44)	69.70 (26.97)	92.62 (8.57)	92.03 (10.51)
Rater 2	68.30 (22.18)	70.47 (26.84)	93.49 (7.48)	92.12 (10.67)

Note: Mean (Standard Deviation)

Table 15

Interrater Reliability

	Pretest Rate	Posttest Rate	Pretest Accuracy	Posttest Accuracy
Single Measures	.999	.998	.978	.969
Average Measures	.999	.999	.999	.984

Conclusion

The hypotheses that 2nd grade students who watched television using closed-captioning would have higher increases in their oral reading fluency when compared to those who simply watched television was not supported in this study, as there was no statistical difference between the two groups. This may be due to a number of issues that will be addressed further in Chapter

5. Both participating teachers, however, did report that students from each group enjoyed viewing the videos and were particularly interested in reading the classroom sets of *Arthur* books following the study. This motivation in reading may attribute to more gains in reading in the future.

CHAPTER V
DISCUSSION AND CONCLUSION

Introduction

Adequate exposure to print has been shown to directly correlate with a child's future

success in school (Evans, Kelly, Sikora, & Treiman, 2010). Students from print-deficit homes

often begin school with a three-year learning gap between them and their peers (Evans, Kelley,

Sikora, & Treiman, 2010). This gap tends to widen each year as the rich get richer and the poor

get poorer in relation to reading achievement. This is what Stanovich (1986) refers to as the

Matthew Effect. Despite the clear connection between print exposure and reading success, only

36% of parents from low income homes read to their children daily (Coley, 2002). This is likely

because children in low-income families have access to fewer reading materials than children

from higher income families (Krashen, 2012). While low SES children spend minimal time

interacting with text, they do spend a great deal of time watching television (Wethington, Pan, &

Sherry, 2007). Only 39% of low SES homes have age-appropriate children's books (U.S.

Department of Education, 1996), yet 98% of these homes contain a working television (U.S.

Department of Energy, 2005). According to Newman et al. (2000), the most successful way to

improve the reading achievement of low SES children is to increase their access to print. With

closed-captioning, televisions have the power to expand a child's exposure to print with the

simple push of a button. Previous studies have demonstrated how closed-captioning can have

positive impacts on the literacy skills of the deaf and hard-of-hearing (Koskinen, Wilson,

55

Jensema, 1986; Lewis & Jackson, 2001) and second language learners (Lommel, Laenen, &

d'Ydewalle, 2006; Neuman & Koskinen, 1992). The use of closed-captioning also aids in

motivation (Rickelman et al., 1991), vocabulary acquisition (Koskinen et al., 1986),

comprehension (Linebarger, 2001); and word recognition (Linebarger, 2010) for hearing

children. This study sought to discover if utilizing the free, closed-captioning feature on

televisions could also improve the oral reading fluency of low socioeconomic students. This

chapter will summarize the research findings, discuss the relevance to theoretical frameworks,

and present implications for future research.

Summary of Findings

The research question guiding this study focused on the extent to which closed-

captioning affected the oral reading fluency of low SES 2nd grade students. No statistical

differences appeared between the mean scores for rate or accuracy between the control group and

treatment group using ANCOVA, which may be due to several factors. First, the sample size

($n = 30$) was very small. While the groups were randomly assigned as treatment or control, the

choice of the school and classrooms was not random. A true randomized control design with a

larger sample would have made for stronger research. Secondly, regression to the mean was an

issue as many students showed above average fluency rates and high accuracy scores during the

initial assessment. 64% *(n = 9)* of the treatment group and 44% *(n = 7)* of the control group

scored above the 50th percentile for the winter benchmark of 72 correct words per minute and

obtained at least 95% accuracy on the pretest. The treatment group's pretest mean for rate was

73.64 words correct per minute, and the control's pretest mean was 62.56 words correct per

minute. For the posttest, both groups showed minimal gains. The treatment group gained an

average of 2.2 words and the control group gained an average of 1.8 words throughout the course

of the study. In terms of accuracy, both groups declined slightly from the pretest to the posttest. The mean accuracy from the treatment group went from 95.56% to 95.04%, showing a loss of .52. The treatment's group mean accuracy declined from 90.05% to 88.78% with a loss of 1.27.

In addition, the location of each classroom may have played a part in the results. The classroom for the treatment group faced west and the classroom from the control group faced east. The teacher of the treatment group reported, after a few weeks into the study, that the closed captioning was not highly visible on sunny days as the sun shone brightly into the classroom. Upon inspection of the issue by the researcher, it was discovered that the brightness in the room greatly influences picture quality (Promethean User Manual). A new bulb was placed into the Promethean board where the videos were being shown, but this did little to alleviate the issue.

Lastly, the actual assessment items themselves may have prohibited students from showing growth. Initially, the researcher chose to provide the students with different assessments for the pretests and posttests. While these assessments proved similar quantitatively, the qualitative features of the assessments could have hindered some students from showing growth. The researcher also chose to only assess students on two occasions. Per the Response to Intervention/MTSS model, students undergoing an intervention should be progress monitored at least bi-weekly (once every two weeks). Had the researcher followed this testing procedure, an average rate of improvement could have been determined for each child. This would have provided a clearer picture into the effects that closed captioning has on oral reading fluency.

Relevance of Results to Theoretical Frameworks

Traveling Lens Theory.

The *traveling lens theory* finds that new information must be presented in such a way that it falls within a certain range for complexity and consistency and remains of interest to the

learner (Huston & Wright, 1982). This theory helped the researcher with the viewing selection for this study. To ensure the appropriate range of consistency was reached, a singular video series was chosen. This allowed students to become familiar with specific aspects of the program, such as the characters and the flow of the presentation. In terms of interest and complexity, videos had to be chosen that were suitable for the age group in terms of content and length. For these reasons, *Arthur* was selected as an appropriate video series. Not only had *Arthur* been utilized in previous research with closed-captioning (Uchikoski, 2006; Ward, Want, Paul, & Loterman, 2007; Linebarger et al., 2010), but the shortened videos of 12-15 minutes showcased a variety of situations that were relevant to the lives of elementary students. The teachers of both classes reported that students were highly engaged during the viewings and were interested in reading the books within the same series.

Dual Coding Theory.

The *dual coding theory* suggests that information presented using two modalities increases the comprehension of the learner (Linebarger, Kosanic, Greenwood, & Doku, 2004). In this case, students in the treatment group view the action on the television screen, saw the captions on the television, and heard the words being said aloud, with expression. While no statistical differences appeared between the two groups in terms of oral reading fluency, it would have been interesting to determine if the treatment group gained more information from the text than the control group using comprehension questions; thus, reaffirming the relevancy of the *dual coding theory*.

Implications for Future Research

Although this study showed no statistical differences in the oral reading fluency between the two groups, there are still real implications for future research in both the classroom and the

home environment. Previous studies have already determined that closed-captioning can have a positive impact on a student's word recognition (Linebarger, 2010), vocabulary acquisition and retention (Koskinen et al., 1986), and comprehension (Linebarger, 2001). Even with this body of research, educators and parents still seem unaware of the potential that closed-captioning has as a literacy tool. More research is required, particularly on low socioeconomic students living in rural areas.

A longitudinal study on the use of closed-captioning in the home environment is needed to determine if the print exposure via television over multiple years can have an impact on the literacy skills of low socioeconomic students. This study should focus on all five components of reading(phonemic awareness, phonics, fluency, vocabulary, and comprehension) to determine exactly how much each area is impacted using this free resource in the home. Parent surveys and occasional observations would need to be made in the homes to determine the amount of television being viewed as well as the content.

Other studies conducted with larger sample sizes and for longer periods of time could provide more insight into which students benefit the most from closed-captioning. Through the use of a pretest, researchers could determine whether students are at risk, on target, or above average. The posttest could then reveal which of these subgroups, if any, made the greatest gains through the use of this resource. Qualitative aspects also need to be considered. Surveys on student interests, television preferences, and television habits would be helpful to plan relevant research.

Summary

While this study was unable to determine if closed-captioning television could positively impact the oral reading fluency of low socioeconomic students, it did add to the already existing

body of research on utilizing captioning in the classroom. More research is needed, however, on the use of this resource, particularly for the low socioeconomic students who often struggle with literacy. Lack of adequate access to print for these children is a national dilemma that has yet to be resolved (Mol & Bus, 2011). Pam Allen, an American literacy expert and director for LitWorld put it best when she said, "Literacy is the tool we use as humans to find one another, so it must belong to everyone." Literacy acquisition must be available to all, even the "have-nots." Moving forward, researchers may be able to determine how to finally close the gap through the use of closed-captioning.

REFERENCES

Aikens, N. L., & Barbarin, O. (2008). Socioeconomic differences in reading trajectories: The contribution of family, neighborhood, and school contexts. *Journal of Educational Psychology, 100*, 235-251.Alvermann, D.E., Unrau, N.J., & Ruddell, R.B. (2013) *Theoretical models and processes of reading* (6th ed.). Newark, DE: International Reading Association.

Aimsweb. (2012). Reading curriculum-based measurement administration and scoring guide. Bloomington, MN: Pearson.

Allyn, P. (n.d.) Five things I've learned. Pearson Foundation. Retrieved from: http://www.thefivethings.org/allyn/.

American Academy of Pediatrics. (2001). Children, adolescents, and television. *Pediatrics, 107*, 423-426.

American Academy of Pediatrics. (2016). Media and Children. Retrieved from https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/Pages/Media-and-Children.aspx?rf=32524&nfstatus=401&nftoken=00000000-0000-0000-0000-000000000000&nfstatusdescription=ERROR%3a+No+local+token

American Psychological Association. Education & Socioeconomic. (2016). Retrieved from: http://www.apa.org/pi/ses/resources/publications/factsheet-education.

Anderson, D. R., Huston, A. C., Linebarger, K. L., & Wright, J. C. (2001). *Early Childhood Television Viewing and Adolescent Behavior: Monographs of the Society for Research in Child Development*. Wiley-Blackwell.

Armbuster, B., Lehr, F., & Osborn, J. (2001). Put reading first: The research building blocks for teaching children to read. Jessup, MD: National Institute for Literacy.

Ball, S., & Bogatz, G. A. (1972). Summative research of Sesame Street: Implications for the
	study of preschool children. In *Minnesota symposium on child psychology* (Vol. 6, pp. 3-
	17).

Baltova, I. (1999). *The effect of subtitled and staged video input on the learning and retention of
	content and vocabulary* (Doctoral dissertation, University of Toronto).

Belfield, C. & Levin, H. M. Eds. (2007). *The price we pay: Economic and social consequences
	of inadequate education*. Washington, D.C.: Brookings Institution Press.

Benton Foundation, (2004). *How children can benefit from the transition to digital television*
	Policy Brief.

Berninger, V., & Richards, T. (2002). *Brain literacy for educators and psychologists.*
	Amsterdam: Academic Press.

Bird, S. A., & Williams, J. N. (2002). The effect of bimodal input on implicit and explicit
	memory: An investigation into the benefits of within-language subtitling. *Applied
	Psycholinguistics*, *23*(04), 509-533.

Brooks-Gunn, J. & Duncan, G.J. (1997). The effects of poverty on children. The Future of
	Children, 7, 55–71.

Bryant, J., Mullikin, L., Maxwell, M. Mundrof, N., Mundrof, J., Wilson, B.J., et al. (1999).
	Effects of Two Years' Viewing of "Blue's Clues" (Tuscaloosa, Ala.: Institute for
	Communication Research, University of Alabama, 1999).

Chapman, C., Laird, J., Ifill, N., & KewalRamani, A. (2011). Trends in high school dropout and
	completion rates in the United States: 1972-2009. (NCES 2012-06). Washington, D.C.:
	National Center for Education Statistics, Institute of Education Sciences, U.S.

Department of Education. Retrieved [date]. Source:

http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2012006

Coley, R. J. (2002). *An uneven start: Indicators of inequality in school readiness*. Princeton, NJ:

Educational Testing Service.

Comstock, G., & Paik, H. (1991). *Television and the American child*. Academic Press.

Cowan, C.D., Hauser, R.M., Kominski, R.A., Levin, H.M., Lucas, S.R., Morgan, S.L., Spencer,

M.B., Chapman, C., (2012). *Improving the measurement of socioeconomic status for the*

national assessment of educational progress: A theoretical foundation.

Recommendations to the National Center for Education Statistics.

Crotty, M. (1998). *The foundations of social research: Meaning and perspective in the research*

process. Thousand Oaks, CA: Sage.

Danan, M. (1992). Reversed subtitling and dual coding theory: New directions for foreign

language instruction. *Language learning*, *42*(4), 497-527.

Downey, G. (2010). Teaching reading with television: Constructing closed captioning using the

rhetoric of literacy. In A. R. Nelson & J. L. Rudolph (Eds.), *Education and the culture*

of print in modern America (pp. 191-214). Madison: University Press.

d'Ydewalle, G., & Pavakanun, U. (1997). Could enjoying a movie lead to language acquisition?

In *New horizons in media psychology* (pp. 145-155).

Eden, G., & Moats, L. (2002). The role of neuroscience in the remediation of students with

dyslexia. *Nature Neuroscience,* 5, 1080-1084.

Evans, M. A., & Saint-Aubin, J. (2005). What children are looking at during shared storybook

reading evidence from eye movement monitoring. *Psychological Science*, *16*(11), 913-

920.

Evans, M. D. R., Kelley, J., Sikora, 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.

Friedrich, L. K., & Stein, A. H. (1973). Aggressive and prosocial television programs and the natural behavior of preschool children. *Monographs of the Society for Research in Child Development*, 1-64.

Fry, E. (1968). A readability formula that saves time. *Journal of reading*, *11*(7), 513-578.

Fuchs, D., Fuchs, L. S., Mathes, P.G., & Simmons, D.C. (2007) Peer-assisted learning strategies. Reading methods for grades 2-6. Unpublished teacher manual.

Good, R.H. & Jefferson, G (1998). Contemporary perspectives on curriculum-based measurement validity. In M.R. Shinn (Ed.), *Advanced applications of curriculum-based measurement* (pp. 61-88). New York: Guilford Press.

Gernsbacher, M.A. (2015). Video captions benefit everyone. *Policy Insights from the Behavioral and Brain Sciences,* 2(1) 195-202.

Griffin, R. & Dumestre, J. (1993). An initial evaluation of the use of captioned television to improve the vocabulary and reading comprehension of navy sailors. Educational Technology, 22, 193–196.

Guichon, N., & McLornan, S. (2008). The effects of multimodality on L2 learners: Implications for CALL resource design. *System*, *36*(1), 85-93.

Hamilton, H. (1976). TV tie-ins as a bridge to books. *Language Arts,* 53, 129-130.

Hosp, M.K., Hosp, J.L., & Howell, K. W. (2007). The ABCs of CBM: A practical guide to curriculum-based measurement. New York. Guilford.

Huang, L., Nelson, R., & Nelson, D. (2008). Increasing reading fluency through student-directed

repeated reading and feedback. *The California School Psychologist*, *13*, 33-40.

Hart, B. & Risley, T.R. (2003). The Early Catastrophe: The 30 million word gap by age 3.
American Educator, pp.4-9.

Hasbrouck, J.E., & Tindal G.A. (2006). Oral reading fluency norms: A valuable assessment tool
for reading teachers. *Reading Teacher,* 59(7), pp 636-644.

Hess, R.D., and S. Holloway. (1984). Family and school as educational institutions. Pp. 179-222
in Review of Child Development Research, 7: The Family, R.D. Parke, ed. Chicago:
University of Chicago Press.

Hoff-Ginsberg, F., & Tardif, T. (1995). Socioeconomic status and parenting. In M. Bornstein
(Ed.), *Handbook of parenting: Vol. 2. Biology and ecology of parenting* (pp. 161–188).
Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Holmes, K., Russell, W. B. III., & Movitz, A. (2007). Reading in the social studies: Using
subtitled films. *Social Education, 71(*6), 326–330.

Hosp, M.K., Hosp, J.L., & Howell, K.W. (2007). The ABCs of CBM: A practical guide to
curriculum-based measurement. New York: Guilford.

Hudson, R.F., Mercer, C.D., & Lane, H.B. (2000). Exploring reading fluency: A paradigmatic
overview. Unpublished manuscript, University of Florida, Gainesville.

Humphrey, C. (2013). A paradigmatic map of professional education research. *Social Work
Education, 32*(1), 3-16.

Keppel, G. (1991). *Design and analysis: A researcher's handbook* (3rd ed.). Englewood. Cliffs,
NJ; Prentice Hall.

Kirkorian, H.K., Wartella, E.A., & Anderson, D.R. (2008). Media and young children's learning.
The Future of Children, 18(1), 39-61.

Koskinen, P.S., Bowen, C.T., Gambrell, L.B., Jensema, C.J. & Kane, K.W. (1997). Captioned

    television and literacy development: Effects of home viewing on learning disabled

    students. Paper presented at the Meeting of the American Educational Research

    Association, Chicago, IL.

Koskinen, P., Wilson, R. M., Gambrell, L. B., & Neuman, S. B. (1993). Captioned video and

    vocabulary learning: An innovative practice in literacy instruction. *The Reading*

    Teacher, 47(1), 36–43.

Koskinen, P. S., Wilson, R. M., & Jensema, C. J. (1986). Using closed-captioned television in

    the teaching of reading to deaf students. *American Annals of the Deaf*, *131*, 43-46.

Koskinen, P.S., & Blum, J.H. (1986). Paired repeated reading: A classroom strategy for

    developing fluent reading. *Reading Teacher*, *40,* 70-75.

Koskinen, P.S., Wilson, R.M., & Jensema, C.J. (1985). Closed-captioned television: A new tool

    for reading instruction. *Reading World, 24*(4). 1-7.

Kothari, B., Pandey, A., & Chudgar, A. R. (2004). Reading out of the "idiot box": Same-

    language subtitling on television in India. *Information Technologies & International*

    Development, *2*(1), pp-23.

Kothari, B., & Bandyopadhyay, T. (2014). Same language subtitling of Bollywood film songs on

    TV: Effects on literacy. *Information Technologies & International Development*, *10*(4),

    pp-31.

Kuhn, M.R., & Stahl, S.A. (1998). Teaching children to learn word meanings from context: A

    synthesis and some questions. *Journal of Literacy Research;* 30, 119-138.

Kuhn, M. (2004). Helping students become accurate, expressive readers: Fluency instruction for

    small groups. *The Reading Teacher,* 58(4), 338-344.

Lewis, M S. J., & Jackson, D. W. (2001). Television literacy: Comprehension of program

content using closed captions for the deaf. Journal of Deaf Studies & Deaf Education,

6(1), 43-53.

Linebarger, D. (2001). Learning to read from television: The effects of using captions and

narration. *Journal of Educational Psychology,* 93(2), 288-298.

Linebarger, D., Piotrowski, J. T., & Greenwood, C. R. (2010). On-screen print: The role of

captions as a supplemental literacy tool. *Journal of Research in Reading*, *33*(2), 148–167.

http://doi.org/10.1111/j.1467-9817.2009.01407.x

Linebarger, D. L., Kosanic, A. Z., Greenwood, C. R., & Doku, N. S. (2004). Effects of viewing

the television program between the lions on the emergent literacy skills of young

children. Journal of Educational Psychology, 96(2), 297-308. doi:10.1037/0022-

0663.96.2.297

Lyons, John B. "Do school facilities really impact a child's education." *Council of Education

Facility Planners International Issuetrak. Retrieved on* 21 (2001): 2010.

MacBeth, T. M. (1996). Indirect effects of television: Creativity, persistence, school

achievement, and participation in other activities. Thousand Oaks, CA: Sage.

Mackenzie, J. (2011). Positivism and constructivism, truth and 'truth'. *Educational Philosophy

& Theory, 43*(5), 534-546.

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

Mehta, P.D., Foorman, B.R., Branum-Martin, L., & Taylor, W. P. (2005). Literacy as a

unidimensional multilevel construct: Validation, sources of influence, and implications in

a longitudinal study in grades 1 to 4. *Scientific Studies of Reading, 9*(2), 85-116.

MataMetrics. (2017). The Lexile Framework for Reading. Retrieved from

      https://lexile.com/analyzer/.

Meyer, M.J. & Lee, Y.B. (1995). *Closed-captioned prompt rates: Their influence on reading*

      outcomes. ED Office of Special Education and Rehabilitation Services 383 326.

Mississippi Department of Education (2012). Elementary Education and Reading. *Intervention*

      Services. Jackson, MS.

Mississippi Department of Education (2016). Income Eligibility Guidelines. Retrieved from

      http://www.mde.k12.ms.us/OCN/SS/memo-instructions.

Moats, L.C., & Tolman, C. (20009). *The challenge of learning to read*. Longmont, CO: Sopris

      West.

Mol, S. E., & Bus, A. G. (2011). To read or not to read: A meta-analysis of print exposure from

      infancy to early adulthood. *Psychological Bulletin*, *137*(2), 267-296.

      doi:10.1037/a0021890

Montgomery, P., Ilk, M., & Moats, L. (2013). *A principal's primer for raising reading*

      achievement. Longmont, CO: Sopris Learning.

Morgan, P. L., Farkas, G., Hillemeier, M. M., & Maczuga, S. (2009). Risk factors for learning-

      related behavior problems at 24 months of age: Population-based estimates. *Journal of*

      Abnormal Child Psychology, 37, 401-413.

Murphy-Berman, V., & Jorgensen, J. (1980). Evaluation of a multilevel linguistic approach to

      captioning television for hearing-impaired children. *American annals of the deaf*, *125*(9),

      1072-1081.

National Captioning Institute. (n.d.) *History of closed-captioning.* Retrieved from:

      http://www.ncicap.org/about-us/history-of-closed-captioning/

National Center for Education Statistics (NCES) (2003) *National assessment of adult literacy.* Washington, DC: U.S. Department of Education.

National Center for Education Statistics (NCES). (2015). *National assessment of educational progress: The nation's report card.* Washington, DC: U.S. Department of Education.

National Reading Panel (2000). Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction [on-line]. Available: http://www.nichd.nih.gov/publications/nrp/report.cfm.

Neuman, S. B., & Koskinen, P. (1992). Captioned television as comprehensible input: Effects of incidental word learning from context for language minority students. Reading Research Quarterly, 27(1), 95-106.

Neuman, S. (1995). Literacy in the television age: The myth of the TV effect (2nd ed.). Norwood, NJ: Ablex.

Neuman, S. B., & Dickinson, D. K. (Eds.). (2003). *Handbook of early literacy research* (Vol. 1). Guilford Press.

Orr, A. J. (2003). Black-White differences in achievement: The importance of wealth. *Sociology of Education, 76*, 281-304

Osborn, J., & Lehr, F. (2003). A focus on fluency. Honolulu: Pacific Resources for Education and Learning.

Perez, M. M., Van Den Noortgate, W., & Desmet, P. (2013). Captioned video for L2 listening and vocabulary learning: A meta-analysis. *System*, *41*(3), 720-739.

Pikulski, J.J., & Chard, D.J. (2005). Fluency: Bridge between decoding and reading comprehension. *Reading Teacher,* 58(6), 510-519.

Proliteracy. Adult literacy facts. Retrieved from: https://proliteracy.org/Resources/Adult-
Literacy-Facts.

Promethean. Multimedia Projector Model PRM-20 User Manual. Retrieved from:
https://support.prometheanworld.com/files/public/pdfs/PRM-
30%20User%20Manual.pdf.

Pungello, E.P., J.B. Kupersmidt, and M.R. Burchinal 1996 Environmental risk factors and
children's achievement from middle childhood to early adolescence. Developmental
Psychology 32(4):755-767.

Rasinksi, T. (2006). *The fluent reader: Oral and silent reading strategies for building fluency,
word recognition & comprehension.* Scholastic.

Rickelman, R. J., Henk, W. A., & Layton, K. (1991). Closed-captioned television: A viable
technology for the reading teacher. *The Reading Teacher, 44*(8), 598–599.

Roy-Charland, A., Saint-Aubin, J., & Evans, M. A. (2007). Eye movements in shared book
reading with children from kindergarten to Grade 4. Reading and Writing, 20, 909–931.
doi:10.1007/s11145-007-9059-9

Pearl, D. (1982). *Television and behavior: Ten years of scientific progress and implications for
the eighties. Volume II: Technical reviews.* National Institute of Mental Health.
Rockville, MD.

Rideout V.R., Foehr U.G., Roberts, D.F. (2010). Generation m2: Media in the Lives of 8- to 18-
year-olds. Menlo Park, CA: Kaiser Family Foundation.

Roberts, D.F., Foehr, U.G., & Rideout, V.R. (2005). Generation m: Media in the lives of 8–18
year-olds. Menlo Park, CA: Henry J. Kaiser Family Foundation.

Sadoski, M., & Pavio, A. (1994). A dual coding view of imagery and verbal processes in reading comprehension. In D.A. Alvermann, N.J. Unrau, R.B. Ruddell (Eds.), *Theoretical models and processes of reading* (6th ed., pp 886-922). Newark, DE: International Reading Association.

Seidenberg, M. S., & McClelland, J.L. (1989). A distributed, developmental model of word recognition and naming. *Psychological Review, 96,* 523-568.

Shany, M.T., & Biemiller, A. (1995) Assisted reading practice: Effects on performance for poor readers in grades 3 and 4. *Reading Research Quarterly 50*(3), 382-395.

Shaywitz, S.E. (2003). *Overcoming dyslexia: A new and complete science-based program for reading problems at any level.* New York: Alfred Knopf

Sisson S. B. & Broyles S.T. (2012). Social-Ecological correlates of excessive TV viewing: Difference by race and sex. *J Phys Act Health, 9*(3), 449-455.

Snow, C. E., Burns, S. M., & Griffin, P. Editors. (1998). Preventing Reading Difficulties in Young Children. In Committee on the Prevention of Reading Difficulties in Young Children (Eds.) Predictors of Success and Failure in Reading. Washington, D.C.: National Academy Press. Statistical Abstracts (2007). Washington, DC: Government Publishing Office.

Snyder, T. D. & Dillow, S. A. (2012). Digest of Education Statistics 2011. (NCES 2012-001) Washington, D.C.: National Center for Education Statistics, U.S. Department of Education.

Stanovich, K.E. (1986). Matthew effects in reading: Some consequence of individual differences in the acquisition of literacy. *Reading research quarterly,* 360-407.

Stanovich, K. E., (1992). Word recognition: Changing perspectives. In R. Barr, M.L. Kamil, P.

 Mosenthal, and P.D. Pearson (eds.), *Handbook of reading research,* Vol 2 (pp. 418-452).

 New York: Longman.

Strassman, B., MacDonald H., Wanko, L., Using captioned media as mentor expository texts.

 The Reading Teacher, *64*(3), 197-201.

Sweet, R. W. (2004). The big picture: Where we are nationally on the reading front and how we

 got there. In P. McCardle 7 V. Chhabra (Eds.), *The voice of evidence in reading research*

 (pp. 13-44). Baltimore: Paul H. Brookes.

Sweller, J.J. (1994). Cognitive load theory, learning difficulty, and instructional design. *Learning*

 *and Instruction 4,*95-312.

 Sydorenko, T. (2010). Modality of input and vocabulary acquisition. *Language Learning &*

 Technology, *14*(2), 50-73.

Tandon, P., Grow, H. M., Couch, S., Glanz, K., Sallis, J. F., Frank, L. D., & Saelens, B. E.

 (2014). Physical and social home environment in relation to children's overall and home-

 based physical activity and sedentary time. *Preventive Medicine*, *66,* 39-44.

 doi:10.1016/j.ypmed.2014.05.019

Trelease, J. (2013). The read aloud handbook (7th ed.). New York, NY: Penguin Publishers.

Trybus, R.J., & Karchmer, M.A. (1977). School achievement scores of hearing-impaired

 children: National data on achievement status and growth patterns. *American Annals of*

 the Deaf, 122, 62-60.

Uchikoski, Y. (2006). Early reading development in bilingual kindergarteners: Can educational

 television help? *Scientific Studies of Reading,* 10, 89-120.

United States Department of Agriculture Food and Nutrition Service. (2013). *National school*

    lunch program fact sheet. Retrieved from: http://www.fns.usda.gov/sites/default/files

    /NSLPFactSheet.pdf

United States Department of Education (1996). Reading Literacy in the United State: Findings

    from the IEA Reading Literacy Study.

United States Department of Energy (2005). Residential Energy Consumption Survey.

Unrau, N.J. & Alvermann, D.E., (2004) Literacies and their investigation

    through theories and models. In B. B. Editor (Ed.), *Theoretical Models*

    *and Processes of Reading (*6th ed.). (pp. 47-90). Newark, DE:

    International Reading Association.

Van Lommel, S., Laenen, A., & d'Ydewalle, G. (2006). Foreign-grammar

    acquisition while watching subtitled television programmes. British

    Journal of Educational Psychology, 76, 243-258.

Vanderplank, R. (1990). Paying attention to the words: Practical and

    theoretical problems in watching television programmes with uni-

    lingual (CEEFAX) sub-titles. *System*, *18*(2), 221-234.

Vygotsky, L. S. (1980). *Mind in society: The development of higher*

    psychological processes. Harvard university press.

Yuksel, D., & Tanriverdi, B. (2009). Effects of watching captioned movie clips on vocabulary

    development of efl learners. *The Turkish Online Journal of Educational Technology*,

    8(2), Retrieved from http://www.tojet.net/articles/824.pdf

Ward, P., Wang, Y., Paul, P., & Loeterman, M. (2007). Near-verbatim captioning versus edited

captioning for students who are deaf or hard of hearing: a preliminary investigation of

effects on comprehension. *American Annals of the Deaf*, *152*(1), 20-28.

Wethington, H., Pan, L., & Sherry, B. (2013). The association of screen time, television in the

bedroom, and obesity among school-aged youth: 2007 National Survey of Children's

Health. *Journal of School Health, 83*(8), 573-581.

White, K.R. 1982 The relation between socioeconomic status and academic achievement.

Psychological Bulletin 91:461-481.

Williams, P. A., Haertel, E. H., Haertel, G. D., & Walberg, H. J. (1982). The impact of leisure-

time television on school learning: A research synthesis. *American educational research

journal*, *19*(1), 19-50.

Zill, N., & Fisch, S. M. (2001). Does Sesame Street enhance school readiness? Evidence from a

national survey of children. "G is for Growing!" *Thirty years of research on children and

Sesame Street*, 115-130.

Zimmerman, F. J., Christakis, D. A., & Meltzoff, A. N. (2007). Television and DVD/video

viewing in children younger than 2 years. *Archives of Pediatrics & Adolescent Medicine*,

161(5), 473-479.

LIST OF APPENDICES

APPENDIX A: PARENTAL CONSENT FORM

Consent for Your Child to Participate in Research

Study Title: *Closed-Captioning Television as a Literacy Tool*

Investigator	**Faculty Sponsor**
Kristina Livingston, M.Ed	Lane Gauthier, Ph.D.
Department of Teacher Education	Department of Teacher Education
Guyton Hall	203 Guyton Hall
University of Mississippi	University of Mississippi
University, MS 38677	University, MS 38677
662.934.3574	662.915.2005
klivingston@go.olemiss.edu	gauthier@olemiss.edu

The purpose of this study

We want to know if using the closed-captioning option on a child's television program can help improves his/her literacy skills.

What your child will do for this study

1. Week 1- Your child will be given three short oral reading fluency assessments by trained evaluators. This test allows your child to read portions of a 2nd grade passage for one minute while his/her accuracy and reading rate are determined.

2. Weeks 2-9-Your child will watch a series of *Arthur* videos from PBS for 10-15 minutes, 4 days week during their Accelerated Reading time. Your child may or may not view these videos with the closed-captioning option on.

3. Week 10- Your child will again be given three short oral reading fluency assessments by trained evaluators. This test allows your child to read portions of a 2nd grade passage for one minute while his/her accuracy and reading rate are determined.

Time required for this study

This study will take about 3 minutes per child during week 1 and week 10 and approximately 1 hour each week during weeks 2-9. This will be an approximate time of 8 hours and 6 minutes total.

Possible risks from participation

Please see the Confidentiality section for information on how we minimize the risk of a breach of confidentiality, which is the only risk anticipated with this study.

Benefits from participation

Your child should not expect benefits from participating in this study. However, you and your child might experience satisfaction from contributing to scientific knowledge.

Incentives

Your child's class will receive a set of *Arthur* books as well as a pizza party at the end of the 10-week research period.

Confidentiality

Research team members will have access to records from this study. We will protect confidentiality by coding and then physically separating information that identifies you and your child from your responses (which is even safer than how medical records are stored today).

Members of the Institutional Review Board (IRB) – the committee responsible for reviewing the ethics of, approving, and monitoring all research with humans – have authority to access all records. However, the IRB will request identifiers only when necessary. We will not release identifiable results of the study to anyone else without your written consent unless required by law.

Right to Withdraw

Your child does not have to participate in this study, and there is no penalty if he/she refuses. If your child begins the study and either you, as the guardian, or your child decides that they do not

want to participate, please let the lead researcher know. Whether or not your child participates or withdraws will not affect classroom grades.

The researchers may stop your participation and your child's participation in the study without your consent and for any reason, such as protecting the integrity of the research data.

IRB Approval

This study has been reviewed by The University of Mississippi's Institutional Review Board (IRB). The IRB has determined that this study fulfills the human research subject protections obligations required by state and federal law and University policies. If you have any questions or concerns regarding your rights or your child's rights as a research participant, please contact the IRB at (662) 915-7482 or irb@olemiss.edu.

Please ask the researcher if there is anything that is not clear or if you need more information. When all your questions have been answered, then decide if you want your child to be in the study or not.

Statement of Consent

I have read the above information. I have been given a copy of this form. I have had an opportunity to ask questions, and I have received answers. I consent to allow my child to participate.

Furthermore, I also affirm that the experimenter explained the study to me and told me about the study's risks as well as my right and my child's right to refuse to participate and to withdraw, and that I am the parent/legal guardian of the child listed below.

_____   _____
Signature of Parent/Legal Guardian   Date

_____   _____
Printed name of Parent/Legal Guardian   Printed name of Child

NOTE TO PARTICIPANTS: DO <u>NOT</u> SIGN THIS FORM

IF THE IRB APPROVAL STAMP ON THE FIRST PAGE HAS EXPIRED

APPENDIX B: CHILD ASSENT FORM

CHILD ASSENT REQUIREMENTS AND MODELS FOR ASSENT

I. Oral Assent Script with Record of Child's (Aged 7-13) Response

I would like to ask you to help me with a project that I am doing at The University of Mississippi/Ole Miss. If you agree, you would read a portion of 6 different 2nd grade passages and watch a series of Arthur videos during your AR time over the next 8- 10 weeks.

What questions do you have about what you will do for me?

Will you do this?

Name: _____ Date: _____ Response: ❑ YES   ❑ NO

Kristina Ard Livingston

EDUCATION

Doctor of Education   **May 2017**
University of Mississippi
Dissertation title: "The Effects of Closed-Captioned Television on the Oral Reading Fluency
                 of Low Socioeconomic 2nd Grade Students"

Master of Education   **December 2011**
University of Mississippi

Bachelor of Arts in Education   **May 2008**
University of Mississippi

WORK EXPERIENCE

Professional Development Coordinator Lead   July 2016-Present
University of Mississippi/ Mississippi Department of Education
- Served as lead over fourteen professional development coordinators and four implementation specialists
- Organized professional development across the state in the areas of literacy, science, special education, ELA, mathematics, and EL
- Assisted districts in selecting appropriate professional development to meet the needs of their teachers/students
- Provided professional development coordinators with opportunities to grow and develop as instructional leaders
- Utilized data from participant evaluation forms to determine the most relevant professional development needed to add to the Menu of Services

Professional Development Coordinator/Literacy Coach   Aug 2014-June 2016
University of Mississippi/Department of Education

- Provided effective literacy professional development across the state
- Served as an instructional coach for grades PreK-3 for literacy support schools
- Utilized the gradual release of responsibility to build teacher capacity
- Worked with administrators to dissect data and assist in school-wide planning for building teacher and student success

Adjunct Instructor   Fall 2012 & 2013

University of Mississippi   University, MS
- Provided instruction for the Reading Diagnosis and Intervention class
- Trained pre-service teachers on conducting an Analytical Reading Inventory
- Provided opportunities for students to work in cooperative groups and plan appropriate research-based interventions
- Instructed students on the Response to Intervention model
- Lead students in the selection, implementation, and reflection of various reading interventions

School Intervention Specialist   Aug 2008-July 2014

North Panola School District Como, MS
- Provided data-driven Tier II and Tier III interventions five days a week to K-5 students determined to be at greatest risk
- Trained teachers on how to implement effective reading and math interventions based on data
- Leader of the school-wide assessment team
- RTI Coordinator
- School leader of the Schoolwide Integrated Framework for Transformation (SWIFT)

CONFERENCE PRESENTATIONS

"Focus on Phonics: Components of an Effective Phonics Lesson"
Making Connections Conference   Biloxi, MS   June 2016

"Components of Reading: Interventions that Work"
Making Connections Conference   Biloxi, MS   June 2015

"Writing and the Common Core"
MAE Literacy Conference   Jackson, MS   Sept 2014

PROFESSIONAL MEMBERSHIPS

American Educational Research Association (AERA)
International Literacy Association (ILA)
Mississippi Professional Educators (MPE)